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Editorial

This edition of *NIU Journal of Social Sciences* focuses on Development Administration, Social Psychology, Journalism and Media Studies.

The first part of the Journal addresses issues in Development Administration such as Poverty, Alleviation, Fiscal Policy, Institution Building, Security or Intelligence Management, Welfare Services, Rural Development and Good Governanace. It is established in one of the papers that a positive and statistically significant interactive effect of corruption and accountability on poverty reduction, confirming the role of accountability as a strong moderator necessary to cushion the negative effect of corruption in the society. The paper recommends therefore, that governments should prioritize ethics and integrity in public service delivery. This includes establishing ethical norms, offering thorough anti-corruption training, and cultivating an integrity culture among public employees. Implementing procedures to require public officials to declare their assets, enforcing conflict-of-interest legislation, and encouraging ethical leadership can all help to reduce corruption and improve public service delivery.

Papers in the second section are on Journalism and Media Studies. Using how to report Terrorism in the era of Politics and Electioneering in Nigeria as its focus, one of the papers in these sections argues that reporting terrorism is a difficult task on the part of the reporter who sometimes finds himself/herself in a dilemma as he is faced with the task of reporting facts (not fiction) amid ensuring that the media organization is not offended. To tackle this problem, the paper, therefore, recommends reduction of poverty and inequality, promotion of justice and fairness and the rule of law, greater participation in governance, and improvement in intelligence gathering among others.

In last section on Social Psychology, one of the papers discusses peer group and family background as correlates of indiscipline among adolescent students in Ovia North East Local Government Area of Edo State, Nigeria. According to the paper, peer group influence and family background significantly influences indiscipline among adolescent students. The paper suggests that parents should always inculcating the right moral values in their children by conforming to societal norm themselves so that they will not influence their wards negatively.

On the whole, this issue of *NIU Journal of Social Sciences* features many interesting research papers. Some of these papers are empirical in nature while others have theoretical base. Each of them focuses on one specific social and management problem or the other; trying to proffer

solutions to them. Readers are therefore advised to make proper use of the ideas presented by the various authors.

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Part One

Development Administration



Corruption and Poverty Level in Nigeria: Does Accountability Mediate the Effect?

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Abstract. Nigeria has been a subject of extensive scholarly inquiry and international attention concerning the adverse effects of corruption on its socio-economic fabric. This study delves into the complex relationship between corruption, accountability and poverty reduction in Nigeria by investigating whether accountability serves as a mediator in the effect of corruption on poverty level in Nigeria. Thus, this present study centres on the interactive effect of corruption and accountability on poverty level in Nigeria using secondary data for the periods of 1984 to 2022. The results of the Dynamic Ordinary Least Squares (DOLS) and Fully Modified Ordinary Least Squares (FMOLS) showed that, individually, corruption significantly increase poverty level in Nigeria, but when we considered the moderated effect, accountability mitigates the negative effect of corruption by reducing poverty level in Nigeria. The findings reveal a positive and statistically significant interactive effect of corruption and accountability on poverty reduction, confirming the role of accountability as a strong moderator necessary to cushion the negative effect of corruption in the society. The findings from this study have significant policy implications for Nigerian governments and policymakers as well as the international organizations involved in promoting good governance, accountability and poverty reduction. Policymakers can take a cue from the findings which underscore the importance of strengthening accountability and anti-corruption measures, by highlighting the need for comprehensive and effective anti-corruption strategies in Nigeria.

Keywords: Corruption; Poverty; Accountability; Nigeria; DOLS.

1. Introduction

Many developing countries still struggle with widespread corruption, which has a negative impact on human well-being, social development, and economic growth. The interconnected problems of corruption and poverty have endured as important roadblocks to advancement in Nigeria, a nation blessed with an abundance of natural resources and a sizable and youthful population. The goal of this study is to examine the tricky connection between poverty and corruption in Nigeria, with a focus on the mediating function of accountability measures. Exploring the potential mitigating impacts of accountability in this situation is vital since corruption is a problem that affects people all around the world. It not only destroys public trust but also keeps people in poverty.

Nigeria has been a subject of extensive scholarly inquiry and international attention concerning the adverse effects of corruption on its socio-economic fabric (Ajisafe, 2016; Ikubaje, 2014; Obazee, 2014). According to Transparency International's Corruption Perceptions Index (CPI) in 2020, Nigeria ranked 149th out of 180 countries, highlighting the persistent challenges associated with corruption in the nation. Furthermore, the World Bank reports that despite its vast oil wealth, over 40% of Nigeria's population lives in extreme poverty, emphasizing the grim consequences of corruption on income distribution and wealth disparities (Okunade, et. al., 2023; Okunade, 2022; Adeleye & Eboagu 2019).

This research contends that accountability mechanisms play a pivotal role in mediating the effect of corruption on poverty levels in Nigeria. Accountability, encompassing transparency, good governance, and effective oversight institutions, can

act as a buffer against corrupt practices that divert public resources from essential services and social safety nets. By elucidating the interconnected dynamics between corruption, poverty, and accountability, this study aims to provide insights into the potential pathways for reform and policy interventions that can alleviate the plight of Nigeria's impoverished citizens. Corruption has long been recognized as a pressing issue in Nigeria, with its deleterious consequences on various facets of society. Among these consequences, the link between corruption and poverty has been of particular concern (Osabohien, Matthew, Ohalet, & Osabuohien, 2020).

The existing literature has extensively documented the detrimental impact of corruption on poverty levels in Nigeria (Aderemi, Amusa, Elufisian, & Abalaba, 2020; Adebayo, 2018; Ajie, & Wokekoro, 2012; Andrew, 2016). However, there is a gap in our understanding of the mediating role of accountability mechanisms in this relationship (Carrison, 2016). Therefore, this research aims to address the following problem statement: "While it is widely acknowledged that corruption exacerbates poverty in Nigeria, the specific mechanisms through which accountability mediates the effect remain inadequately explored. This research seeks to investigate whether accountability mechanisms act as a mitigating force in the relationship between corruption and poverty in Nigeria, and if so, to what extent and by what means."

To investigate these critical issues, this research employs a multidisciplinary approach, drawing upon insights from economics, political science, and public administration. By analysing empirical data, conducting surveys, and examining case studies, this study seeks to contribute to the existing body of knowledge on corruption and poverty while shedding light on the role of accountability mechanisms in mitigating these challenges.

In the subsequent sections of this research, we will look deeper into the theoretical frameworks underpinning the relationship between corruption and poverty, explore the mechanisms through which accountability can mediate this relationship, and present the findings of our empirical analysis. Through this comprehensive examination, we aim to provide policymakers, scholars, and practitioners with valuable insights into the complex web of corruption, poverty, and accountability in Nigeria and, by extension, in other nations grappling with similar challenges.

2. Literature Review

Conceptually, corruption, defined as the misuse of public power for personal gain, has been recognized as a significant impediment to economic development and poverty reduction in Nigeria. The theoretical foundation for this relationship can be traced to seminal works like Paul Mauro's study in 1995, which emphasized how corruption distorts resource allocation, deters foreign investment, and reduces economic growth. By siphoning off public funds and distorting the functioning of public institutions, corruption disproportionately affects the poor, hindering their access to essential services and opportunities for economic advancement.

Accountability mechanisms, encompassing transparency, good governance, and effective oversight institutions, are pivotal in mediating the impact of corruption on poverty. These mechanisms provide the theoretical framework for understanding how accountability can serve as a counterbalance to corruption. Transparency in government processes and decision-making ensures that public resources are allocated fairly and efficiently, reducing opportunities for corrupt practices. Accountability mechanisms can empower civil society and the media to scrutinize government actions, thereby fostering a culture of openness and integrity (Bamgboye, 2018; Carrison, 2016). Effective oversight institutions, such as anti-corruption agencies and independent audit bodies, play a crucial role in deterring corrupt behaviour by holding individuals and organizations accountable for their actions. These institutions contribute to the theoretical construct of accountability by providing checks and balances against corruption (Ni & Sutrisno, 2019).

Theoretically, different perspectives provide valuable insights into different facets of this complex issue. Here are a few theoretical perspectives that are particularly relevant: structural-functionalism theory posits that society is a system of interconnected parts, and each part plays a role in maintaining the stability and functioning of the whole. In the context of Nigeria, this theory could be used to analyse how corruption disrupts the functional aspects of the society by misallocating resources meant for poverty alleviation, thereby destabilizing the socio-economic system. Accountability mechanisms can then be seen as mechanisms that restore the stability of the system by reducing corruption's negative impacts. Also, institutional theory focuses on the role of formal and informal institutions in shaping human behaviour (Ajisafe, 2016; Ni & Sutrisno, 2019). In Nigeria, this theory can be used to examine how the institutional

environment, including legal and regulatory frameworks, influences the prevalence of corruption and the effectiveness of accountability mechanisms. It can be used to explore how changes in institutions, such as the establishment of anti-corruption agencies, impact corruption levels and poverty.

Mediating the effect of corruption on poverty, theoretical perspective suggests that accountability mechanisms can mediate the relationship between corruption and poverty in Nigeria. When accountability is strengthened, corrupt practices are more likely to be detected and penalized (Alimi & Okunade, 2020; Ukwayi et al. 2019; Ajisafe, 2016). This, in turn, can lead to improved resource allocation and service delivery, ultimately benefiting the impoverished segments of the population (Gotep, 2017). For example, robust anti-corruption agencies can act as deterrents against corrupt officials, reducing embezzlement and misallocation of funds meant for poverty-alleviation programs. Transparent public procurement processes can ensure that resources are channelled more efficiently into projects that directly impact the poor. Additionally, an independent judiciary can ensure that those involved in corrupt acts face legal consequences, further deterring corruption and safeguarding public resources (Adegbite, 2018; Ajisafe, 2016).

On the other hand, numerous empirical studies have highlighted the adverse effects of corruption on poverty levels in Nigeria. Research by Olawale and Garba (2018) utilized household survey data and found that corruption significantly reduces access to basic services such as education and healthcare, disproportionately affecting the poor. The study revealed a direct link between corrupt practices, such as embezzlement of public funds meant for poverty alleviation programs, and increased poverty rates. Another empirical study conducted by Nwokoma (2017) examined the impact of corruption on income inequality in Nigeria. The findings indicated that corruption exacerbates income disparities, with the wealthiest individuals benefiting from corrupt practices while the poorest segments of the population bear the brunt of reduced access to public services and opportunities for economic advancement. An empirical study has also explored the effectiveness of accountability mechanisms in combating corruption and alleviating poverty in Nigeria. A study by Ogbuabor et al. (2020) assessed the impact of Nigeria's anti-corruption agencies, such as the Economic and Financial Crimes Commission (EFCC), on reducing corruption. The research found that these agencies have had some success in prosecuting corrupt individuals and recovering stolen

assets, suggesting a positive role for accountability institutions.

Furthermore, an empirical study by Ukwayi et al. (2019) investigated the relationship between transparency in public procurement processes and the allocation of resources for poverty reduction programs. The findings indicated that greater transparency in procurement was associated with a more equitable distribution of resources, ultimately benefiting impoverished communities. Empirical research has investigated the effectiveness of poverty reduction programs in Nigeria, providing insights into how these initiatives interact with corruption and accountability. For instance, a study by Onimawo et al. (2019) examined the National Social Investment Program (NSIP) in Nigeria, which includes programs like the Conditional Cash Transfer (CCT) aimed at reducing poverty. The study found that despite its potential to alleviate poverty, the NSIP faced challenges related to mismanagement and corruption, which hindered its impact.

Additionally, a study by Adegbite et al. (2018) explored the role of community-driven development (CDD) programs in poverty reduction in Nigeria. CDD programs empower local communities to manage development projects, potentially reducing the risk of corruption and misallocation of resources. The research indicated that effective implementation of CDD programs could contribute to poverty reduction by ensuring that resources reach marginalized communities. A study by Ojo et al. (2021) examined the effects of the Treasury Single Account (TSA) policy in Nigeria, which aimed to consolidate government accounts and improve transparency in public finance management. The research found that the TSA policy led to enhanced accountability and reduced opportunities for corrupt practices in the management of public funds. In a related study by Alemika and Chukwuma (2017) evaluated the role of civil society organizations (CSOs) in holding government accountable for corrupt practices. The study highlighted the positive influence of CSOs in exposing corruption scandals and advocating for transparency and accountability measures. This suggests that civil society engagement can be an essential component in mediating the effect of corruption on poverty.

Williams and Andrew (2021) examines the extent to which the level of transparency influences public procurement practices in the Nigerian Civil Service. A survey research design was adopted. The staff members of the public procurement department/unit of the different federal government ministries in

Abuja made up the population of the study. The simple regression result shows that public procurement practices are significantly and positively related to the level of transparency. Based on the findings, the study recommends that impartiality and fairness should be enshrined in the public procurement system in Nigeria so as to maximize the use of available resources.

It is important to note that while empirical studies provide valuable insights, they also reveal challenges and limitations in addressing corruption and poverty in Nigeria. These challenges include the persistence of deeply entrenched corrupt practices, the need for sustained efforts to strengthen accountability institutions, and the complexities of poverty dynamics in a diverse country like Nigeria (Ni & Sutrisno, 2019). While limited empirical research directly assesses the mediating role of accountability mechanisms in the corruption-poverty relationship, the aforementioned studies indirectly support the theoretical framework that accountability can mediate this relationship. Effective anti-corruption agencies and transparent procurement processes, as highlighted in the empirical evidence, can potentially mitigate the impact of corruption on poverty by reducing embezzlement, misallocation of resources, and income disparities.

The empirical evidence from research conducted in Nigeria underscores the multifaceted nature of the relationship between corruption, poverty, and

accountability. While corruption exacerbates poverty by diverting resources and reducing access to essential services, accountability mechanisms and poverty reduction programs offer potential avenues for mitigating these adverse effects. The impact of these initiatives, as demonstrated by empirical studies, underscores the importance of continued research and policy efforts to enhance accountability and alleviate poverty in Nigeria.

3. Methodology and Data Issues

3.1 Data Issues and Sources

The study examines the mediating effect of accountability on the relationship between corruption on economic growth, income distribution, and poverty level in Nigeria using secondary data for the periods of 1984 to 2022. The choice of 1984 as the start date is informed by data availability on corruption and accountability from International Country Risks Guide (ICRG). Table 1 shows the description and measurement of variables of interest as well as their sources. However, following the direct effect model in line with Ajisafe (2016) emphasizes the direct effect of corruption on poverty level, economic growth, and income distribution. Corruption may exert either a positive or negative effect on poverty depending on how its proceeds are utilized and invested (See Ajisafe, 2016; Chetwynd *et al.*, 2003).

Table 1: Data Description, Measurements and Sources

S/N		Description/Measurements	Source
1	POV	Households and NPISHs Final consumption expenditure per capita growth (annual %)	WDI, 2023
2	COR	Corruption index	ICRG, 2022
3	ACC	Accountability Index	ICRG, 2023
4	BUR	Bureaucracy Index	ICRG, 2024
5	FID	Domestic credit to private sector by banks (% of GDP)	WDI, 2023
6	INF	Inflation, consumer prices (annual %)	WDI, 2023
7	COR*ACC	Interaction term	Authors

Source: Authors' Compilation

3.2 Empirical model

In line with theoretical foundation of this study and in line with extant studies in the literature (Goutte, Thomas & Thomas, 2021; Ali, Fjeldstad, & Shifa, 2021; Ni & Sutrisno, 2019; Ellis, 2015), we begin by investigating the direct effect of corruption on poverty level in Nigeria by estimating the baseline model explicitly specified equation 1 in line with Ajisafe (2016), thus:

$$Pov_t = f(Cor_t, Acc_t, X_t) \tag{1}$$

Where POV_t is poverty reduction at time t , Acc_t is Accountability and X'_t is a vector of other control variables such as bureaucracy in government (BUR), financial development (FID), and inflation rate (INF_t) respectively. The functional dependence is specified in Equation 2:

$$Pov_t = \alpha_i + \beta_1 Cor_t + \beta_2 Acc_t + \beta_3 Bur_t + \beta_4 FID_t + \beta_5 Inf_t + \mu_t \tag{2}$$

where μ_t is the white noise error term. To account for the mediating role of accountability, we modified Equation 2 by including the interaction terms. This is presented in Equation 3:

$$Pov_t = \alpha_i + \beta_1 Cor_t + \beta_2 Acc_t + \beta_3 Cor_t * Acc_t + \beta_4 Bur_t + \beta_5 FID_t + \beta_6 Inf_t + \mu_t \quad 3$$

Where $Cor_t * Acc_t$ is the coefficients of the interaction terms.

3.3 Method of Analysis

One of the methods to address issues in time series data analysis such as serial correlation, and endogeneity issues, is the Dynamic Ordinary Least Square (DOLS) or Fully Modified Ordinary Least Square (FMOLS) (Yorucu & Kirikkaleli, 2017; Kirikkaleli, 2016; Yorucu & Bahramian, 2015). The DOLS method is built on the standard error that adopts a parametric covariance matrix estimator that yields adjusted heteroskedasticity and autocorrelation that are robust to spatial and all forms of dependence, while FMOLS is a nonparametric test. The parametric DOLS is preferred over the nonparametric FMOLS because it imposes additional requirements that all variables be integrated in the same sequence, I(1) in contrast to the nonparametric FMOLS, which is the case in this study. Thus, DOLS estimates are reported as the baseline model for this parametric study. However, the FMOLS is also reported for comparison and robustness.

4. Results and Discussion

4.1 Preliminary Analyses

It is crucial to analyse the normalcy, distribution, and degree of multicollinearity among variables before performing model estimations (Okunade, 2022; Okunade, Ajisafe & Adedokun, 2017; Ajisafe & Okunade, 2016). The statistical features of our data are presented in Table 2. The results presented in Table 2 showed that the means of all variables employed lie between the minimum and maximum values, indicating that our data series are consistent. In terms of variability, it is discovered that inflation rate is the most volatile among the variables, followed by poverty reduction proxied by annual households and NPISHs final consumption expenditure per capita growth (%) with standard deviations of 16.9% and 14.59% respectively. The probability of Jarque-Bera statistics showed that most of the variables employed in the study were not normally distributed, which is the case for most economic variables of less developed countries like Nigeria. Also, we present the results of the correlation matrix in Table 3 where the degree of multicollinearity among the independent variables was examined. The examination of the correlation matrix shows that none of the pairs of the regressors has a value higher than 60%. Hence, we conclude that there is no problem of multicollinearity in the model.

Table 2: Descriptive Characteristics of the variables

	POV	COR	ACC	BUR	FID	INF
Mean	3.569460	1.589744	3.273718	1.149573	9.607603	19.07783
Median	-1.014335	1.500000	3.166667	1.000000	8.425299	12.87658
Maximum	55.21725	2.000000	6.050000	2.000000	19.60353	72.83550
Minimum	-18.23245	1.000000	0.500000	0.000000	4.948032	5.388008
Std. Dev.	14.59240	0.343797	1.252384	0.498235	3.513530	16.97716
Skewness	1.263025	-0.237778	0.074622	0.327851	0.948878	1.829618
Kurtosis	5.248578	2.125763	3.204799	3.448598	3.620574	5.123914
Jarque-Bera	18.58518	1.609472	0.104351	1.025678	6.478213	29.08915
Probability	0.000092	0.447206	0.949162	0.598793	0.039199	0.000000
Obs.	39	39	39	39	39	39

Source: Authors' Compilation, 2023

Table 3: Correlation matrix of the variables

	COR	ACC	BUR	FID	INF
COR	1.0000				
ACC	-0.3526	1.0000			
BUR	0.5725	-0.3186	1.0000		
FID	-0.3898	0.5645	-0.3163	1.0000	
INF	0.4763	-0.1911	0.5216	-0.3294	1.0000

Source: Authors' Compilation, 2023

4.2 Interactive Effect of Corruption and Accountability on Poverty Reduction

The paper examines the interactive effect of corruption and accountability on poverty reduction in Nigeria. To this end, the study adopts the DOLS method to estimate the model in Equation 3. The empirical results of the baseline model are presented in Table 4 while the results of the FMOLS as a robustness check are presented in Table 5. The results of both the DOLS show that corruption has significant negative effect on poverty reduction in Nigeria. This finding implies that control of corruption does not facilitate poverty reduction individually in Nigeria. Similar findings were reported on the individual effects of accountability on poverty reduction which has enhances poverty rate. The results also imply that the institutional quality is underdeveloped in Nigeria to ensure poverty reduction in Nigeria.

However, when the effects of corruption were moderated by accountability by interacting corruption control with accountability index, the findings became desirable. The results showed that the coefficient of the interaction terms has a stronger and more significant negative effect on poverty level in Nigeria. This finding implies that institutional quality such as accountability needs to be well developed to mitigate the negative effect of corruption on poverty in Nigeria.

This empirical evidence buttresses the conclusion of extant studies (See Goutte et al., 2021; Ali, et al., 2021; Michalopoulos & Papaioannou, 2020;

Acemoglu et al. 2014) that there seems to be a strong link between corruption and poverty. The study implies that policymakers in Nigeria should investigate not just the socioeconomic and political circumstances in which the institutions of interest function, but also the institutional culture among actors. This is required to strengthen the institutionally weak economies to conduct a comprehensive reform program aimed at reducing corruption in Nigeria. This would ultimately reduce the prevalence of poverty in the land. The discovery supports the widely held belief in the literature that corruption stifles economic progress by inhibiting both internal and external productive investment, as well as inhibiting entrepreneur manpower development, which in turn, leads to increased poverty (Yusuf, et al. 2014). It is worth noting that the results of the nonparametric test (FMOLS) in Table 6 are slightly different. The issues with nonparametric nature of FMOLS may be the difference.

This finding also supports the claim of McFerson (2009) that evidence from several African countries demonstrates the 'paradox of plenty' in which widespread poverty coexists with abundant valued mineral resources as a result of a high level of corruption in these countries. The evidence also supports the conclusion of Transparency International (2020) that corruption is impeding economic, political, and social growth in Francophone African countries. It is a huge impediment to economic progress, effective governance, and basic freedoms such as free expression and the ability of individuals to hold governments accountable (Transparency International, 2020).

Table 4: Results of Dynamic Least Squares (DOLS): Dependent Variable: POV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COR	-195.1817**	94.9026	-2.056653	0.0401
ACC	73.45475	112.4853	0.653016	0.5272
COR*ACC	53.40333**	14.49628	3.683933	0.0248
BUR	62.75061	54.36242	1.154301	0.2728
FID	-1.497194	1.752657	-0.854242	0.4112
INF	-0.598008**	0.242495	-2.466063	0.0492
C	237.7272	314.8752	0.754989	0.4661
R-squared	0.852743	Mean dependent var		2.763385
Adjusted R-squared	0.741272	S.D. dependent var		14.77284
S.E. of regression	19.49384	Sum squared resid		4180.108
Long-run variance	111.7334			

Note: *** p<0.01, ** p<0.05, * p<0.1

Table 4: Fully Modified Least Squares (FMOLS): Dependent Variable: POV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COR	23.37407	31.64448	0.738646	0.4657
ACC	20.95019	16.97574	1.234125	0.2264
COR_ACC	-12.65553	10.60266	-1.193618	0.2417
BUR	-0.280964	7.197936	-0.039034	0.9691
FID	-0.207173	0.558085	-0.371220	0.7130
INF	0.536170**	0.149276	3.5918031	0.0101
C	-36.71810	48.51564	-0.756830	0.4549
R-squared	0.841721	Mean dependent var		3.574351
Adjusted R-squared	0.743753	S.D. dependent var		14.78825
S.E. of regression	15.81550	Sum squared resid		7754.027
Long-run variance	86.16293			

Note: *** p<0.01, ** p<0.05, * p<0.1

5. Conclusion and Policy Recommendations

We conduct a distinct analysis of the interactive effect of accountability in the relationship between corruption and poverty in Nigeria for the period of 1984 to 2022. We employed Dynamic Ordinary Least Squares (DOLS) and Fully Modified Ordinary Least Squares (FMOLS) to probe the effect and the key findings provided evidence supporting the mediating role of accountability in the corruption-poverty nexus. Our findings revealed that, individually, corruption significantly increases poverty level in Nigeria, but when we considered the moderated effect of accountability, the effect of corruption were mitigated in Nigeria. The findings reveal a positive and statistically significant interactive effect of corruption and accountability on poverty reduction proxied by annual households and NPISHs final consumption expenditure per capita growth (%), confirming the role the role of poverty as a clog in the wheel of progress, and the essential role of accountability in Nigeria.

The findings from this study have significant policy implications for Nigerian governments and policymakers as well as the international organizations involved in promoting good governance, accountability and poverty reduction. Policymakers can take a cue from the findings which underscore the importance of strengthening accountability and anti-corruption measures, by highlighting the need for comprehensive and effective anti-corruption strategies in Nigeria. To combat corruption at all levels, governments should emphasize the adoption of strong legislative frameworks, institutional changes, and anti-

corruption institutions. This involves strong sanctions for corrupt practices as well as accountability and openness in public institutions. African countries should work on developing governance structures and strengthening accountability systems in order to improve governance and accountability. This includes promoting transparency in government, encouraging citizen participation, and developing channels for reporting and correcting corruption situations. Additional efforts should be made to strengthen the judiciary's independence and effectiveness in addressing corruption.

Given the obvious link between corruption and poverty, governments and development partners should emphasize poverty-relief programs and social safety nets. These programs should target the most vulnerable populations and give access to high-quality education, healthcare, safe drinking water, and sanitation. The creation of sustainable livelihood opportunities should also be prioritized in order to raise individuals and communities out of poverty. Regional organizations and bodies can play an important role in organizing and supporting such projects. Governments should prioritize ethics and integrity in public service delivery. This includes establishing ethical norms, offering thorough anti-corruption training, and cultivating an integrity culture among public employees. Implementing procedures to require public officials to declare their assets, enforcing conflict-of-interest legislation, and encouraging ethical leadership can all help to reduce corruption and improve public service delivery. Combating corruption and decreasing poverty would not only benefit individuals and communities, but

will also promote economic progress, social cohesion, and long-term stability in the region.

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Assessment of Kaduna State Primary Health Care Board Financial Management Capacity on Primary Health Care Service Delivery in Kaduna State, Nigeria

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Abstract. The establishment of the Kaduna State Primary Healthcare Board was passed into law in 2015 to tackle fragmentation in primary healthcare and ensure preventive healthcare services are accessible and affordable to all. The institutional capacity of the SPHCB is aimed at tackling several issues, including poor release of funding, poor infrastructural services, inadequate health personnel capacity, poor supply of essential drugs and other commodities, poor referral system, poor monitoring, and supervision affecting the PHCs across the state. The paper specifically assesses the financial management capacity of the SPHCB in ensuring the funding of PHC services across the health centres. Both primary and secondary data were used and analysed using descriptive and inferential statistical tools. Linear regression analysis was used in testing the hypothesis postulated. It was revealed that the financial capacity has improved the funding for routine immunisation and family planning programmes at the PHCs in the LGAs. A timelier release of funds is necessary to ensure efficiency and transparency in PHC service delivery.

Keywords: Financial management, PHC, service delivery, funding.

1. Introduction

Every nation around the globe recognises that a healthy nation translates into a wealthy nation. As such, measures have been taken locally, nationally, and internationally to cater to the vulnerable and prevent and manage diseases and illnesses worldwide.

Nigeria, the most populous country in Africa, has a population of 206 million and 107 million children. The country has one of the world's highest maternal and neonatal mortality rates, with over 40,000 maternal deaths occurring yearly. 1 in every 22 women stands the lifetime risk of dying in pregnancy and childbirth, which is higher than anywhere else in Africa or the world. Despite Nigeria's level of economic development, it has fallen short in saving the lives of women and newborns from preventable deaths during pregnancy and delivery (FMOH, 2018). Disparities in survival rates exist according to children's geographical location and socioeconomic characteristics. The under-5 mortality rate is highest in Kebbi in the Northwest (252 deaths per 1,000 live births) and lowest in Ogun in the Southwest (30 deaths per 1,000). About 32% of children under age five in Nigeria are stunted or too short for their age. Seven per cent are wasted (too thin for height). The 2018 National Demographic Health Survey recorded a maternal mortality ratio of 512 deaths per 100,000 live births, and this means that approximately 5 out of 1,000 women die during pregnancy, childbirth, or within 42 days after childbirth from causes related to or made worse by childbirth. The report also estimated an infant mortality rate of 67 deaths per 1,000 live births, a neonatal mortality rate of 39 deaths per 1,000 live births, and an under-5 mortality rate of 132 deaths per 1,000 live births. To put this into context, this translates into more than 1 in 8 children in Nigeria dying before their 5th birthday. Rural children have higher levels of stunting at 45%, wasting at 8%, and underweight at 28%, compared to urban children at 27%, 5% and 15%, respectively (UNICEF, 2020).

As such, section 17 of the 1999 Constitution of the Federal Republic of Nigeria (as amended) obligates the government to direct its policies to ensure adequate medical and health facilities for all persons, ensure that the health, safety, and welfare of all persons in employment are not endangered or abused. In 2016, the Federal government passed the National Health Bill into law, which seeks to promote accessible, affordable, available, and qualitative access to healthcare services at all levels in Nigeria. Health is on the concurrent legislative list; by implication, the three tiers of government are vested with the responsibility to promote health in the country. According to the Constitution, federal, state, and local governments shall support in a coordinated manner a three-tier of health care: Primary Health Care (PHC) for local governments, Secondary health care for State governments, and Tertiary health care for Federal government. However, this has never been fully operationalised, and tertiary hospitals in Nigeria still manage a large patient load of cases that can easily be managed in primary healthcare centres. Referral pathways are generally underdeveloped (Nigeria Health Watch/CODE 2020).

The states perform the function of providing secondary health care services. The State Ministry of Health is charged with providing PHC support (planning, training, programming, financial and operational support) and other responsibilities in the national health policy. The Federal Ministry of Health, however, acted as a consultant to strengthen the capacity of the state to perform efficiently and effectively and to be reorganised along the lines of maximum efficiency for PHC. (NPHCDA 2012).

The power to provide preventive, curative, and quick health care services is vested in the Local Government through its primary health care centres. This is in line with the Alma Ata declaration in 1978, where representatives of 134 nations declared that PHC is the key to attaining health for all by the year 2000 and that it should be adopted by all member states of the WHO (WHO, 2000). The goal of the National Health Policy is to bring about a comprehensive health care system based on primary health care that is promotive, protective, preventive, restorative, and rehabilitative to all citizens within the available resources so that individuals and communities are assured of productivity, social well-being and enjoyment of living.

The National Primary Health Care Development Agency was established to provide leadership that supports the promotion and implementation of high-quality, sustainable primary health care for all. It is mandated to provide technical and programmatic

support to states and LGAs on developing PHC in Nigeria. In addition to this, partnership and development of community-based systems and functional infrastructure, as well as ensuring that infants are fully immunised against vaccine-preventable diseases before attaining the age of twelve months, are included. To tackle the problem of fragmentation of Primary healthcare services and ensure better articulation of programs, the State Primary Health Development Agency comes up with a series of policies and initiatives to ensure equitable primary healthcare services at the grassroots level.

The Kaduna State Primary Health Care Board was established in 2010 to improve the development of primary health care and primary healthcare facilities (Integrating Primary Health Care Governance in Nigeria 2013). The State agency is given the power to review the existing health policies, particularly regarding their relevance in the development of primary health care, and to ensure effective community involvement and participation in all primary health care activities from inception to implementation stage (NPHCDA 2012). In 2015, the law establishing the agency was reviewed to capture the 2011 PHC Under One Roof (PHCUOR) policy. This policy was formulated as part of the strategy aimed at reducing the problem of fragmentation in the delivery of Primary Health Care (PHC) services by integrating all PHC services under one authority.

The Kaduna State Government has implemented strategies and measures to strengthen and reposition the SPHCB to enhance PHC service delivery in the state. Part of these measures is boosting the financial capacity of the SPHCB by opening a dedicated account for the SPHCB with all the signatories drawn from the SPHCB management team. Also, the State Government Approved Budget for the PHCDB in 2016 stood at N3.687 billion or 28% of the total health budget allocation. In 2017, it was increased to 12.049 billion or 50.5% 2017 to further strengthen the board in overseeing primary health care service delivery. There was a decline in 2018 to N9.645 billion or 27.7% and a further decline to N8,418 billion or 34.2% in 2019 of the total health budget. 2020 saw an increase to N11,707 billion (DRPC, 2021). On average, the percentage of the PHCDB budget to the total health budget in Kaduna state in five years stood at 33.9%. The budget also captures significant amounts allocated to supply essential MCH drugs, immunisation, and other medicines. The percentage was scaled up to 70% against 60% in 2015. The allocation to immunisation to tackle childhood vaccine-preventable diseases such as poliomyelitis, tuberculosis, measles, diphtheria,

pertussis, tetanus, yellow fever, and hepatitis B, was also scaled to an average of 78.8% on an average between 2016- 2019. Cold chains for immunisation exercises were also made functional in the PHCs across the state This shows a steady commitment on the part of the state government to strengthen and reposition the PHCs in the state in the drive for health for all.

Taking into cognisance the poor PHC service delivery in the state, with only 28% of deliveries being supervised by skilled health professionals and only three PHCs operating 24-hour service in the state, this is an essential emergency obstetric care based on the criteria of the agency (Alabi, 2019), this paper seeks to assess the impact of the state PHCB institutional capacity on primary health care service delivery. Specifically, the study examines the SPHCB Financial management capacity and determines its effect on PHC service delivery in the State.

This paper is divided into six sections, excluding the introductory section for analytical progression. The first section provides conceptual reviews, empirical reviews, and theoretical frameworks, and the second section discusses the institutional capacity of the SPHCB and its financial management capacity. The third section discusses the impact of the SPHCB Institutional financial management capacity on PHC service delivery in Kaduna State. The fourth section is the research methodology, while the fifth section provides data analysis and discussion of findings. The last section is the conclusion and recommendations.

2. Conceptual Review, Empirical Review and Theoretical Framework

2.1 Primary Health Care

In the words of Alma Ata (1978), the concept of PHC is cited in Lucas (2006) is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation, and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It is the preventive and curative healthcare services provided at the grassroots level to ensure accessibility to affordable healthcare.

2.1.1 Components of PHC

There are ten components of the Primary health care. They are as follows:

- i) Health education concerning prevailing health problems. This is an integral part of Primary Health Care. It is an umbrella term used to reorientate health workers' minds towards appreciating the complex nature of health education (Akinsola, 2006). Health promotion comprises efforts to enhance positive health and prevent ill health through health education, prevention, and protection (Downie et al., 1994).
- ii) Promotion of Food supply and Proper Nutrition. In most developing African countries, undernutrition is one of the major factors contributing to infant mortality and morbidity.
- iii) Adequate supply of safe water and basic sanitation
- iv) Maternal and Child Health, including family planning.
- v) Immunization against the major infectious diseases
- vi. Prevention and control of locally endemic diseases;
- vii. Appropriate treatment of common diseases and inquiries;
- viii. Provision of essential drugs;
- ix. Oral health
- x. Mental Health. (NPHCDA 2012)

2.2 Financial Management

Financial management is the process of ensuring optimal procurement, allocation and control of financial resources. It encompasses regular and appropriate provision of funds in the actualization of stipulated goals and objectives. In this regard, it is the process of advocating and mobilising funds to address issues in PHC service delivery.

2.3 Empirical Review

The Financial capacity of the SPHCB in Primary health care is critical in providing PHC services across the state. Riman and Akpan (2012) analysed the linkage between health financing and health outcomes in Nigeria. The study reveals that the infant mortality rate corresponds to high out-of-pocket expenditure and inequitable income distribution. The study further shows that health facilities are concentrated in urban areas to the detriment of rural areas. This implies that financing primary health is crucial in tackling infant mortality and improving the health status of the people, and this study will go further and examine the financial capacity of the coordinating body for PHC service delivery to examine its financial capacity in meeting the 2001 Abuja declaration and overall PHC service delivery.

Anton & Onofrei (2012) argued that a major characteristic of the health sector in less-developed economies is the inadequacy of finance. This is largely due to the poor state of the economy that has caused several governments to adjust the number of resources that go into the health sector. Similarly, Salako (1991), cited in Oyekale (2017), noted that poor funding of the health sector and the purchase of less important expensive drugs has affected healthcare service delivery and availability of drugs at the PHC facilities.

Onisanwa et al. (2018) revealed that government spending on health is a key factor influencing health status in Nigeria. Based on the obtained coefficients, increased government expenditure on health reduced infant mortality. Hence, there is a need for the government to place emphasis on the long-term linkage of health spending and health outcomes by formulating policy and allocating scarce resources to the health sector, thereby resulting in improvement in the quality of health. This will be specific in its assessment of health financing by focusing on the SPHCB in Kaduna by examining its financial capacity in PHC service delivery in Kaduna state.

2.4 Theoretical Framework

Edward Suchman (1967) is often referred to as the founder of the Evaluation Theory. Others include Greenberg (1968), Carol Weiss (1972), Thomas Cook (1978), Peter Rossi (1979) and Lee Cronbach (1980). The justification for this theory is hinged on the fact that the study is an assessment of the institutional capacity of the SPHCB on PHC Service delivery; as such, evaluation theories are considered appropriate. It assists in providing an analytical framework for the analysis of the study.

The idea of Evaluation Theory was first used by Edward Suchman in Colombia to evaluate public health programs in the 1960s. Suchman considered that evaluation must be approached with the logic of the scientific method. He recognizes the role of judgment in evaluation, nothing that values and assumptions affect the formulation of goals. Evaluation is the procedure by which programs are studied to ascertain their effectiveness in fulfilling goals (Greenberg, 1968). It is the systematic, data-based inquiry to determine the merit or worth of a program, product, organization, intervention, or change effort. In essence, therefore, the theory is concerned with the performance evaluation of public institutions or programs. Hatry (2002; 352) asserts that “it is certainly desirable that institutions at any level of government periodically undertake a

comprehensive review of what they are doing and how they are doing it.”

However, Suchman’s Evaluation Theory consists of five performance criteria for assessing organizations or programs. First is the effort, which relates to the quantity and quality of activity, the input/energy, and the attention given with more emphasis on the output. Second is the performance, which deals with effect criteria that measure effort results. Third is the adequacy of performance, which concerns with degree to which performance is adequate to the total amount of need. The fourth is efficiency, which examines the alternative paths or methods in terms of human and monetary costs, and the last criterion is the process, which deals with how and why an organization or a program works or does not work.

The processes, according to Suchman, start with the ‘value formation,’ which he sees as any aspect of a situation, event, or object that is invested with a preferential interest of being good, bad, desirable, or undesirable. The next stage is goal setting, followed by measuring attainment and proper planning stage. The last stage is evaluation; this is where assessment is made to see if the objectives have been achieved.

In relation to this study, the establishment of the SPHCB by the government is the ‘value formation’ because it will go a long way in improving primary health care delivery at the grassroots level, ensuring efficiency and proper coordination of service delivery to tackle alarming rates of maternal and child mortality in the country. The goal-setting in this study is the functions of SPHCB, which covers the area of funding, providing leadership, promoting and supporting the implementation of quality and sustainable PHC service delivery through advocacy and resource mobilisation, partnership, capacity building, and collaboration with relevant stakeholders, and proper community engagement. In measuring attainment, there is a need for proper articulation of functions of the SPHCB through its facilities, both human and material. Participation and involvement of local communities are paramount, and this paves the way for the proper planning stage.

The last stage is the evaluation; this is where assessment is made to see if the objectives and functions of the SPHCB have been achieved. Hence, the relevance of the efforts and initiatives of SPHCB gives room for combating mortality rates, particularly in the rural areas, absence of well-trained health officers, and systematic coordination of Primary health care services.

3. SPHCB Institutional Capacity

The State Primary Health Care Board (SPHCB) is responsible for organising, providing, and managing the Primary Health Care System in Kaduna State. The Board delivers its mandate through 3 Zonal Offices, 23 Local Government Health Authority Offices, and 1,068 Primary Health Care Facilities. The institutional capacities of the SPHCB are cut across funding/financial management, infrastructural development, human resource management, and managerial and community participation, amongst others.

3.1 Financial Management Capacity

In 2011, the PHC Under One Roof (PHCUOR) policy was formulated as part of the strategy to reduce fragmentation in the delivery of Primary Health Care (PHC) services, which involves integrating all PHC services under one authority. With the PHCUOR, it is believed that various issues, such as the poor release of funding, inadequate medical personnel, poor referral system, poor monitoring, etc., will be addressed across the state. Kaduna State has consistently met the 15% allocation benchmark recommended by the 2001 Abuja Declaration on Health over the last five years. The SPHCB ensures that resources are adequately mobilized to enhance PHC service delivery. The funding of the capital and recurrent expenditures is captured in the SPHCB budget.

4. Impact of SPHCB Financial Management Institutional Capacity on Primary Health Care Service Delivery in Kaduna State

Financial capacity for primary healthcare in Nigeria has been a topic of concern, and ongoing efforts to improve access and quality of care. Primary healthcare is considered the first point of contact for individuals seeking healthcare services, and it plays a vital role in promoting health, preventing diseases, and providing basic medical treatment. Funding healthcare involves a huge financial outlay for developing countries in an attempt to operate a sustainable health financing system to the benefit of all stakeholders. The state of health outcomes is a function of the nature of healthcare financing and the behaviour of individuals.

In Nigeria, primary healthcare is primarily funded through various sources, including government allocations, health insurance, donor funding, and out-of-pocket payments by individuals. (Olakunde, 2012). According to Oyefabi, Aliyu, and Idris

(2014), healthcare financing mobilises funds for healthcare services. That is, it is the provision of resources in terms of money or funds to various activities, such as medical and related services, by the government to maintain people's health. Alenoghena, 2014 revealed in a study to examine the management of the Primary Health Care Services in Nigeria using both primary and secondary data that the primary health care program was grossly underfunded and has manifested in the low performance of the PHC facilities. Similarly, low coverage and poor utilization of maternal health care services have been attributed to inadequate funding of PHC services. This is because the pattern of financing health is, therefore, closely connected to health service delivery (Riman & Akpan, 2012). Healthcare financing does not only involve raising sufficient resources to finance healthcare needs. It also entails affordability and accessibility of healthcare services, equity in access to medical services as well and guarantees financial risk protection (Usman & Agboola, 2019).

5. Research Methodology

The study adopted both qualitative and quantitative research methods; hence it is mixed-method research. Primary data was sourced using questionnaires while secondary sources were sourced using documented research, journal publications, academic papers, newspapers, and internet sources.

5.1 Study Area

Kaduna state covers a land area of 46,053 square kilometres with an average density of about 75 persons per square kilometre. The state shares boundaries with Niger state to the west, Zamfara, Katsina, and Kano to the north, Bauchi, and Plateau States to the east and FCT Abuja and Nassarawa states to the south. Kaduna state provides the meeting point of the earliest histories of Nigeria. According to the 2021 population projection, Kaduna state has a total population of 9.4 million, accounting for 4.3% of Nigeria's total population. Females constitute 4,401,430 of the population while males are 4,499,521. The state is divided politically into three senatorial districts, Kaduna North, Kaduna Central and Kaduna South. The state has 23 local government areas. Inhabitants are mostly Christians and Muslims belonging to different ethnicities. Agriculture and other associated activities constitute the mainstay of the economy of the state

5.2 Population and Sample size

The total population of the study comprise of the staff of KSPHCB, staff and beneficiaries of primary health

care services at the PHCs in (Kaduna North, Kajuru, Zaria, Kudan, Kachia and Kagarko local government areas). Krejcie and Morgan’s formula was used to determine the sample size 384.

A total of 384 questionnaires were distributed and 332 returned duly filled, representing 87% of the entire questionnaires distributed.

6. Data Analysis and Discussion of Findings

Data obtained from the questionnaire were analysed in line with the research objectives and research hypothesis formulated for this study. Statistical Packages for Social Science (SPSS) was used to analyse and interpret the responses. Test of

hypothesis test was conducted using the responses provided in simple percentages as contained in the questionnaire item.

The decision rule for the hypothesis test: Accept the null hypothesis when the probability value exceeds the alpha value. If otherwise, we reject it.

H0: There is no significant relationship between SPHCB Financial capacity and PHC service delivery in selected local government areas.

H1: There is a significant relationship between SPHCB Financial capacity and PHC service delivery in selected local government areas.

7. Discussion of Findings

Table 1

S/N	SPHCB Financial Management Capacity and PHC service delivery in selected local government areas in Kaduna State.	SD	D	U	A	SA	Total
1.	Funds are made available to manage PHC service delivery?	13 (4%)	20 (6%)	4 (1.2%)	107 (32.2%)	188 (56.6%)	332 (100%)
2.	Funds are made available to carry out immunization programs in the state.	20 (6%)	4 (1.2%)	10 (3%)	186 (56%)	112 (33.8%)	332 (100%)
3.	Vaccines and Drugs necessary for Immunization are provided by the SPHCB	3 (1%)	48 (14.5%)	-	180 (54.2%)	101 (30.3%)	332 (100%)
4.	Family Planning Programs provided have improved due to funds availability	12 (3.6%)	40 (12%)	3 (1%)	130 (39.1%)	147 (44.3%)	332 (100%)
5.	Funds budgeted for are released and expended	74 (22.2%)	46 (14%)	15 (4.5%)	70 (21.1%)	127 (38.2%)	332 (100%)

Source: Researcher’s computation using SPSS Version 21

Table 1 shows the descriptive analysis of the respondents in the research on the impact of SPHCB Financial management capacity on PHC service delivery in Kaduna State. Majority of the respondents agree that funds are made available to fund PHC service delivery in the state. A closer look at the Kaduna health budget and KSPHCB budget further affirms the opinion of the majority of the respondents.

Table 2: Kaduna Total Health Budget vs KSPHCB total Budget

Year	Total health budget (billions)	Total PHCDB budget (billions)	% of PHCDB budget to health budget	Total health Capital budget (in billions)	Total PHCDB Capital budget (in billions)	Total health recurrent (in billions)	Total PHCDB recurrent
2016	13,132	3,687	28	6,661	3,498	6,471	189,582,505
2017	23,856	12,049	50.5	10,490	5,569	13,366	6,480,083,209
2018	34,696	9,645	27.7	17,576	2,600	17,119	7,045,191,210
2019	24,547	8,418	34.2	11,435	4,721	13,112	3,699,352,041
2020	35,788	11,707	29	NA	7,992	NA	3,715,851,234
2021	39,430	11,388	29	NA	NA	NA	NA

Source: DRPC and SPHCB Appropriation laws 2016-2021

Drawing from the table above, the state has consistently allocated above the 15% threshold agreed upon at the 2001 Abuja declaration on PHC, with an average percentage of funds allocated to PHCDB over the years standing at 35%. Hence, the average PHCDB allocation between 2016 and 2019 stood at N8,450 billion, its average capital expenditure for the same period was 4,097 billion (40.3%), and its recurrent was 4,353 billion (30.1%). This shows that the majority of the budget was allocated to capital expenditure covering renovation and purchase of medical equipment for the 255 PHCs in the State. The PHC board is committed to enhancing primary health care service delivery in Kaduna state.

In addition to the forgone, about 3.8 million children have been immunised in Kaduna State against poliomyelitis. This was done with the United Nations Children’s Fund (UNICEF) and other development stakeholders. In 2019, over 5.8 million children were targeted for immunisation in the state, and about 5.3 million were immunised.

Table 3: Routine Immunization Budget Estimates (in Millions of Naira)

Year	Counterpart Funding Under the SPHCB Capital Budget	Amount	Other RI allocations Under the Recurrent SPHCB Budget	Amount
2016	State Counterpart Fund on Routine Immunisation RI and System Strengthening	255	Nil	-
2017	State Counterpart Fund on Routine Immunisation RI and System Strengthening	285	Nil	-
2018	Provision of Counterpart Funding	720	Immunization Plus Days RI & System Strengthening	41
2019	Provision of Counterpart Funding	550	Immunization Plus Days RI & System Strengthening	26
2020	Provision of Counterpart Funding	1,946	Immunization Plus Days RI & System Strengthening	10
2021	Provision of Counterpart Funding.	817	RI & System Strengthening	Nil

Source: Approved 2018, 2019, 2020, 2021 Kaduna State Budgets and SPHCB, 2022.

From the table above, counterpart funding accounts for the majority of the budget estimates for routine immunization in the state. A steep decline was, however, recorded in 2021. Similarly, a gradual increase in the RI budget estimates, as captured in the SPHCB capital budget, is seen. A decline was recorded in 2019 and 2021, respectively. There was, however, an allocation of N41 million and N26 million under recurrent expenditure for Immunization Plus Days in 2018 and 2019. This confirms budget allocation to immunisation under the SPHCB budget to be significant. However, there is a need for a timelier release of funds to enhance the immunisation exercise and the financial management capacity of the SPHCB.

The table below shows the routine immunisation budget allocation 2022 under the Kaduna state budget.

Table 4: Routine Immunization Budget Estimates 2022

Budget line	Amount allocated
Immunization plus day	1,905,025.00
Routine Immunization and system strengthening	3,459,192.00
Total	5,364,217
RI % to SPHCB Budget	0.04
RI % to total health budget	0.01

Source: DRPC 2022 and Kaduna State Budget 2022.

The table above shows that routine immunisation has less than 1% of the total health budget for the state and 0.04% of the SPHCB budget. The immunisation plus day, which allows vaccinators to go from house to house to conduct vaccination on eligible children who may not have been exposed to the vaccine at the routine immunisation level, is quite minimal.

The board has two dedicated budget lines for routine immunisation in the state, the Immunisation plus Day and Routine Immunisation and System Strengthening. Mechanisms have been deployed to ensure immunisation is conducted in all PHCs weekly. Though the allocation is less than 1% of the entire budget of the board, nonetheless, immunisation against childhood killer diseases remains critical in the realisation of the board’s mandate

Secondary data generated from appropriation laws of the state between 2016 and 2019 reveal that poor release of funds leads to large variances between appropriation and releases, translating to a low percentage budget execution rate. The table below shows the SPHCB approved and released capital and recurrent budget allocation.

Table 5 Total KSPHCB Approved and Released Budget Allocation 2016-2019

Year	Approved budget	Actual release	utilized sum	% approved sum released	% approved sum utilized
2016	3,687,892,321	2,588,085,413	2,588,085,413	70	70
2017	12,049,352,021	4,419,268,834	4,419,268,834	36	36
2018	9,645,462,412	5,657,492,336	5,657,492,336	59	59
2019	8,418,707,913	6,257,413,107	6,257,413,107	74	74

Source: Author Compilation from Kaduna Appropriation Laws, 2016-2019

From the table, 2017 records the lowest percentage release in the approved budget. 36% of the entire approved budget was released for PHC services. 2018 recorded a 59% approved sum release, and 2019 recorded a 74% approved sum release. The actual released amount is in synchronization with the utilized sum. The need to encourage regular stakeholder meetings to review and monitor the financial commitment of the state government and the SPHCB, in particular to PHC service delivery, is critical in ensuring optimal budget performance.

Test of Hypothesis

H0: There is no significant relationship between SPHCB Financial capacity and PHC service delivery in selected local government areas.

Table 6: Linear Regression Result (Model Summary) between SPHCB Financial capacity and PHC service delivery across programs

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.	Durbin-Watson
1	.793 ^a	.630	.629	.62439	649.298	.000 ^b	.188

Predictors: (Constant), SPHCB Financial capacity (Independent Variable)

Dependent Variable: PHC Service delivery (Dependent Variable)

Source: SPSS Version 20.0 output.

Table 7 above showed that the SPHCB Financial Capacity has accounted for about 62.9% (adj. r = 0.635) of the PHC service delivery. The implication is that other factors outside the model can explain the remaining 38.1% of the PHC Service delivery. It also shows a strong relationship between the SPHCB Financial capacity and PHC Service delivery ($r^2 = 0.629$). The F = 649.298, indicating the model's fitness, while the Durbin-Watson statistics is 0.188, indicating the absence of serial auto-correlation and fitness of the model.

Table 7: Linear Regression Result (Coefficients^a) between SPHCB Financial capacity and PHC service delivery

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	95.0% Confidence Interval for B		
	B	Std. Error	Beta			Lower Bound	Upper Bound	
1	(Constant)	.091	.129		.702	.000	1.669	2.118
	SPHCB Financial capacity (Independent Variable)	.825	.030	.785	25.769	.000	.642	.769

Dependent Variable: PHC service delivery (Dependent Variable)

Independent Variable: SPHCB Financial capacity (Independent Variable)

The table above shows the overall result of the tested hypothesis. The model contributes about 62.9% of SPHCB's Financial capacity to PHC service delivery. The hypothesis, which states that There is no significant relationship between SPHCB Financial capacity and PHC service delivery in selected local government areas, is significant at a 1% level (P = 0.000) with a positive relationship (Beta = 0.785), which shows that the P value is less than the level of significant. The study, therefore, rejected the null hypotheses and concluded that there is a significant

relationship between SPHCB financial capacity and PHC service delivery in selected local government areas in Kaduna State.

This further proved a significant relationship between `SPHCB financial capacity` as the independent variable and `PHC service delivery` as the dependent variable. This means that funds budgeted and allocated to PHC programs such as routine immunisation, essential medicines, reconstruction, and renovation by the SPHCB have strengthened

routine immunisation, increased the number of immunised children in Kaduna state, and ensured the availability of drugs and vaccines in the PHC centres, and by extension improved PHC service delivery in selected Local Government Areas.

8. Conclusion and Recommendation

The study revealed that the financial capacity of the SPHCB in funding PHC programs is above the 15% threshold agreed upon in 2001 at the Abuja declaration. This aligns with the submission by Alonge (2020) and Oyekale (2017) that funding PHC is critical for health system strengthening and achieving sustainable development goals. Similarly, funds appropriated are sometimes not released accordingly. There is a delay in the release of funds, which sometimes affects PHC service delivery. In addition to this, there are differences in the actual amount budgeted for and the actual amount released for PHC service delivery. Data from qualitative and quantitative analysis agreed with the above finding. This aligns with the components of evaluation theory, which states that there is a need for goal setting, which captures the need for adequacy in funding for efficiency and effective performance as demonstrated in the theoretical framework. As found out by Uzochukwu (2015), there is a need for transparency and accountability in financial management to enhance PHC service delivery.

Recommendations

- The funding of PHC Programs in the state already above the 15% Abuja 2001 declaration be applauded. Strict policy statements should be made to ensure continuity.
- The paper recommends a timelier release of funds to ensure budget execution and operational efficiency.

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Public Debt and Exchange Rate Stability in Nigeria: An Empirical Analysis

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Abstract. This study examined public debt and its effect on exchange rate stability in Nigeria from 1980 to 2019. The data were subjected to statistical analysis using vector autoregression model. Using data on external and domestic debt servicing ratio to total debt stock, the findings showed no significant relationship between public debt and exchange rate stability in Nigeria within the period, likewise for ratio of external debt servicing to total external debt stock and exchange rate. Finally, domestic debt servicing had no significant relationship with exchange rate. The study concluded that as Nigeria increases external debt servicing, domestic prices increases and this also affects exchange negatively. It is recommended that concerted effort be intensified towards decreasing the level of external debt profile of Nigeria which will invariably decrease external debt servicing. Also, government should intensify revenue drive through exploring other viable sources that do not have repayment plan rather than relying on augmenting yearly budget through public debt accumulation.

Keywords: Public Debt, Exchange Rate, Economic Stability, External Debt Servicing Ratio, Nigeria Economy.

1. Introduction

Financial resources of a country are not usually sufficient to carry out its productive activities. The tendency is to borrow to meet shortfall in its finances. According to Igberi, Odo, Anoke, (2016) “the volatile nature of the Nigeria’s economy is due to its over-dependence on oil as the main source of income coupled with steady negative trade balance and reliance on importation”. Despite the enormous financial resources from the oil boom of the 1970s in terms of cash input to the economy, there appears to be little in the way of investment and infrastructural

development to support the productive sector of the economy. Therefore, the economy was forced to look for alternative ways to close the revenue gap due to its monocultural nature, which was defined by low per capita income, trade imbalances, ongoing fiscal deficits, poor productivity, unemployment, and the ensuing low savings level. As a result, public borrowing became an additional financial choice for all levels of government.

The money borrowed is meant to boost economic growth by improving the standard of living of the people (Nnamocha, 2012). Government can either borrow by issuing securities, government bonds, and bills. World Bank and international financial institutions are supranational organizations, countries could also borrow directly from.

In the early 70’s developing countries use borrowing as its main source of financing deficit. There has been understanding among scholars that huge external debt limit the value of its currency and if a country’s public debt is low, it will likely be favoured with an increase in currency value.

In order to ascertain if public debt is indeed required for the nation’s economic stability, as proposed by Keynes, or destructive to the economy, as suggested by the classical economists and their adherents, this article studies the impact of public debt on the exchange rate in Nigeria.

1.1 Research Hypothesis

H₀₁ There is no significant relationship between Public debt and exchange rate stability in Nigeria;

2. Literature Review

Public debt is the total amount that the government has borrowed from domestic or foreign sources (Mayo, 2016). It is the sum of the government or public authority's borrowing both domestically and internationally (Nnamocha, 2018). Through changes in the amount, composition, and interest rates of this debt, public debt is a tool used to control the economy (Bhatia, 2017).

Hycenth (2017) also agreed with Nnamocha (2018) that public debt is the total borrowing by the government or public authority at home and overseas. That is, public debt is the amount of the country's contractual obligations and liabilities to individuals, institutions and other creditors. It is the aggregation of past deficits less past surplus. Since it accounts for a sizable portion of the economy's overall credit supply, public debt is an essential weapon employed by the government to regulate the currency exchange rate, inflation, and other factors. The use of the fund and the conditions to which it is subject determine whether public borrowing is suitable.

According to Anyanwu (2015) "public debt is claim against government by foreigners, and the private sector of the economy whether interest bearing or not (and including bank held debt and government currency if any)-less claims held by government against the private sector and foreigners". Public debt may be classified according to their sources: internal or domestic public debt and external public debt.

According to Omoruji (2017), the following factors are the main contributors to Nigeria's public debt: ineffective financial resource mobilization, sources of borrowing, currency composition of external borrowings, bunching of maturities, inadequate debt monitoring system, and ineffective fund management.

Public debt often has a negative impact on economic growth, savings, investments, income distribution, and price level. The Central Bank is tasked with managing the government's debt, which includes giving advice on when to issue debt instruments and the terms of the issue, soliciting public subscriptions for the issue, collecting the proceeds for the government, overseeing the issuance of certificates and warrants, keeping accurate books of accounts for receipts and disbursements, and paying interest and principal on time.

3. Public Debt and Exchange Rate

Scholars have disagreed throughout the years over the connection between exchange rates and various macroeconomic problems. It is impossible to overstate the significance of the exchange rate as a macroeconomic variable in developing and transitional nations. Imports, price range, exports, and other economic activity are affected. Over the years, the exchange rate has had an impact on the export and import of products and services, which has an impact on the level of prices in the economy. "The objective here is to identify the existence of a determination relationship between a component of external debt and exchange rate variation, to determine the intensity of this correction, is to select variables showing the most intense connection and to parameterize a linear regression model suitable for exchange rate forecasting," according to Bratu (2019). In order to choose a model, create linear regression estimators, and assess the model's reliability, research technique relies on the correlation between variables.

4. Theories of Public Debt

4.1 Classical Theory of Public Debt

The national debt was not favored by the classical economists. "Laissez Faire" policy was a cornerstone of classical economics. The classical school of thought upholds the notion that the government should only maintain internal law and order, provide protection against foreign attack, and concentrate on doing its constitutionally mandated duties. They think the economy can reach full employment, there is ideal competition, and the migration of production elements from one location to another. They embrace individualism and came to the conclusion that the engine driving national interest is self-interest.

Smith (1776), confirms the above theory by saying that "the problems of public debts are as a result of a rise in the government expenditures. So, he opined that it is because of the understanding that there will be loans available in times when the state needed it that motivate the state not to have budgetary savings during peace time".

Say (1929) states that "supply creates its own demand, and that the entire economy was self-regulating. Thus, lowest amount of state action and government interference was recommended". He criticized public debt. According to him, "There is a remarkable distinction between an individual borrower and a borrowing government, the former

borrowed capital for the purpose of the barren consumption and expenditure". He added that, "public borrowing is not only unproductive because the capital is consumed and lost, but in addition, the nation is burdened by the annual interest payment. It cannot be argued that the annual circulation of interest payment is a net addition to capital".

4.2 Neo-Classical Theory of Public Debt

The neo-classical economists uphold the view of the classical economists on the issue of public debt.

Pigou (1920) believes in human welfare, which is known in welfare theory. In his book titled "Economics of welfare" he submitted that the main reason of economic study is to help in social improvement. Pigou sees ideal output as "composition of production such that no alternative output which could be obtained by means of re-allocation among the various industries in the economy's resource would by itself achieve ideal output. If and only when a private market relationship departs from ideal output; then state intervention was justified".

4.3 Modern Theory of Public Debt

The economic philosophers' idea of "Laissez faire" about public debt in contemporary finance was drastically altered. After the Great Depression of the 1930s, the situation shifted significantly. The shift caused the traditional theory of public debt, which presupposed full employment and wasteful public spending, to disintegrate. On the basis of these presumptions, the traditional argument against governmental borrowing was based. Keynes and his supporters considered the public debt's ability to generate income and opposed to the idea that future generations may be burdened by internal debt.

4.4 Keynesian Theory of Public Debt

The economic crisis brought on by the Great Depression of the 1930s led to the development of the contemporary idea of public debt. The long-held belief that a perpetually unbalanced budget and a steadily rising public debt were what kept countries' finances stable gave way to a new theory that contends that a large national debt is an economic asset rather than a liability and that persistent deficit spending is essential to the country's ability to maintain full employment.

4.5 Post-Keynesian Theories of Public Debt

Even if the non-developmental component of the public debt was large and government spending was increasing quickly, the two factors that further sparked interest were the enormously expanding public debt and the developed nation going through a phase of inflation in the Post-Keynesian era. The debate over whether and how to evaluate the cost of the recent increase in public debt was revived. In his principles of public debt book from 1958, James M. Buchanan contested the notion that public debt has no negative economic effects and cannot be passed on to future generations, regardless of how it is financed. Later, Buchanan's proposal was approved by J. E. Meade and R. A. Musgrave.

4.6 Theories of Exchange Rate Determination

In general changes in money supply has implications for exchange rate in an economy. Changes in the demand for and supply of money between two countries affect the exchange rate (Olisadebe, 1991).

The Balance of Payments Theory: This theory states that the balance of payments affect and determine the exchange rate of currency in a freely floating exchange rate regime. The assumption is that, if the balance of payments has a favourable balance, the exchange rates tend to rise. On the other hand, when the balance of payments has an unfavourable balance, the exchange rate tends to depreciate.

Purchasing power parity theory: This theory advocates that there must be equilibrium between exchange rate and inconvertible paper currencies which is predicted by the quality of their purchasing powers. That is, the rate of exchange is predicted by their relative price levels. The implication is that when there is change in the price level, the exchange rate equally changes.

Market Expectation: This is very important in determining exchange rates. The important components consist of the forward rate, the technical and psychological factors, market participants, most times want to cover themselves from the exchange risks that result from exchange transactions.

5. Empirical Review

Amaefule (2018) examined "the effect of public debt on the performance of Nigeria's economy. Economic performance was measured with the nation's Gross Domestic Product (GDP), Public Capital Investment (PCI) and the Human Development Index (HDI)

while public debt was measured with external debt, domestic debt and total debt servicing. Data on the variables were sourced from the Central Bank of Nigeria Statistical bulletin, Debt Management Office reports and World Bank publications for the period of 1991 to 2016. Stationarity test using Augmented Dickey-Fuller Unit Root Test was used to confirm the stationarity of the data used. Ordinary Least Square Regression Model was adopted in analyzing the data. Findings indicate that external debt exerted significant negative effect on GDP and PCI without any evidence of significant effect on HDI. Result also indicated that domestic debt warranted significant positive effect on all the economic development indices while total debt servicing showed no statistical evidence of significance on any of the economic development proxies. The implication of the finding is that the huge external debt records together with the associated debt servicing cost are not justified; the government has not judiciously utilized the proceeds from such loans.”

Mupunga (2015) analyzed “the impact of macroeconomic shocks on public debt in Zimbabwe. The study applied the Bayesian Vector Regression (BVAR) Model to simulate the impact of macroeconomic shocks on public debt. The results showed that Zimbabwe’s public debt is more vulnerable to interest rate, exchange rate, economic growth and primary balance shocks. Together these shocks account for about 61 %of forecast error variation in the debt to GDP ratio. From this analysis, the major policy implication is the need for government to pay particular attention to automatic debt dynamics. It also indicated need to maintain the primary balance at manageable levels as well as instituting growth enhancing policies to ensure long-term sustainability of public debt. The need for appropriate selection of the currency composition of public debt is also necessary to mitigate the risk of unexpected increase in public debt from adverse external sector developments.”

Keigo, K & Masao, N (2018) analyzed “the influence of public debt on Japan’s macroeconomic stability. The study constructed three IS-LM type dynamic models estimate the Eigen-values of their differential systems. Then confirm whether or not the huge amount of public debt violates the stability conditions for the Japanese economy. The researcher estimation concludes the Japanese economy to be unstable with the existence of saddle point equilibrium. Their simulation also shows that severe tax reform would be required to restore the economic stability concretely the government has to raise the consumption tax rate to 15% from 5% and in addition, allowing the income elasticity’s of income taxes and inhabitant taxes to increase by 0.033% each

which is equivalent to tax hikes of about 8.3 trillion yen. They therefore, assert that structural reform for the government budget including a tax system is essential and emergent.”

Ajayi, (2019) examined “the effect of public debt on exchange rate in Nigeria. The researcher used ordinary least square, on the secondary data sourced from the CBN and DMO among other sources. Findings reveals that, all the dependent variables, that is, external debt, debt service payment and foreign reserve proved to be statistically significant in explaining exchange rate fluctuation in Nigeria within the period of observation, with debt service payment having the strongest effect. Based on the findings, the study recommends that government should ensure that all public borrowing, where and when necessary, be directed towards productive economic activities which can generate returns to service and pay up the debt at maturity.”

Israel, Richard, Meluin, and Blessing, (2018) examined “the external debt, foreign exchange and sustainable debt management: the Nigeria experience (1980-2017). The work which selected Nigeria as its sample covered a period of 37 years. The model developed for the research has sustainable debt management (SDM) as dependent variable and independent variable were; External Debt (ED) and foreign exchange (EXCHR). Secondary data were collected from the Central Bank of Nigeria and National Bureau of Statistics. The techniques used for analysis are the ordinary least square techniques, the augmented dickey fuller unit root test techniques and the cointegration test. The econometric techniques of ordinary least square (OLS) results show that exchange rate had significant relationship with SDM in both short and long periods while external debt showed positive but insignificant relationship with SDM in both periods. The study concludes that while there is a significant relationship between EXCHR and SDM in both short-run and long-run periods, there is however, an insignificant relationship between ED and SDM in both periods. The study also recommend amongst others appropriate pricing of external debt by the government and the engagement of such debt only for reproductive assets while diversifying the export base to earn sustainable foreign exchange, as these will assist in ensuring the attainment of sustainable debt management.”

Nnamocha and Akamike (2019) investigated “the Public Debt, External Reserve and Sustainable Economic Growth in Nigeria from 1988-2017. The model was estimated using annual time series data on real gross domestic product as the dependent variable

while Real Debt Stock, Real Debt servicing, Real External reserve and Real Exchange rate were the independent variables. Annual data for the study were sourced from the Central Bank of Nigeria Statistical Bulletin (2018 edition). A pre-test was carried out to check for the stationarity of the data and it revealed that Real Debt Servicing and Real External Reserve are stationary at level while Real Debt Stock, Real Exchange rate and Real Gross Domestic Product are stationary at first difference. The study used the ARDL Bounds test approach to estimate the long run relationship between Public Debt, External Reserve and Economic Growth in Nigeria. The result showed that there exists a long run relationship among the variables in the model. Also using the P-value at 5% critical value, it was revealed that there exist uni-directional causality relationship between Real Debt Stock and Real Debt servicing, that is Real debt stock granger causes Real Debt Servicing while Real Debt Servicing does not granger causes Real Debt Stock. In addition, the above result also revealed that there exist a uni-directional causality between Real Exchange rate and Real Debt Servicing, that is, real exchange rate granger causes real debt servicing while real debt servicing does not granger causes real exchange rate. It is recommended that Government should ensure that debt stocks are judiciously spent and solely for the purpose for which the borrowing is made.”

6. Literature Gap

Several studies dealt with public debt and exchange rate (Amaefule 2018; Mupunga 2015; Keigo, & Masao, 2018; Ajayi, 2019; Israel, Richard, Meluin, and Blessing, 2018; Nnamocha and Akamike 2019; etc.). These studies used either of external debt, exchange rate, and interest rate as the main variables. However, none of these previous variables considered ratio analysis of the country’s public debt servicing. For instance, the amount of the country’s external debt that is being serviced annually is still unused in economic literature likewise the ratio of Nigeria’s domestic debt servicing. This is seen as gap in the literature and as such, this study introduced the two variables as corollaries to public debt (aggregated).

Again, previous models adopted the Error Correction Model (short run analysis) and the RDL model framework in their discussion of the relationship between public debt and macroeconomic performance. The use of advanced econometric technique such as the Vector Auto regression (VAR) is still very scanty in this area of study.

The time scopes of previous studies were limited to 2016 and 2017 as evident in the works reviewed. The current study is updated to 2019. This fills time gap.

Model Specification

The specification of a model involves establishing a relationship between a dependent variable and a set of independent variables within a statistical framework

Our model modified the model of Ohwofasa, *et al* (2012) by aggregating external debt and domestic debt as one variable to obtain total public debt and also introducing ratio of external debt servicing to total external debt and the ratio of domestic debt servicing to total domestic debt in addition to the primary variable – public debt and exchange rate. The model is formulated thus:

$$EXR = f(Public\ Debt) \dots 1.1$$

Where: EXR is exchange rate of Naira to the US Dollar.

The public debt variables as identified from empirical and conceptual review include total public debt stock, ratio of domestic debt service to total domestic debt, ratio of external debt service to total external debt. These will now replace the public debt variables as explanatory variables and we re-specify as follows:

$$EXR = f(PDBT, REXTD, RDDT) \dots 1.2$$

Where;

EXR = Exchange rate of Naira to the US Dollar

PDBT= Public debt (external plus domestic debt stock)

REXTD = Ratio of external debt servicing to total external debt

RDDT = Ratio of domestic debt servicing to total domestic debt

In order to appropriately model the equations (1.2), we model an inter-relationship between the variables by adopting the Vector Autoregression (VAR) model. Thus, we model a VAR equation from each of the pivotal equations as shown below:

Where, EXR, PDBT, REXTD and RDDT are as

$EXR = f(PDBT, REXTD, RDDT)$
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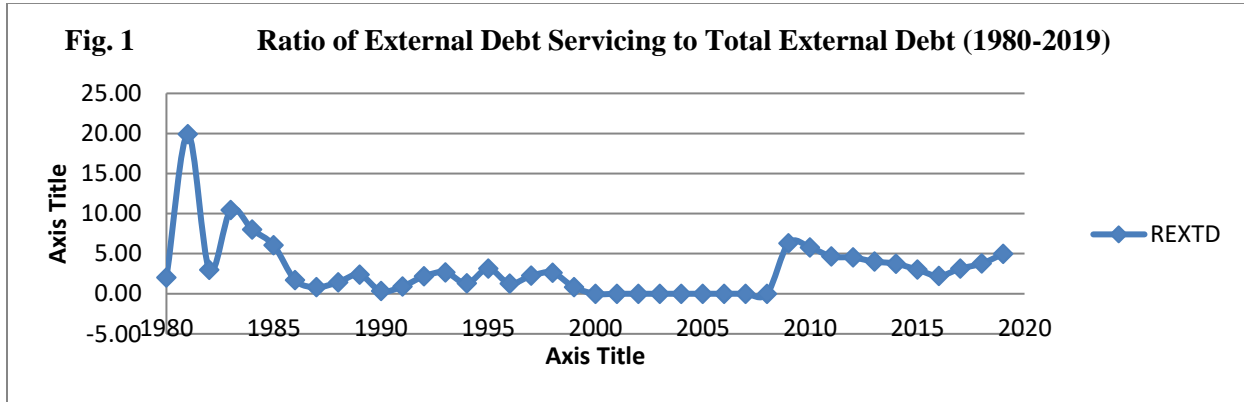
previously defined and “f” is the functional notation. In order to standardize the variables, we take the log-linear forms of the equations by taking the natural logarithm (Ln) of the variables in the RHS and LHS. The inter-relatedness of the public debt variables as a modification of the model of Ohwofasa, *et al* (2012) is a Vector Autoregressive model represented as follows:

$$EXR_t = \beta_0 + \beta_1 \sum_{j=1}^k PDBT_{t-1} + \varepsilon_{1t}$$

..... 1.3

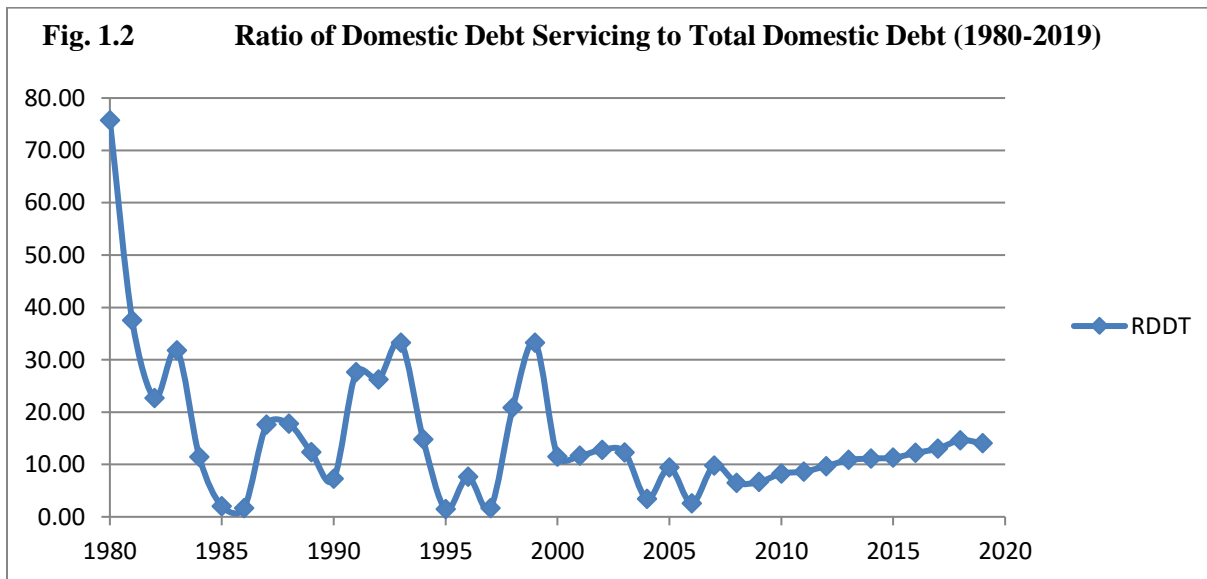
Where, “EXR” represents the matrice of the exchange rate variables, while “PDBT” is the matrice of the public debt variables.

Data Presentation



Source: Central Bank of Nigeria (CBN) Statistical bulleting 2019.

The figure indicates a fluctuating trend in external debt servicing to total debt and a continuity rising profile in the 1920s.



Source: Central Bank of Nigeria (CBN) Statistical Bulletin 2019.

The figure shows a fluctuating trend in the 1980s and 1990s and slowly but continual increase in the 2000s

7. Data Analyses and Interpretation

Unit Root Test

Table 1 below shows the stationarity test which was carried out using the Augmented Dickey Fuller (ADF) unit root test.

Table 1.1: Summary of Unit Root Test Result

Variable	ADF Test statistics		Decision Rule	Order of Integration
	At Level	1 st Difference		
LnEXR	-1.023492	-5.403759	Stationary at 1 st difference	I(1)
LnPDBT	-2.225234	-4.547946	Stationary at 1 st difference	I(1)
REXTD	-0.596884	-19.59585	Stationary at 1 st difference	I(1)
RDDT	-1.588242	-7.152568	Stationary at 1 st difference	I(1)

Critical value at 5% level = -2.941145

Source: Computed from E-Views 9.0

The unit root test above indicates that the variables EXR, REXTD and RDDT are stationary at first difference, which implies that variables are integrated of order one, I(1). While PDBT is initially stationary at level but the inclusion of trend and intercept made them to be stationary at first difference i.e. I(1). Thus, we have an I(1) stationary series which is very ideal for the fitting of a VAR or VEC model upon confirmation of the long run relationship amongst the variables, i.e. cointegration.

Johansen Cointegration Test

Table 2: Johansen Cointegration Test Results

Hypothesized No of CE (S)	Trace Statistic				Max-Eigen Statistic			
	Eigen-Value	Trace statistic	5% Critical Value	Prob**	Max-Eigen statistics	5% value	Critical	Prob**
None	0.8020	133.85	195.154	0.5682	61.5473	65.0776		0.4001
At most 1	0.5591	72.307	169.819	0.3312	31.1199	33.8769		0.1030
At most 2	0.4469	41.188	47.8561	0.1828	22.5085	27.5843		0.1955
At most 3	0.2562	18.679	29.7971	0.5162	11.2492	21.1316		0.6225
At most 4	0.1499	7.4299	15.4947	0.5282	6.17214	14.2646		0.5912
At most 5	0.0326	1.2577	3.84147	0.2621	1.25774	3.84147		0.2621

**Trace test indicates no cointegration at the 0.05 level

**Max-eigen value test indicates no cointegration at the 0.05 level

The Johansen cointegration tests summarized in table 2 above reveals that the Trace and Max-eigen statistics indicated no Cointegration at the 5% level. This means that there is no long-run relationship between public debt variables and exchange rate indicators in our model. Thus, the relationship between public debt and exchange rate is only in the short run and as such we estimate the short run VAR model.

The short run VAR model is also better known as the unrestricted VAR model as it does not include the error coefficient. In line with the VAR estimation, we shall carry out the important tests in a VAR model which includes the Granger Causality test, Impulse Response Function and the Variance Decomposition of the public debt variables.

Lag Selection Criteria

The optimal lag for the VAR model is selected using the Akaike information criteria (AIC). The criteria Table is shown below:

Table 3: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-333.1811	NA	2.280622	17.85164	18.11020	17.94363
1	-116.8912	352.8940	0.000177	8.362697	10.17266*	9.006668
2	-60.12005	74.69894*	6.87e-05*	7.269476*	10.63084	8.465423*

* indicates lag order selected by the criterion

The asterisk sign (*) at Lag 2 under the AIC criterion column means that the system automatically selected only 2 lag periods for the VAR model having automatically computed the values at various lag periods. Thus, we adopt 2 lags for our VAR model.

Granger Causality Test

The causal relationship between the variables is determined using the Granger causality test. This test is carried out at 2 lag periods in line with the lag selection criteria which is necessary to in VAR model estimation.

Table 4: Granger Causality Test Result

Null Hypothesis:	Obs	F-Statistic	Prob.
PDBT does not Granger Cause EXR	38	3.14980	0.0560
EXR does not Granger Cause PDBT		0.11295	0.8935
REXTD does not Granger Cause EXR	38	1.35687	0.2715
EXR does not Granger Cause REXTD		1.50767	0.2363
RDDT does not Granger Cause EXR	38	4.83955	0.0144
EXR does not Granger Cause RDDT		0.62278	0.5426

Source: Eviews 9 Output

The granger causality test summarized above shows that there is a bidirectional relationship between public debt (PDBT), ratio of external debt servicing (REXTD) and EXR. This means that current trends in Nigeria’s public debt and external debt servicing can be used to predict the exchange rate of the country and vice versa.

Result of variance decomposition of exchange rate

The Table 4 above shows that the amount of information exchange rates contributes to the public debt variables in the Autoregression in the 10th period was 3.67%, 5.20% and 28.16% for public debt (PDBT), ratio of external debt servicing (REXTD) and ratio of domestic debt servicing (RDDT) respectively.

The analysis shows that ratio of domestic debt (RDDT) contributes more to exchange rate in the VAR model with the highest percentage of 28.16% in the 10th period.

PDBT, REXTD and RDDT variables ranged from 1% to 17%. This means that between 1% - 17% of the forecast error variance of EXR is being explained by exogenous shocks to the public debt variables.

Estimation of the VAR Model

The Vector Autoregressive model (VAR) model estimates the interrelationship amongst variables. It shows the variables as both endogenous and exogenous and is deemed to be most appropriate in this study of the interaction between public debt and exchange rate indicators. The estimates are summarized below:

Table 5: Summary of the VAR Model Estimates for Exchange Rate Equation

	LNEXR	LNPDBT	REXTD	RDDT
aaaaaaLNEXR(-1)	0.698679 (0.29531) [2.36590]	-0.126058 (0.27466) [-0.45896]	-3.043045 (1.91533) [-1.58879]	-7.713206 (8.95133) [-0.86168]
LNEXR(-2)	-0.049290 (0.27238) [-0.18096]	0.101695 (0.25333) [0.40143]	3.988459 (1.76661) [2.25769]	6.466290 (8.25630) [0.78319]

LNPDBT(-1)	0.159931 (0.31568) [0.50662]	1.243434 (0.29360) [4.23510]	2.364141 (2.04743) [1.15469]	8.873699 (9.56871) [0.92737]
LNPDBT(-2)	0.016349 (0.30806) [0.05307]	-0.266208 (0.28652) [-0.92912]	-3.016914 (1.99802) [-1.50995]	-8.341095 (9.33781) [-0.89326]
REXTD(-1)	0.000702 (0.01753) [0.04004]	0.015090 (0.01630) [0.92558]	0.154976 (0.11369) [1.36309]	-0.542015 (0.53135) [-1.02007]
REXTD(-2)	-0.007897 (0.01461) [-0.54057]	-0.000573 (0.01359) [-0.04218]	0.357422 (0.09475) [3.77218]	0.144868 (0.44283) [0.32714]
RDDT(-1)	0.008560 (0.00671) [1.27474]	0.007226 (0.00625) [1.15712]	0.060949 (0.04355) [1.39952]	0.443783 (0.20353) [2.18041]
RDDT(-2)	-0.010317 (0.00512) [-2.01512]	-0.008278 (0.00476) [-1.73850]	-0.052674 (0.03320) [-1.58632]	-0.074663 (0.15518) [-0.48113]
C	-0.161615 (0.50633) [-0.31919]	0.387017 (0.47092) [0.82183]	2.296295 (3.28397) [0.69924]	8.943958 (15.3477) [0.58276]
R-squared	0.981786	0.986577	0.605188	0.279314
Adj. R-squared	0.976762	0.982874	0.496275	0.080505
Sum sq. resids	2.131354	1.843656	89.65616	1958.256
F-statistic	195.4029	266.4293	5.556589	1.404933

The coefficient of exchange rate on its own first and second period lag is positive and significant in the first period lag but insignificantly negative on the second period lag. Interestingly, in the first period lag, all the public debt variables have positive effects on exchange rate.

Furthermore, increase in exchange rate decreased public debt stock by 0.1261 units in the first period lag. Also in the same first lag, a unit change in exchange rate decreased both ratio of external debt servicing and domestic debt servicing by 3.043 and 7.713 units respectively. In the second period lag, this changed to positive effect as exchange rate increased the three public debt variables.

The R-squared showed high fitness for public debt (PDBT) and ratio of external debt servicing (REXTD) with explanatory powers of 98.65% and 60.52%. Ratio of domestic debt servicing has a low explanatory power of 27.93%.

Test of Research Hypotheses

The hypothesis formulated for this study is tested here using the F-statistic. The joint F-test validates the joint significance of the variables in the VAR system of equations and the hypothesis are restated below:

H_{01} : There is no significant relationship between public debt and exchange rate in Nigeria.

Table 6: Summary of Joint Hypotheses Test

Hypotheses	t-statistic	t-table ($F_{0.05,6,40}$)	Decision
Hypothesis 1	-0.6113	1.960	Accept null hypothesis (H_{01}) since $t-cal < t-tab$

** the t-cal values at lag 1

We accepted the null hypotheses one (H_{01}). This is an indication that no significant relationship exist between public debt and exchange rate.

Autocorrelation Test

The serial correlation LM test is summarized in the Table 7 below:

Table 7: Serial Correlation LM Test Result

Null Hypothesis: no serial correlation at lag order h

Lags	LM-Stat	Prob
1	34.83938	0.2230
2	31.92638	0.6628

Source: Eviews 9 output

The VAR residual serial correlation LM test revealed that there was no autocorrelation in the model. This was evident in the insignificant p-value of the LM-stat at lag 2 (0.6628) which led to the acceptance of the null hypothesis of no serial correlation at both lags one and two.

8. Discussion of Findings

The findings from the unit root and conintegration tests showed that the variables were all stationary after first difference and are not cointegrated. The absence of cointegration in the model showed that there is no long run relationship and this confirmed the fitting of a VAR model as specified by Sims (2001).

There s no significant relationship between public debt and exchange rate in Nigeria. Also ratio of external debt servicing to total external debt stock was insignificant. This result agrees with Amaefule (2018) that public debt do not have significant relationship with exchange rate.

The analysis shows that ratio of domestic debt contribute more to exchange rate with 28.16% in the 10th period in the Autoregression test. This result relates to Mupunga (2015) that Zimbabwe public debt is vulnerable to exchange rate. It is however contrary to Ajayi (2019) that external debt, debt service pay and foreign reserve prove to be statistically significant in explain exchange rate fluctuation in Nigeria within the author’s study period.

Conclusion: Conclusively, it is found that public debt have negative effect on exchange rate within the period in question.

9. Recommendations

- There should be a concerted effort to reduce the level of external debt procurement which will invariably decrease external debt servicing.
- Since public debt had significant relationship exchange rate, government should intensify revenue drive through exploring other viable sources like bond, stock market, etc. instead of relying on budget augmentation through public debt accumulation.
- The increasing effect of external debt servicing on exchange rate means that even if the Nigerian government is going to borrow externally, the money should be used for productive purposes that will grow the economy and generate more returns that will be used to service the debts in the near future.
- Nigeria’s exchange rate is being heavily affected by public debt and its associated variables. There should be long term plan to diversify the economy and the revenue base of the economy through the exploration of the huge potentials presented by the non-oil sector of the Nigerian economy.

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Appendices

Table 4.1: Exchange Rate, Public Debt Stock, Ratio of External Debt Servicing to Total External Debt Stock and Ratio of Domestic Debt Servicing to Total Domestic Debt Stock (1980-2019)

Year	Exchange Rate	Public Debt Stock N' billion	Ratio of External Debt Service to External Debt	Ratio of Domestic Debt Service to Domestic Debt
1980	0.5640	7.52	2.04	75.72
1981	0.6100	13.52	19.92	37.53
1982	0.6729	23.83	2.99	22.67
1983	0.7241	32.80	10.46	31.76
1984	0.7649	40.48	8.00	11.41
1985	0.8938	45.25	6.05	2.04
1986	2.0206	69.89	1.71	1.67
1987	4.0179	137.58	0.83	17.57
1988	4.5367	180.99	1.43	17.78
1989	7.3916	287.44	2.38	12.32
1990	8.0378	382.71	0.33	7.25
1991	9.9095	444.65	0.91	27.64
1992	17.2984	722.23	2.18	26.25
1993	22.0511	906.98	2.68	33.28
1994	21.8861	1,056.40	1.29	14.78
1995	21.8861	1,194.60	3.13	1.49
1996	21.8861	1,037.30	1.27	7.63
1997	21.8861	1,097.68	2.25	1.67
1998	21.8861	1,193.85	2.62	20.82
1999	92.6934	3,372.18	0.82	33.22
2000	102.1052	3,995.63	0.0003	11.52
2001	111.9433	4,193.27	0.0003	11.67
2002	120.9702	5,098.89	0.0003	12.78
2003	129.3565	5,808.01	0.0002	12.31
2004	133.5004	6,260.59	0.0002	3.39
2005	132.1470	4,220.98	0.0004	9.40
2006	128.6516	2,204.72	0.0022	2.57
2007	125.8331	2,608.52	0.0023	9.79
2008	118.5669	2,843.56	0.0019	6.49
2009	148.8802	3,818.47	6.31	6.65
2010	150.2980	5,241.66	5.78	8.26
2011	153.8616	6,519.69	4.66	8.63
2012	157.4994	7,564.43	4.52	9.68
2013	157.3112	8,506.30	4.02	10.85
2014	158.5526	9,535.52	3.76	11.14
2015	193.2792	10,948.51	3.01	11.28
2016	253.4923	14,537.11	2.22	12.20
2017	305.7901	18,377.01	3.13	13.05
2018	306.0802	20,533.60	3.77	14.63
2019	306.9206	23,295.05	4.97	14.05

Sources: (1) Central Bank of Nigeria (CBN) Statistical Bulletin 2019 Edition
 (2) Debt Management Office (DMO), publications for various issues, Abuja, Nigeria.



Tax Dispute in a Digital Economy: The Legal Implication in Nigeria

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Abstract. The study examines the tax disputes in a digital economy with a precise focused on the legal implications in Nigeria. The study explored some of the tax jurisdiction law in the digital economy. This digital economy encompasses various revenue streams and business models, such as e-commerce, digital services, online advertising, and software licensing. The study also identify transfer pricing issues arising from tax authorities in questioning the pricing of intra-group transactions involving intangible assets such as intellectual property rights or digital content. The significance of Permanent Establishment (PE) in determining a business's tax liabilities in a foreign jurisdiction were also discussed. The disputes that are commonly arise when taxpayers fail to fulfill their reporting obligations and the legal implications. However, the study highlighted the development of tax laws and regulations, leading to divergent views between taxpayers and tax authorities on the application and interpretation of tax laws in the digital context. Thus, the study employed a phenomenological research method, specifically a systematic review approach to examine the pertinent literature. Based on this study, it was concluded that tax authorities in Nigeria need to possess a deep understanding of the legal ramifications associated with tax disputes in the digital economy. To successfully navigate such disputes and contribute to an acquiescent and transparent digital economy, the study recommends that Nigerian tax collectors should closely collaborate with legal professionals, continuously update their knowledge of tax regulations, use technology solutions, and offer proactive advice to their clients. They should effectively handle tax disputes and play a vital role in ensuring a transparent and amenable digital economy.

Keyword: Tax Disputes, Digital Economy, Legal Implication and Accountants

1. Introduction

Taxation plays a vital role in maintaining fiscal stability worldwide. Governments levy taxes on tangible goods and services in the traditional sectors to generate revenue for economic growth. However, technological advancements have led to the rise of a digital economy, introducing more sophisticated ways of conducting business. This digital economy has opened up vast employment opportunities, fostered innovation, and provided access to diverse services. Unfortunately, some jurisdictions lack regulatory provisions or legal frameworks to address taxation in the digital realm (Ibrahim et al., 2021). As a result, a significant number of electronic business transactions are often considered tax-exempt (World Bank, 2019). Tax dispute arise when the taxpayer or the Relevant Tax Authority (RTA) initiates them. If a taxpayer disagrees with the tax assessment made by the RTA, they must begin by raising an objection through a Notice of Objection. This objection must be made within 30 days of receiving the tax assessment. The Notice of Objection should be submitted to the relevant Federal or State Inland Revenue Service, depending on whether the tax is federal or state, so they can review the assessment in light of the concerns raised. If the RTA agrees with the objection, the tax assessment will be adjusted accordingly. However, a Notice of Refusal to Amend (NORA) will be issued if the RTA rejects the objection. In such cases, the unsatisfied taxpayer has 30 days from receiving NORA to file an appeal with the Tax Appeal Tribunal (TAT) or initiate a lawsuit in the appropriate Federal or State High Court.

Therefore, any economic activity that involves a business model incorporating digital components such as digital content, automation, communication, distribution, payment, or other electronic transactions falls under the broader concept of the "digital economy" (Mas & Varela, 2021). Digital economy taxation remains an emerging issue in international taxation due to the absence of a universally accepted standard for taxing income derived from digital economic activities. Consequently, each tax jurisdiction develops and applies its model. Significant Economic Presence (SEP) is often used to determine digital economic activity within a host country (Lyla, 2021). Recent trends, especially during the COVID-19 pandemic, have demonstrated the significant impact of online sales of goods and services on global GDP (OECD, 2019).

Governments have not fully capitalized on the digital boom to generate revenue through effective taxation. For instance, according to the United Nations Conference on Trade and Development (OECD, 2021), the share of the digital economy in the global economy increased from 4.5% to 15.5% between 2017 and 2020. Despite being the second-largest economy in Africa, Nigeria has not witnessed a substantial increase in revenue from digital economic activities, despite the value creation. Ntiamoah and Asare (2020) highlighted that individuals who pay taxes on traditional forms of commerce may be discouraged from doing so if digital economic activities are left untaxed. Additionally, research suggests that residents of areas with high sales tax are more inclined to make online purchases compared to those in low-sales-tax areas (Goolsbee, 2019). Furthermore, non-resident companies (NRCs) with a digital presence often pay minimal or no taxes in the jurisdictions where they provide their services (Aslam & Shah, 2020). This has led policymakers to question the adequacy of the current tax system in capturing sufficient revenue from digital transactions. To address the legal implication of this taxation of the digital economy, researchers have proposed policy recommendations aimed at reducing tax avoidance and evasion through the implementation of new tax laws. Thus, the study aims to examine the legal implication of tax disputes in a digital economy with a focus on the role of accountants in Nigeria.

2. Literature Review

2.1 Concept of Digital Tax Economy in Nigeria

The digital tax economy lacks a concise definition as it encompasses various economic activities (Becker, 2021). It includes platform-supported services like

Uber, online platforms such as the Amazon, Facebook, and Google, trading electronic services such as e-books, video games, and films, as well as the online delivery of software and mobile-enabled technologies and applications. A fundamental feature of digitalization is its ability to enable companies to conduct business in locations where they have no physical presence (Ismail, 2020; Ndulu et al., 2021). Hitherto, international tax laws required multinational enterprises (MNEs) to pay taxes based on the location of production rather than the country where consumers were located. However, an increasing number of countries are advocating for digital taxation through corporate tax to target the users of digital services within their territories (Asen & Bunn, 2021). These changes are driven by the need to mobilize revenue, particularly in response to the challenges posed by the COVID-19 pandemic.

The definition of digital taxes varies among nations, leading to confusion and controversy. Kelbesa (2020) defines digital service taxes (DSTs) as direct taxes applied to non-residents with no physical presence in the taxing country but with customers and users there. Megersa (2020) and Bunn et al. (2020) argue that the nature and scope of digital taxes differ across countries. Countries have adopted different approaches to defining businesses legally obligated to pay corporate taxes based on customer access to digital services within their borders. For instance, India, Kenya, Nigeria, and Indonesia have implemented various tax policies (Kelbesa, 2020). India proposed a tax on digital businesses based on a significant economic presence test, although concise definitions and thresholds remain unclear. Indonesia levy taxes on digital transactions based on domestic market activity through digital means, targeting gross revenues. Kenya's digital tax is imposed on income from digital marketplaces, similar to Indonesia's approach. Nigeria tax online business profits linked significantly to the economic presence within the country.

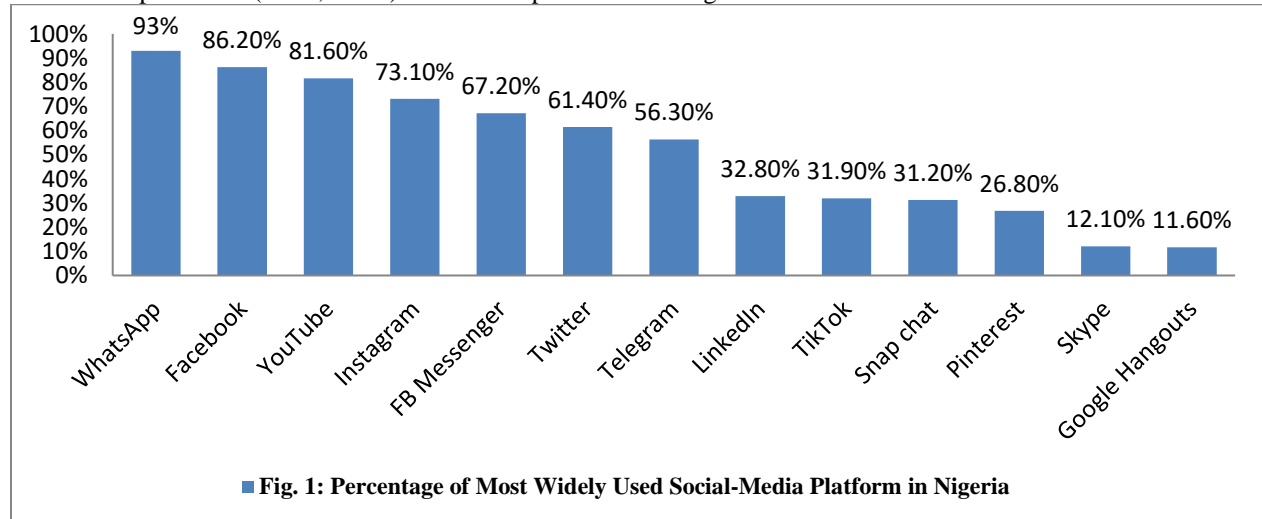
Digital taxes encompass a range of forms, including Value Added Tax (VAT) on digital services, corporate tax on digital transactions, withholding taxes, and income taxes on digital transactions (Kelbesa, 2020; Kofler & Sinnig, 2019; Low, 2020). Some categorize these taxes as direct (income taxes on digital services) or indirect (consumption taxes like VAT). Bunn et al. (2020) state that "digital services taxes are gross revenue taxes with a tax base that includes revenues derived from a specific set of digital goods or services or based on the number of digital users within a country." However, many of these regulations still have unclear and

underdeveloped aspects that require further clarification. Digital tax policies primarily target social media MNEs such as Facebook, Google, and the Amazon, as well as web-based services and e-commerce marketplaces. These policies aim to broaden the tax base by extending existing legislation to cover new players or implementing new tax laws specifically for previously untaxed businesses and platforms. For example, countries like Zimbabwe and South Africa have reformed VAT policies to accommodate the digital trade of products and services, even without a physical presence in those countries (Bunn et al., 2020). Corporate tax policies have also been revised to include digital services in the tax net.

The Nigerian government has recognized the need to ensure that digital businesses operating within its jurisdiction contribute their fair share of taxes. Efforts have been made to develop appropriate tax policies and regulations in addressing the challenges posed by the digital economy. For example, the Federal Inland Revenue Service (FIRS) has issued guidelines on the taxation of digital transactions and services, including the taxation of digital advertising and online platforms (FIRS, 2020). The concept of

the digital economy in Nigeria refers to the economic activities enabled by ICTs and the growth of digital platforms across various sectors. It has played a significant role in promoting entrepreneurship, job creation, and economic diversification. The Nigerian government recognizes the potential of the digital economy and has implemented initiatives to support its development. However, challenges such as digital infrastructure, access to affordable internet, and tax implications need to be addressed to harness the digital economy's benefits in Nigeria fully.

Due to its insufficient legal framework, Nigeria, along with other emerging economies worldwide, is experiencing significant tax revenue losses as a result of its inability to tax digitalized business models. Despite being the most populous nation in Africa, with a population of over 200 million and more than 40 million active users engaged in digitalized business models (as supported by relevant literature), Nigeria still struggles to generate substantial revenues from digital economic activities. This is reinforced by Figure 1 below, which highlights the prominent social media platforms utilized in Nigeria during the third quarter of 2021, along with various digital elements.



Source: Adopted from Statista (2021)

Figure 1 present data on the most utilized social media platforms in Nigeria, which generate billions of US dollars from Nigerian users through streaming, advertising, and other forms of digital content. However, these businesses do not pay taxes to the Nigerian government due to the absence of a well-established legal framework that brings these digital business models under the country's tax jurisdiction. This lack of digital presence by these businesses hinders tax collection. Considering the substantial population of digital users, Nigeria has a significant

opportunity to leverage the potential of the digital economy to drive growth, innovation, and economic development. Failing to harness these opportunities may lead to isolation and stagnation. In view of these challenges, this study aims to examine the tax liability of Non-Resident Companies (NRCs) in Nigeria and determine the tax base derived from digital economic activities, aligning with the new fiscal provisions of the Nigeria Finance Act 2020. Additionally, this study addresses the concept of Significant Economic Presence (SEP) and contributes

to the existing knowledge on the benefit received theory of taxation. The limited availability of studies on taxation in the digital economy justifies the research, particularly regarding Nigeria. The importance of taxation in Nigeria economies is; taxation serves as the mainstay of Nigeria's fiscal system, playing a vital role in the government's revenue generation efforts. It enables the government to finance public expenditures, such as infrastructural development, healthcare, education, and security, essential for socio-economic progress. Tax revenues also reduce the country's reliance on oil revenues, subject to price volatility.

2.2 The Legal Implications of Tax Disputes in Nigeria

Tax disputes in Nigeria have several legal implications that impact taxpayers and the Relevant Tax Authority (RTA). These implications arise from the legal framework and processes involved in resolving tax disputes within the country. Firstly, when a taxpayer is dissatisfied with a tax assessment issued by the RTA, they have the right to initiate a tax dispute by objecting to the assessment through a Notice of Objection (Section 69(1) of the Companies Income Tax Act, 2004). This initiates the formal dispute resolution process. The Notice of Objection must be submitted within 30 days of receiving the tax assessment (Section 69(2) of the Companies Income Tax Act, 2004). Failure to adhere to this timeframe may have consequences for the taxpayer's right to challenge the assessment.

Upon receiving the Notice of Objection, the RTA is required to review the tax assessment in light of the raised concerns (Section 69(3) of the Companies Income Tax Act, 2004). If the RTA agrees with the objection, the tax assessment will be adjusted accordingly. However, if the RTA disapproves of the objection, they are required to issue a Notice of Refusal to Amend (NORA) (Section 69(5) of the Companies Income Tax Act, 2004). This NORA signifies the RTA's refusal to amend the tax assessment based on the objection.

The legal implication for the taxpayer at this stage is that they have the right to appeal the NORA by filing an appeal with the Tax Appeal Tribunal (TAT) or bringing a lawsuit before the appropriate Federal or State High Court within 30 days of receiving the NORA (Section 69(6) of the Companies Income Tax Act, 2004). The choice of the forum for appeal depends on the nature of the taxpayer and the tax involved. The TAT has jurisdiction over disputes involving companies, while the High Court has

jurisdiction over disputes involving individuals and other entities.

Engaging in the appeal process carries significant legal implications for both the taxpayer and the RTA. The taxpayer must present their case, providing evidence and legal arguments to support their objection. On the other hand, the RTA is obligated to defend the tax assessment and provide supporting evidence for their position. The outcome of the appeal has legal implications for the taxpayer's tax liability. If the appeal is successful, and the TAT or High Court rules in favor of the taxpayer, the tax assessment will be adjusted in their favor. This may result in a reduction in tax liability or even complete dismissal of the assessment.

However, suppose the appeal is unsuccessful, and the TAT or High Court upholds the tax assessment. In that case, the taxpayer is legally obligated to comply with the ruling and pay the assessed tax amount. Failure to comply may lead to further legal consequences, such as the imposition of penalties and interest on the outstanding tax amount. It is important to note that the legal implications of tax disputes in Nigeria extend beyond the specific case at hand. The outcomes of tax disputes set legal precedents that can impact future disputes and shape the interpretation and application of tax laws in the country.

The legal implications of tax disputes in the digital economy in Nigeria can be summarized as follows:

Tax Jurisdiction: One of the key challenges in taxing digital businesses is determining the appropriate jurisdiction for taxation. Digital companies may have a presence in multiple countries without a physical establishment, making it difficult to attribute their tax liabilities. This raises questions about the allocation of taxing rights between jurisdictions and may lead to disputes between tax authorities in different countries.

Permanent Establishment: The concept of a permanent establishment, which is used to determine the tax liabilities of multinational companies, becomes more complex in the digital economy. Traditional notions of physical presence may not apply to digital businesses, leading to disputes over whether a digital company has a taxable presence in Nigeria.

Transfer Pricing: Transfer pricing refers to the pricing of transactions between related entities within a multinational enterprise. In the digital economy, issues arise when determining the fair allocation of profits among different parts of a multinational enterprise. Disputes can arise between tax authorities

and digital companies over transfer pricing arrangements and the appropriate valuation of intellectual property and digital assets.

Double Taxation: Double taxation occurs when the same income is taxed in multiple jurisdictions. The risk of double taxation increases in the digital economy, where transactions can cross borders effortlessly. Resolving disputes related to double taxation requires coordination between tax authorities through bilateral tax treaties and the adoption of international tax standards.

Legal Framework: The legal framework in Nigeria needs to adapt to the challenges posed by the digital economy. Updating tax laws and regulations to address digital transactions, digital platforms, and emerging business models is essential. Clarity and specificity in tax legislation are necessary to minimize ambiguities and potential disputes.

3. Underpinning Theories

The concept of taxation is rooted in two main theories: the ability to pay theory and the benefit theory. These theories provide the underlying principles for designing and implementing tax systems.

3.1 Ability to Pay Theory

The ability to pay theory was developed by Adam Smith in 1776. The theory suggests that individuals and entities should contribute to taxation based on their ability to bear the burden of the tax. This theory takes into consideration the income and wealth of taxpayers. According to this theory, those with higher incomes or greater wealth should pay a larger share of taxes as they can do so. The theory proposes that taxes imposed by authorities should be determined based on an individual's ability to pay (Muturi & Kiarie, 2015). This theory emphasizes the principle of progressive taxation, where the tax burden is higher for individuals with higher incomes. It asserts that taxpayers with greater financial resources should bear a larger proportion of the tax burden (Julia, 2018). Conversely, if a flat tax rate is applied, it would disproportionately impact individuals with lower incomes. The legal implication of this theory is that the capacity to pay taxes is measured in monetary terms, focusing on objective indicators. This has intentionally avoided delving into the subjective sacrifices individuals may experience, which led to the rejection of applying the principle of economic capacity. However, this simplification has resulted in a loss of credibility in justifying the principle of equality. Hitherto, it has not been evident

how to determine the economic capacity of an individual entity.

3.2 Benefit Theory

The benefit theory was propounded by Knut Wicksell in 1896. The theory argues that individuals and entities should contribute to taxation based on the benefits they receive from public goods and services provided by the government. According to this theory, individuals and entities who derive greater benefits from government-provided services should contribute more to tax revenue. The theory states that the government should impose taxes on its citizens based on the benefits and services provided by the state. Furtherance to the assumption of this theory, the tax framework signifies the reciprocal benefits obtained through the utilization of uninterrupted broadband and other infrastructure facilities necessary for conducting business transactions through digital elements like digital content, digital automation, digital communication, digital distribution, and digital payment, all of which are categorized as digital economy activities. Also, the legal implication is sequel to Section 13(2), (c), (e) of the Finance Act 2020, as amended by Section 4, also incorporates the provision of technical, management, professional, or consultancy services in Nigeria by foreign firms. This indicates that the inclusion of digital economic activities not only generates revenue for the government but also upholds the principle of fairness among other taxpayers in the country.

4. Research Methodology

The study employed a systematic review method, encompassing a comprehensive analysis of relevant scholarly articles, proceedings, journals, and reports. These sources comprised academic and professional literature, providing a robust foundation for drawing conclusions regarding the tax disputes, digital economy in Nigeria and its legal implications and underpinning theories of taxation. The systematic review approach was chosen due to its suitability for identifying, evaluating, and synthesizing evidence-based findings from academic and professional literature and incorporating insights from the Finance Act 2020.

5. Conclusion

Tax disputes in the digital economy have significant legal implications in Nigeria. As the digital economy continues to grow and evolve, tax authorities face challenges in effectively regulating and taxing digital businesses operating within the country. The unique nature of digital transactions and the borderless

nature of online platforms create complexities in determining tax liabilities and enforcing compliance. The proposal for a digital services tax (DST) aimed at taxing large tech companies has faced challenges in achieving unanimous agreement among member states. It also concluded that there is need to continue working toward consensus and explore alternative measures to ensure that digital companies contribute their fair share of taxes. This has led international efforts to address digital taxation issues through its BEPS 2.0 project. It is crucial for the Nigeria to continue promoting global cooperation and consensus-building among countries to achieve a fair and comprehensive framework for digital taxation.

6. Recommendations

Based on these reviews, the following recommendations were made:

- Nigeria should continue to engage in international discussions and collaborate to develop common principles and guidelines for digital taxation. Cooperation will help ensure a level playing field and prevent tax avoidance and double taxation.
- Tax policies should balance promoting innovation, investment, and economic growth in the digital economy while ensuring that companies pay their fair share of taxes. The law should consider the unique characteristics and challenges posed by the digital economy.
- Improved transparency and data sharing among tax authorities can help identify tax liabilities in the digital economy and combat tax avoidance. That is Nigeria should explore mechanisms for exchanging information and cooperating on tax enforcement.
- Tax authorities should provide clear and updated guidance on applying tax rules to digital business models. This will help taxpayers understand their obligations and reduce uncertainty and compliance costs.
- As the digital economy evolves, it is crucial to monitor developments and adapt tax policies accordingly.

7. Implication of the Study Findings

This study contributes to the existing body of knowledge regarding tax disputes in a digital economy. It provides clarity on the Significant Economic Presence (SEP) within the Nigerian context. The benefit and ability to pay theory also support the study, which argues that foreign

enterprises with a digital presence should pay taxes in exchange for the benefits they receive from the state, particularly considering their income derived in Nigeria and the facilitation of their business operations through the ease of doing business initiatives. In practical terms, non-resident companies (NRCs) with SEP in Nigeria must register for income taxes, file a tax return, and prepare financial statements for their business operations in Nigeria and internationally. These Nigerian financial statements must undergo auditing by an independent auditor based in Nigeria. The incidence of taxation would ultimately be borne by Nigerians, who are the ultimate users of the products or services provided by these NRCs. This situation contradicts the goal of fostering ease of business in the country. The findings of this research can inform policy decisions and serve as a basis for further empirical studies in tax disputes and digital economy. This research is significant for government regulators, academics, and students interested in understanding and addressing the implications of tax disputes in the digital economy.

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Boko Haram Terrorism and Socio-Economic Development in Borno State, Nigeria

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Abstract. The violent extremist group, Boko Haram, operating in Northeast Nigeria has severely damaged the region's infrastructures and left thousands of people displaced. The incessant violent attacks had caused serious disruption and decline in economic activities, investment and education. This would have substantial implication for the socioeconomic development of the North-East generally, and Borno state particularly. Borno state is the epicenter of Boko Haram terrorism in Nigeria's least developed geo-political zone. Terrorist activities over the years have further worsened the people's already difficult socioeconomic conditions. Thus, the study adopted qualitative methodology to examine the effect of terrorism on Borno state's socio-economic development. Hinged on state fragility theory, the study argued that whereas several efforts have been made to combat terrorism, Nigeria's fragile and weak system greatly hampered these efforts. Considering the essentiality of education for long-term development, incessant abductions of pupils and disruptions of educational activities have further jeopardized the state's chances of development. The study found that terrorism has dealt a terrible blow on business activities, mobility, investment and educational opportunities in Borno state. In order to engender sustainable development, it is imperative that the Nigerian government, domestic stakeholders and international development partners intensify collaboration to address the menace of terrorism in Nigeria.

Keywords: Boko-Haram, Displacement, fragility, Socio-economic development, Terrorism

1. Introduction

The threat of terrorism has persisted throughout history. Attacks on the United States and other nations on September 11, 2001, quickened the pace of insurgency in the region known as the Arc of Instability, which stretches from the Middle East to

North Africa. This has made it possible for terrorist groups like Al-Qaeda, Al-Shabab, ISIS and the Taliban to carry out heinous crimes including hostages, suicide bombings, shooting victims at close range and nocturnal assaults. Supposedly sacred places like schools, markets and places of worship have been subject of indiscriminate attacks (Bamidele, 2016; Amalu, 2016). The majority of victims are the often described vulnerables of the society, namely women and children (Edem, 2017). These present a serious obstacle to socioeconomic development because they result in the loss of a population's means of subsistence as well as the destruction of educational institutions, structures and facilities. Activities of insurgent organizations such as Al-Qaeda, Al-Shabab, the Islamic Salvation Front, the Seleka coalition of the Central African Republic, Tuareg rebels in Mali, Somali pirates, the National Liberation Force in Burundi, the Congolese Revolutionary Forces (DR Congo) and the Lord's Resistance Army (Uganda) (Sarki, Solomon & Kaka, 2021) has resulted in untold hardship, injury and death of a number of persons. In fact, thousands of people have become permanently disabled and displaced (Aminu, 2015).

The terrorist groups are mostly motivated by ethnic, religious and political ideologies. As a result, homes, community buildings, wells, food production/crops, livestock and personal assets are destroyed; access to humanitarian aid is impeded, thousands of people die and lose their homes, people are internally displaced and many are forced to flee for refuge in neighbouring territories (Jelilov, Ayinde, Tetik, Celik & Olali, 2018). But history shows that insurgency is not entirely a recent phenomenon in Nigeria. Major Isaac Jasper Adako Boro, an Ijaw from the nation's Niger Delta region, led the fight to free the Niger Delta people, which is where the insurgency's roots can be found. He was the first to form the Niger Delta Republic (Kangdim, Yorgancioglu, Bulus, Muazu & Danladi, 2022). The Maitatsine sects led by

Sheikh Muhammadu Maruwa engaged in an intrareligious conflict in northern Nigeria in the late 1970s and early 1980s. It is not inconceivable that Boko Haram's root is traceable to this Maitatsine insurrection.

The dangerous nature of terrorist attacks has gravely impacted student education. Some pupils actually quit going to school while the school calendar becomes unstable. Mobility and access to basic infrastructures have been denied. Farming and animal rearing, the mainstay of the people's livelihood has been damaged by incessant attacks, stealing and destruction.

More importantly, the attempts by government to discourage violence and attacks through public reorientation have yielded only a little result. Similarly, the deployment of men of the armed forces and joint task force to the impacted areas, and promised amnesty offered to those who willingly lay down their weapons do not seem to be making a difference as the terrorist group appear buoyed by foreign support. The Boko Haram terrorism has had a significant negative influence on socioeconomic activities in Borno state by making it more difficult to live or earn a living, get quality education or access transportation. This study, therefore, is an assessment of Boko Haram terrorism and socio-economic development in Borno State.

2. Conceptual Review

2.1 Boko Haram Terrorism in Nigeria

Terrorism is the systematic use of force, violence and intimidation usually to serve political goals. Terrorism, though irrational conduct, is a rational act that exploits violence or the threat of violence in pursuit of religious, political, or other objective. "Rational act" is used here to refer to the careful planning and execution process of a terrorist act. Terrorism is often difficult to define as "freedom fighters" and "separatist agitators" are often labeled rebels and terrorists by the government of the state they reside. Terrorism is a major national security threat in Nigeria. Despite an overall drop in terrorism-related fatalities, the 2023 global terrorism index puts Nigeria in the 8th position in the list of countries with worst terrorism impact. Both military and civilian targets are frequently attacked by the numerous militant groups having headquarters in Nigeria. The deadly terrorist group, Boko Haram, and its rival group, Islamic State West Africa Province (ISWAP), are primarily active in the north, and particularly the north-east. In a twist of event, various

degrees of terrorist activities are being perpetrated by the armed herdsmen across the states in the north-west and north central; and unknown gunmen who enforce "sit-at-home" order in the south east.

Due to the frequency of terrorist operations carried out by the Boko Haram sect, Nigeria was ranked third among the 162 nations in the world that have been most severely affected by terrorist activities in the 2015 Global Terrorism Index. According to the ranking, only the top two nations with an Islamic majority – Iraq and Afghanistan – were worse than Nigeria. Nigeria ranked worse than Somalia and Libya in Africa. There are a number of social problems, including widespread poverty despite affluence, stark income inequality, high rates of youth unemployment, low industrial output, high rates of inflation, deteriorating infrastructure and shaky GDP growth which daily fueled terrorism in Nigeria (Gray & Adeakin, 2015; Eze & Eze, 2020).

According to the Supreme Council for Islamic Affairs in Nigeria (SCIAN), the name Boko Haram is a combination of Hausa and Arabic words that means "Western education is wicked" and "defines a fundamentalist society with a strong desire to affect sociopolitical change in Nigeria" (Abdulkabir, 2017). The religious justifications of the Boko Haram group were not mentioned in this description. To encourage a proper understanding of the phrase, an accurate definition of a fundamentalist group of this kind should have underlined its philosophy. According to a BBC report, Boko Haram is a local Salafist Jihadist organization and an Al-Qaeda affiliate in northeastern Nigeria with a violent philosophy based on conventional Sharia law. (BBC, 2020). Although the sect is an organization linked to terrorist action, the above descriptions differ in that neither has emphasized its violent nature. Thus, the Council of Muslim Clerics (CMC) in Nigeria described Boko Haram as a jihadist group that uses violence to force governments and the people to adhere to religion, but with mainly political goals (Bonditti, Opitz & Zebrowski, 2015). The religion and ideological leaning of Boko Haram remains a subject of controversy, especially from the perspectives of those who will not want their religion associated or equated with terrorism.

The Boko Haram insurgency continues to pose a serious threat to the nation's security and corporate political structure (Zenn, 2014; Igboin, 2022). When Boko Haram violence resumed in 2009, the group's assaults and suicide bombings have soared beyond state control, as it intensified attacks on targeted churches, mosques, schools, prisons, police stations

and military barracks in order to achieve their terrorist objectives. Some of the estimated 250 schoolgirls reportedly abducted by the group in Chibok, Borno state in 2014 still languish away in captivity till now. Anyadike (2014) noted that civilians, non-governmental targets and the entire Nigerian population are now included in the violence campaign that was first directed against security forces and the organizations that support them.

Regardless of the form of uprising Boko Haram engages in or what drives them to do it, the results can be psychological and financial terrible. Age, race, social status, educational attainment and place of birth are all variables among insurgency casualties. While everybody feels the impact of insurgency, some groups are deemed more vulnerable to this type of persecution (Bonditti, Opitz & Zebrowski, 2015). The long disconnection between many parents and their children, like the Chibok or Dapchi girls in captivity was one common consequence of insurgency, which appeared extraordinarily traumatic to individuals concerned.

The Boko Haram attacks frequently leave significant economic and financial repercussions in addition to psychological and physical effects on victims and their families. According to Dambazau (2014), ransom payments may cost millions of naira yearly, although it is impossible to actually estimate the exact amount because the amount and frequency of such payment remain unknown; more so as many cases are unreported. Edem (2017) asserted that many parents at such time became severely violent and some turned to religion for solace. Some became constantly unpleasant and ill, unable to sleep since they knew their children were elsewhere.

In Nigeria's northern region, violent attacks involving Boko Haram terrorists resulted in the deaths of civilians, displacement of many and destruction of properties. Boko Haram, translates as "Western education is forbidden" in Hausa, constitutes the philosophy behind incessant attacks on schools. This cult gained notoriety in 2009 after engaging in attacks against the government in numerous locations in Northern Nigeria that resulted in at least 800 fatalities (Oyewole, 2016). They want the ideology and law of Sharia, with the establishment of Islamic caliphate in Northern Nigeria, be strictly applied. A series of attacks by the cult in December 2011 resulted in the deaths of over 100 people and the displacement of over 90,000 more (Ngwama, 2014).

2.2 Concept of National Security

The phrase "national security" is imprecise and sometimes used incorrectly (Wolfer, 1962). (Oyewole, 2016) posited that it is an odd phenomenon that is subjective and so relational and relative as opposed to being a distinct, objective concept. Yet, preserving national security necessitates the use of economic force, diplomacy, power projection, and political authority in order to preserve the existence of the state. Originally emphasizing military capability, it now includes a wide range of elements that all affect the nation's non-military or economic security as well as the values upheld by its society (Zeman, Bren & Urban, 2018). As a result, for a nation to have national security, it must also have economic security, energy security and environmental security. A nation's "defense against all sorts of external attack, espionage, hostile reconnaissance, sabotage, subversion, annoyance, and other unfavorable effect" is national security (Shinkaiye, 2014). This notion is influenced by the traditional idea of state survival and protection against foreign invasion through the deployment of the military to ensure its full ability as a sovereign nation to endure.

Security and safety are created by the state. The state must provide its citizens this right because it is a crucial and required service (Ntamu, 2014). It may be argued that an unstable state loses legitimacy in the eyes of its citizens and the international world. In international relations, terms like failed states, failing states and fragile or collapsed states are a result of a society's loss of security. The term "security" is broad and has various elements, such as personal security, international security, and many more. Ibrahim and Bala (2018) took another step toward distancing the idea from the normative and empirical challenges by putting the core of the debate about what protection is, who it should be for, and how it should be used. After giving a brief description of security, Barry Buzan posited that security at the level of the individual is connected to security at the level of the state and the international system (Buzan, 2007). The provision of state security is a requirement for personal security because it conflicts with Boko haram in Nigeria.

Nigerians in diaspora are worried about their security risk since individuals who perpetrate this crime believe people in diaspora are successful and wealthy. Boko Haram may go after them for a ransom, cutting them off from their towns and loved ones or kidnap their relatives for ransom. Foreign nationals are also often kidnapped and eventually

freed after their employers might have paid a ransom. According to Zeman et al (2018), economic inequality is one important factor that has encouraged violent extremism, recruitment, and support for Boko Haram. A report from the National Bureau of Statistics (2020) also detailed the level of poverty in Nigeria. According to the survey, 77.7% of people are relatively poor, with the percentage being higher in the northeast of the nation where Boko Haram is active. By making personal appeals to themes like poverty, unemployment and illiteracy, the group developed mechanisms for fundraising and recruiting for terrorist operations.

3. State Fragility Theoretical Framework

A political entity has the status of a state when it has a populace, a territorially distinct government and ability to interact with other states. These characteristics give a state sovereignty. There is, however, little agreement on the characteristics of a fragile state. This is due to the fact that fragility's degree is still a relative concept. There is consensus regarding the obligations of sovereign governments to carry out fundamental security duties, ensure the socioeconomic welfare of their populations and play regulatory and diplomatic roles. A state can track its performance in fulfilling its obligations as either success or failure. Fragility is characterized by a situation of declining capability to perform these functions.

When a state cannot provide fundamental human security or establish the conditions and public goods required for advancements in human development, it is considered to be fragile. A state may not always be unable to carry out its obligations, but it may lack the ability or skill to do so most of the times. This effectively explains why Adishi & Oluka (2018) hypothesized that state fragility includes the government's weakness in providing the core of governmental tasks to its citizens and people. State fragility has both causes and effects, and both are not mutually exclusive since they create a vicious cycle. The repercussions of the state's fragility are also variables that contribute to it. Fragile governance, economic inequality, poverty, violence, political instability, the permeability of borders and weak state institutions are some of the indices of state fragility (Omilusi, 2016). Effective state institutions are essential for addressing these causes and consequences of state fragility. In order to keep state fragility and intrastate conflicts under control, state institutions must be consistent. Institutions of the state include the executive branches, the judiciary,

parliament, non-governmental organizations and their personnel.

According to the state fragility hypothesis, a state can be either fragile or resilient depending on how weak or powerful its institutions are. The inability of Nigeria to curtail the menace of terrorism, particularly in the North East, can be attributed to the weakness of the state apparatuses including the security forces and local stakeholders to confront the terrorists. Widespread corruption and deliberate sabotage has deprived the security forces of the necessary equipment and zeal to combat terrorism. This has also affected the intelligence gathering efforts required to either nip crimes in the bud or unravel the mystery surrounding violent terrorist attacks. No wonder the same pattern of terrorist attacks are found recurrent in different part of the North East states. Weak security and justice system that allows the captured terrorists to either escape or regain freedom without thorough investigations and prosecution is symptomatic of a fragile state.

4. Socio-Economic Effect of Boko Haram Terrorism in Borno State

4.1 Effects on Agriculture and Means of Livelihood

Boko Haram's violent activities have significantly impacted how people live in the state. Borno state is an agrarian society where local economy depends on farming and rearing of animals. More than 70% of the people are employed in agriculture (FAO, 2021). Maize, rice, sorghum and millet are among the agricultural products the state is renowned for (Abbas & Fatima, 2017; Izge, 2019). This agricultural activity has been crippled by the Boko Haram insurgency. Many farmers have been abducted or threatened, many farmers have been killed or forced to abandon their crops (Okorie, 2015). The UNHCR (2021) estimated that about 2 million people, many of them farmers, have been displaced by the insurgency in Nigeria. A report from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) estimated that during the last ten years, Boko Haram attacks have caused a 40% decline in agricultural production in Borno State (OCHA, 2019). Consequently, agricultural productivity has decreased, leading to food scarcity, shortages and starvation (Odeyemi, Onasoga & Okereke, 2019). Borno State is a significant economic centre with a booming grain, cattle and other commercial activity. This has been greatly disrupted. According to UNICEF (2020), about 1,200 farms have been destroyed by Boko Haram in Nigeria since 2014.

Boko Haram insurgents have stormed market places, causing casualties and damage to properties. Due to the concerns for their safety, it becomes challenging for traders to conduct their legitimate businesses in the state. As a result, numerous enterprises have either shut down or relocated to neighboring states (Nwanna, Ugmioko & Okeke, 2018; Brechenmacher, 2019). The Nigerian agriculture industry's supply chain has been hampered by Boko Haram's attacks, as the farmers are unable to get their product to market because of the crisis. Many people simply lost their means of subsistence. Several schools have been burnt or destroyed and numerous teachers and students have been killed or abducted. Because of this, many kids have been compelled to leave school, which lowers the standard of education in the state. The means of sustenance in Borno State have been severely impacted by the extremism of Boko Haram. The insurgency has disrupted agriculture, trade, education, tourism, healthcare, and all socio-economic lives of the people. This also means rapid increment in the country's humanitarian crisis and the region's poverty level occasioned by the loss of livelihoods. The World Food Program estimated that over 4.5 million people in Nigeria required food assistance (World Food Program, 2020). Malnutrition rates have increased as a result of the humanitarian situation.

4.2 Effects on Trade and Commerce

Boko Haram has inflicted havoc on the local economy and businesses in the Northeast. The terrorist group's violent actions have significantly disrupted the economy and decreased trade and commerce (Olaseni & Aluko, 2018). The economy of Borno State is reliant on commerce and business. Sadly, many enterprises have been significantly impacted by the terrorism of Boko Haram. The group has attacked markets, traders, and transporters, leading to the closure of markets and a decline in commercial activity. Trading and transportation businesses suffer severe financial losses as a result, and Borno State residents have less access to goods and services. According to World Bank study, Borno State has lost more than \$1 billion in economic activity as a result of market closures and a decline in trade activities (World Bank, 2016). Boko Haram's attacks in Nigeria have hampered commercial lines, making it difficult to transport goods from one area to another. Major thoroughfares and roadways have been targeted by the terrorist group, making it challenging for trucks and other vehicles to convey cargoes between cities.

The attacks by Boko Haram activities have forced Nigerian traders to relocate. To avoid violence, many traders were compelled to leave their homes and places of business. Due to the inability of traders to conduct business in the area, trade and commerce have decreased. The Internal Displacement Monitoring Center said that the Boko Haram insurgency in Nigeria has resulted in the displacement of over 2.5 million people (Internal Displacement Monitoring Centre, 2021). The attacks by Boko Haram have also significantly raised the cost of food in Nigeria. There is a lack of food in some areas as a result of the interruption of trade routes and market closures, which has raised prices. According to a United Nations assessment, the cost of basic staples like corn and beans has jumped by as much as 50% in some regions of Nigeria (UNICEF, 2020). Due to this, many Nigerians now find it impossible to buy basic essentials. Likewise, this has caused a decreased foreign direct investment in Nigeria. Due to the volatility of the region, it has become more challenging for foreign businesses to operate in Nigeria, particularly Borno state.

4.3 Effects on Health

In the same vein, Boko Haram terrorism has had manifest impact on healthcare in Borno state. Hospitals and health facilities have been serially assaulted by the outlawed group, which has resulted in the permanent or temporary closure of these institutions and a decreased access to healthcare services. A rise in avoidable fatalities and the spread of illnesses including cholera, measles and meningitis have been reported as a result of the Boko Haram assaults, according to a report by Médecins Sans Frontières (MSF, 2018). This was recurrent in the overcrowded IDP Camps. The health and well-being of the inhabitants of Borno State have been significantly impacted by this. Abdulkabir (2017) revealed that among those who have been impacted by Boko Haram terrorism, the prevalence of mental health issues such depression, anxiety, and post-traumatic stress disorder (PTSD) is significant. Many locals have to endure unending psychological anguish as a result of the instability and terror brought on them by Boko Haram assaults, especially those who have personally experienced the carnage (Izge, 2019).

It is natural that individuals who experience violence (and terrorist violence in this case) are prone to depression and anxiety. The intensity of exposure to Boko Haram violence, therefore, correlates with increased anxiety of the victims. The terror committed by Boko Haram in Borno state has also

had a significant impact on the people's physical health. The devastation of hospitals and clinics as a result of the violence has made it difficult for many individuals to get healthcare services (UNICEF, 2019). Overcrowding in camps as a result of population relocation has raised the danger of infectious illnesses. Internally displaced people (IDPs) in Borno state had greater malaria prevalence than non-IDPs (Odeyemi, Onasoga & Okereke, 2019). This is because there are no healthcare facilities or good living circumstances in the camps. In the IDP camps, there have also been epidemics of cholera and measles in addition to malaria (UNICEF, 2019). The insecurity created by Boko Haram terrorists has also restricted access to hospitals. The gang has targeted health personnel, killing or kidnapping several of them (Abdulkabir, 2017). This has led to acute shortage of medical personnel in the state, further decreasing people's access to healthcare services.

4.4 Effects on Education

Another sector in Borno State that has been significantly impacted by the Boko Haram conflict is education. The group has attacked schools, murdered teachers, and abducted children, leading to the shutdown of schools and a decline in educational activities. In northeastern Nigeria, particularly Borno State, the Boko Haram insurgency has harmed over 2.8 million children and damaged over 1,400 schools, according to a study by the United Nations Children's Fund (UNICEF, 2018). As a result, there are much fewer schools now available to kids, who dread to attend, especially in rural areas where security presence is near absent. Both students and teachers have had to move or be moved. Several schools were compelled to close and many students and teachers ran away from their homes to escape the violence. UNICEF (2020) reported that many of these displaced students and pupils are unable to attend school thereafter. Such violent and fearful atmosphere is certainly not conducive for teaching and or learning. The number of students attending school has significantly decreased, especially among girls. According to Amnesty International (2018), women are disproportionately affected by the violence and are more likely to abandon their studies due to worries about their safety.

Sadly, in order to address the security situation, the government is forced to divert resources away from education. With an estimated 10.5 million children not attending school, Nigeria has one of the highest percentages of out-of-school children in the world (UNESCO, 2021). The attacks by Boko Haram have

worsened the situation and made it more challenging for the government to provide education to the locals. Sadly still, the students (and parents) in the violence-prone areas have lost the zeal for schooling. One would recall the terrorists' express threat to recapture the Dapchi victims should they return to school.

4.5 Effects on Transportation

With incessant attacks on public transportation, roads and highways, Borno State has been particularly hard hit. The state's transportation business has seen a significant slump as a result of interruptions in the road and highway network, decreased mobility, rising costs, a decline in tourism, and damage to the transportation infrastructure. The road and highway networks are frequent targets of attacks by Boko Haram through detonating explosives and ambushing travelers to obstruct the passage of people and goods. Important roads frequently targeted for attacks include the Maiduguri-Damaturu road, a vital thoroughfare between the cities of Maiduguri and Damaturu. At least 30 persons were killed and the road was severely damaged when Boko Haram assaulted a convoy of trucks in February 2020 (BBC News, 2020).

The daily lives of the people in Borno State have also been significantly impacted by the attacks on the road and highway networks. Transit interruptions and fear of attack have made it challenging for many people to go to work, market, school and other important activities. Several individuals are forced to stay at home. This has reduced social and economic activities. Economic activities decline when people are unable to travel for business purposes. In addition to making it more difficult for aid organizations to provide assistance to individuals in need, the disruption of road and highway networks has also reduced the availability of essential services. According to a study by the International Crisis Group (2020), Boko Haram's control of key roads made it difficult for people and products to move across the area. In the same vein, Amnesty International (2021) alluded that Boko Haram claimed responsibility for a number of attacks against tourists, including the kidnapping of women and girls.

In addition to causing people to evacuate their homes, Boko Haram's attacks have severely restricted their movement. Businesses have found it difficult to transfer goods and supplies as a result of the shutdown of major routes and checkpoints. According to a United Nations (2021) report, the attacks by Boko Haram have cost the area's economy

an estimated \$9 billion. Transportation costs have skyrocketed as a result of this ugly situation. As other routes must be used, which are occasionally longer and riskier, the cost of delivering goods has skyrocketed. These series of attacks have also affected Borno State's tourism industry. The state is home to a number of historical and cultural landmarks, including the Sambisa Forest Reserve and the ancient city of Kanem-Bornu. However, the security situation has prevented visitors from visiting these locations, which has reduced revenues accruable from tourism (Ojekunle & Ajiboye, 2018). Two of the area's tourism destinations are the Mandara Mountains and the Chad Basin National Park. Unfortunately, the security situation would make it almost a misadventure for any would-be visitors. Businesses that depend on tourism, such hotels, parks and restaurants, have been severely impacted by the decline in tourism.

5. Counter-Terrorism Strategies to Address the Menace of Boko Haram in Borno State

Throughout these years, the sect has been unrelenting and merciless in attacking their targets. The Nigerian government has in place a variety of countermeasures to address the danger presented by Boko Haram in Borno state:

Military Operations: The Nigerian government has dispatched military personnel to Borno state to fight Boko Haram. To reduce the group's ability to operate, the military has started ground and air operations as well as information gathering. For instance, Operation Lafiya Dole was launched in 2015 to address the insurgency of Boko Haram in Northeast Nigeria (Council on Foreign Relations, 2020). The operation was effective in retaking some of the areas that the group had previously held.

Community Policing: Community policing is another counterterrorism strategy used in Borno state. A component of the strategy is collaborating with the local populace and vigilantes to spot and alert security officers to any suspicious activity. Attacks by Boko Haram have been detected and prevented through this tactic. For instance, the Civilian Joint Task Force (CJTF), a community policing organization, has played a critical role in identifying and reporting suspicious behavior in Borno state (Council on Foreign Relations, 2020).

Rehabilitation and Reintegration: For former Boko Haram members and those impacted by the insurgency, the Nigerian government has also put in

place rehabilitation and reintegration programs. To help those impacted by the insurgency, the initiative offers education, job training, and psychosocial assistance. Several former terrorists who willingly surrendered their weapons have been successfully de-radicalized and reintegrated into society through the program (Council on Foreign Relations, 2020).

Diplomatic Efforts: Nigeria has sought international security assistance and partnership to combat the Boko Haram insurgency in Borno state. For instance, to improve regional collaboration in combating Boko Haram, the Multinational Joint Task Force (MNJTF) was founded in 2015 (Council on Foreign Relations, 2020).

Development initiatives: These initiatives aim to provide basic necessities including water, healthcare and education for communities devastated by the insurgency. The programs aim to improve the socioeconomic conditions that make people more susceptible to the group's efforts (Council on Foreign Relations, 2020). This also manifests in the modest and commendable efforts of the incumbent Governor Zulum to rebuild the waste places and resettle the displaced people.

6. Conclusion and Recommendations

Terrorism constitutes a critical challenge to Nigeria's drive to development. Boko Haram terrorism has had substantial influence on Borno state's socioeconomic development. The group's operations have impacted the state's means of livelihood, education, and transportation, causing monumental death, displacement, infrastructural deficit and loss of properties. Boko Haram's attacks on livelihoods, including farming and fishing, result in food insecurity, famine and malnutrition in the state. The demolition of schools and the relocation of instructors and students have disturbed the education system, resulting in a drop in educational quality, loss of human capital and increased out of school children. The transportation assaults and fear of being ambushed have made the mobility of people and commodities difficult.

It is soothing to note that successive military operations have been successful in recapturing most of the territories previously controlled by the group, while community policing and intelligence has been effective in identifying and foiling Boko Haram assaults. Various development programs, including rehabilitation and rebuilding of the waste places, have also been implemented to address the socio-economic conditions that make communities in the

state vulnerable to the group's activities. Thus, the following recommendations are made base on the findings of the study:

The government at all levels and non-governmental agencies in the state should encourage job creation and economic empowerment for the teeming youth population who are ready made instrument for terrorist activities. As part of the government's stabilizing efforts to resettle the distressed people, increasing work opportunities and economic empowerment towards poverty alleviation should be prioritized. This can be accomplished by implementing targeted development initiatives such as microfinance, vocational training and entrepreneurial assistance. This should be administered in a way that will reflect social and economic justice.

The central government should partner the state to rebuild damaged schools and guarantee a secure learning environment. There is an urgent need to rebuild and provide access to quality education for children of school age and young people in the state. This can be achieved through the provision of adequate funding, improved teacher training and motivation, physical presence of security men in the schools and the implementation of educational policies that promote inclusivity and equity across the state. Attempt to focus on only the few urban centers will leave the rural areas vulnerable to, and breeding site for, terrorism.

Interfaith and interethnic conversations and reconciliation should be promoted by religious organizations and individuals. The religious leaders, in particular, have a huge role to play in properly reorienting their followers to appreciate the importance of peace and tolerance. Promoting interfaith and interethnic communication and reconciliation is critical for addressing the underlying causes of the Boko Haram crises. This will also promote social cohesiveness and build better understanding and tolerance among different religious and ethnic inclinations. Moreover, community leaders and civil society organizations must be involved in peacebuilding and conflict resolution projects to assist develop trust and foster better collaboration among diverse groups in the state.

Finally, there is the need now to refocus the country's security architecture. While it is important to keep and improve the federal security apparatuses like the police and armed forces, the idea of community policing should be encouraged to allow state

government deploy armed men to combat peculiar criminalities in their domain. This recommendation is made on the understanding that the federal security forces are becoming overstretched for the enormous security challenges facing the country, and that the natives will better understand themselves in crime prevention or conflict resolution. For instance, we believe that the long held Sambisa forest abode of Boko Haram can be better combed with the assistance of the natives' intelligence gathering.

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Inflation and Growth Nexus Re-visited: Financial and Practical Implications of the Threshold Effect in Nigeria

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Abstract. The relationship between inflation and economic growth has been a subject of enduring interest and debate in the field of economics. This study revisits the inflation and growth nexus in Nigeria, with a particular emphasis on the threshold effect – a non-linear phenomenon positing that the impact of inflation on growth varies depending on the level of inflation. Specifically, the study examines the threshold effect of inflation on growth in Nigeria using secondary data from 1986 to 2022, and employs two-regime threshold autoregressive regression modelling. The findings show that the pattern of relationship between inflation and growth is indeed nonlinear and conditional on certain levels of inflation rate. Findings reveal that the optimal threshold for inflation rate is 15.7%. Below the identified threshold, moderate inflation was associated with growth stimulation through mechanisms like reduced real interest rates and increased investment. However, beyond this threshold level (15.7%), the negative effects of inflation became pronounced, hindering economic growth in Nigeria. The findings of this study have several implications for Nigeria's monetary and fiscal policies, offering guidance on how to maintain inflation within a growth-stimulating range. Additionally, businesses and investors operating in Nigeria will gain insights into adapting their strategies to mitigate risks and capitalize on opportunities arising from varying inflation levels. Ultimately, this study contributes to the ongoing discourse on the inflation and growth nexus, providing valuable insights for policymakers navigating Nigeria's economic landscape about the threshold effect of inflation and its financial and practical implications for Nigeria's economic stability and growth prospects.

Keywords: Economic growth; Inflation; Threshold analysis; Nigeria.

1. Introduction

Recent decades have seen a great deal of economics research and discussion on the question of the connection between inflation and economic growth. This ongoing research is motivated by its significant effects on fiscal planning, monetary policy, and general economic stability. The conventional wisdom asserts an antagonistic relationship between inflation and economic growth, as exemplified by the famous "inflation-growth trade-off" put forth by Phillips (1958) and Friedman (1968). In line with traditional wisdom, high inflation rates tend to impede economic expansion. The inflation-growth nexus has been re-evaluated as a result of the conflicting empirical evidence for this straightforward inverse link.

The relationship between inflation and economic growth has long been a subject of scholarly inquiry and policy concern in the field of economics. Traditionally, the debate has centered on whether inflation has a detrimental impact on economic growth, leading to the widely accepted notion of an inverse relationship between the two variables. However, this conventional wisdom has been challenged by the emerging concept of a "threshold effect" in the inflation-growth nexus (Ndoricimpa, 2017). The threshold effect posits that the impact of inflation on economic growth may not be uniform across all levels of inflation; instead, there may exist a critical threshold beyond which inflation becomes detrimental to growth (Bawa, & Ismaila, 2021).

In the Nigerian context, where economic stability and sustained growth are pressing concerns, understanding the intricacies of the inflation-growth relationship is of paramount importance. Nigeria has experienced periods of high inflation, economic stagnation, and currency devaluation, as well as phases of relative macroeconomic stability and growth. Therefore, the overarching research question

to be answered in this study is: what is the nature of the inflation and growth nexus in Nigeria, and what are the financial and practical implications of the threshold effect on the Nigerian economy?

Understanding the nuances of this relationship is crucial for Nigeria, a nation with a history of unstable inflation rates and difficulties with economic growth. One of the greatest economies in Africa, Nigeria has gone through times of rapid inflation and economic stagnation, which were followed by years of rather stable prosperity. Therefore, studying the relationship between inflation and growth in the context of Nigeria can be beneficial for the country as well as for policymakers, scholars, and investors interested in emerging markets and developing economies (Ogbonna, 2014). This study revisits the inflation and growth nexus in Nigeria, shedding light on the financial and practical implications of the threshold effect. The threshold effect theory, also known as the non-linear relationship, posits that the impact of inflation on economic growth may not be uniform across all inflation levels. Instead, it suggests the existence of a critical threshold level, beyond which inflation starts to exert detrimental effects on economic growth (Ndoricimpa, 2017). Below this threshold, moderate inflation might even stimulate economic growth through various channels, such as encouraging investment and reducing real interest rates (Kumar & Woo, 2010; Bawa, & Abdullahi, 2012).

To elucidate the implications of the threshold effect, this study draws on a comprehensive analysis of empirical data, incorporating various inflation and growth indicators, and utilizes advanced econometric techniques. It aims to provide a nuanced understanding of the inflation-growth nexus in Nigeria, identifying the specific inflation rate at which inflation transitions from a potential stimulant to an impediment to economic growth. By doing so, this research offers invaluable insights into the optimal inflation targeting framework and policy formulation for the Nigerian government and central bank, as well as practical guidance for investors and businesses navigating the Nigerian economic landscape.

This study contributes to the ongoing discourse on the inflation and growth nexus by re-evaluating its dynamics in Nigeria, considering the threshold effect. It recognizes the multifaceted relationship between inflation and economic growth, emphasizing the need for context-specific analyses and policy interventions. The findings of this research have the potential to inform more effective monetary and

fiscal policies, enhance economic stability, and facilitate sustainable growth in Nigeria, ultimately benefiting its citizens and the broader international community.

2. Theoretical and Empirical Literature Review

The theoretical framework for studying the inflation and growth nexus in Nigeria, with a specific focus on the threshold effect, draws upon key concepts and models from the field of macroeconomics and empirical research. Central to this framework is the understanding that the relationship between inflation and economic growth is not linear but follows a threshold pattern. The theoretical foundation of the inflation-growth nexus can be traced back to the Phillips Curve, initially formulated by A.W. Phillips in 1958. This curve depicted an inverse relationship between the unemployment rate and the rate of change of money wage rates in the United Kingdom. Milton Friedman expanded upon this concept in 1968, suggesting a trade-off between inflation and unemployment, popularizing the notion that there exists an inflation-growth trade-off. According to this conventional view, lower inflation rates are associated with higher economic growth, as elevated inflation erodes the purchasing power of money, reduces real returns on savings and investments, and disrupts price stability.

However, this conventional view has been challenged by the emergence of the threshold effect theory, which posits that the relationship between inflation and growth may not be linear but rather exhibits a non-linear pattern with a critical threshold. This theoretical review delves into the key concepts and research underpinning the inflation and growth nexus, with a specific focus on the threshold effect, and its implications for Nigeria's economic landscape.

On the threshold effect, building upon the Phillips Curve, the theoretical framework incorporates the threshold effect theory, as articulated by Khan and Senhadji (2001). This theory posits that there exists a critical threshold level of inflation, beyond which inflation becomes detrimental to economic growth. Below this threshold, moderate inflation may stimulate growth through various channels, while above it, the negative effects of inflation start to dominate. For instance, it can reduce real interest rates, encourage investment in real assets, and decrease the real burden of debt (Okunade, et al., 2023; Okunade & Ajisafe, 2022; Okunade, 2018). However, beyond the threshold, the negative effects

of inflation, such as uncertainty, reduced purchasing power, and distortions in resource allocation, start to outweigh the positive effects, leading to slower economic growth. The framework recognizes that the specific threshold level of inflation is not a universal constant but varies across countries and contexts. Identifying this threshold level is crucial for understanding the inflation-growth relationship in Nigeria.

Empirically, a substantial body of empirical research has been conducted to investigate the relationship between inflation and economic growth. These studies have provided valuable insights into the dynamics of this relationship, particularly in the context of emerging economies like Nigeria. Singh and Kalirajan, (2003) examine whether a developing countries excessively low inflation threshold may hurt economic growth. The empirical analysis was done using the annual data from India for the period of 1971 to 1998. A specific question that is addressed in this paper is what the threshold inflation rate for India is. The findings clearly suggest that the increase in inflation from any level has negative effect on economic growth and substantial gains can be obtained by focusing the monetary policy towards maintaining price stability.

A number of studies have looked into the connection between inflation and economic growth in Nigeria, however they rarely took into financial and practical implications of the threshold effect in Nigeria and the impact that occurs between the two. Aminu and Anono (2012), Osuala, Osuala and Onyeike (2013), Bakaere et al., (2015), Oluh and Idih (2015), and most other studies that used multiple regression to examine the effect of inflation on economic growth have found a positive relationship between inflation and growth, whereas Inyama (2013) has found a significant negative relationship. On the other hand, Chude and Chude (2015) demonstrate that the GDP has a significant, adverse impact on Nigerian inflation. Additionally, Obi, Yuni, and Ihugba, (2016) examines inflation and growth nexus in Nigeria. The study employs a two stage least square estimation to examine a simultaneous equation model with data from the Central Bank of Nigeria Statistical Bulletin and World Bank Indicators. The study shows that inflation is beneficial to growth though not significantly while growth is significantly beneficial to inflation; given the positive relationship between inflation and growth and the negative relationship between growth and inflation. The results further show that Money supply and trade openness are significant determinants of real GDP for all three estimation techniques under consideration. While, real GDP, money supply and interest rate are significant determinants of inflation. The study

therefore recommends that inflation be controlled to have its optimal effect on output while production be diversified to optimize its effect on inflation.

Adaramola, and Dada, (2020) examine the influence of inflation on the growth prospects of the Nigerian economy, the study employs the autoregressive distributed lag on the selected variables, i.e., real gross domestic product (GDP), inflation rate, interest rate, exchange rate, degree of economy's openness, money supply, and government consumption expenditures for the period 1980–2018. The study findings indicate that inflation and real exchange rate exert a significant negative impact on economic growth, while interest rate and money supply indicate a positive and significant impact on economic growth. Other variables in the model depict no influence on the economic growth of Nigeria. The causality result shows the unidirectional relationships between interest rate, exchange rate, government consumption expenditures and gross domestic product. However, inflation and the degree of openness show no causal relationship with gross domestic product.

Mandeya, and Ho, (2021) investigated the impact of inflation and inflation uncertainty on growth in South Africa by applying the autoregressive distributed lag (ARDL) estimation techniques on quarterly data covering the period 1961Q1 to 2019Q4. Unlike previous studies on South Africa, we investigated the joint impact of inflation and inflation uncertainty in South Africa, and, pioneered in comparing the impact of both variables on growth before, and after, inflation targeting. This provided an opportunity to assess the effectiveness of inflation targeting while also investigating any changes in the behaviour of the variables. They found that inflation negatively harms growth in both the short and long run, while inflation uncertainty is a short-run phenomenon in South Africa with no bearing in the long run. To promote growth, policymakers should continue to pursue policies that ensure price stability.

Ogu, Adagiri, and Abdusalam, (2021) uses time series data from the CBN for the years 1999 to 2017 to investigate how Nigeria's inflation affects economic growth. The study's two main goals are to: (i) ascertain how Nigerian inflation and interest rates affect economic growth and (ii) ascertain how Nigerian economic growth is affected by both inflation and interest rates. The study used the Ordinary Least Square (OLS) regression technique and found that inflation had a small but favourable effect on Nigeria's economic growth. The outcome also showed that interest rates significantly and

negatively affect Nigeria's economic growth. It is advised, among other things, to establish an effective tax policy, adopt a strategy to put invisible arms on the side of customers, and achieve a one-digit interest rate.

Afolabi, (2022) evaluate the impact of inflation on Nigeria's economic growth for the past four decades, beginning from 1980 to 2020 through the application of Augmented Dickey-Fuller technique in testing the unit root property of the series. The paper employed Error Correction Mechanism (ECM) to test both the short and long run impact of inflation on economic growth. Conclusively, results revealed that inflation had a positive and significant effect on economic growth in Nigeria in the long run. The study recommends that there should be fiscal discipline in such a manner that expenditures of the government should yield desired results and not just about making too much money flow without it being channelled to productive purposes and that efforts should be made by the relevant agencies of the government to fight leakages, embezzlement, and diversion of funds as all these lead to inflation.

Mandeya, and Ho, (2022) explore on the review of theoretical literature, investigating if the differences in findings are attributed to differences in the channels through which inflation and inflation uncertainty is passed over to economic growth; as well as a review of empirical literature, investigating if the source of differences in the findings lies in the separate or joint estimation of inflation and inflation uncertainty on economic growth. Research methodology: The paper presents an extensive review of scholarly studies on the inflation, inflation uncertainty and economic growth nexus based on their results. The paper analysed, synthesised, and critically evaluated previous studies on the inflation, inflation uncertainty and economic growth nexus on both the theoretical and empirical fronts. Results: In theoretical literature, the study found that the impact of inflation and inflation uncertainty is passed over to economic growth mainly through two channels, which are the price-informative role and the investment spending channel. From the empirical front, studies which separately estimated the role of either inflation or inflation uncertainty on economic growth found mixed results. Studies

3. Methodology

3.1 Model Specification

We begin by investigating the effect of inflation on economic growth in Nigeria by estimating the baseline model explicitly specified Equation 1:

$$Gro_t = \alpha_i + \delta Inf_t + \sigma X'_t + \mu_t, \tag{1}$$

where Gro_t is the growth rate of GDP per capita; Inf_t denotes inflation rate; and X'_t is a vector of other control variables such as annual gross fixed capital formation growth (GCF), trade openness (TOP), exchange rate (EXR_t) and financial development (FID) respectively. t indicates the time series dimension ($t=1986, \dots, 2022$), α_t is the country-specific fixed effect, $\mu_t \approx (0, \sigma^2)$ is the independently and identically distributed error term. In line with controversies in the literature as regards the inflation-growth nexus (Bawa & Ismaila, 2021; Ogu, Adagiri & Abdusalam, 2021; Adaramola & Dada, 2020), a threshold model originally developed by Hansen (1999) and in line with Okunade (2022) and Okunade, *et al.* (2022) was modified as follows:

$$Gro_{i,t} = \alpha_t + \beta_1 X_t I(\pi_t \leq \gamma) + \beta_2 X_t I(\pi_t \geq \gamma) + \varepsilon_t \tag{2}$$

In equation 2, the indicator function that specifies the regimes is $I(\cdot)$, while the threshold parameter (inflation rate) dividing the model into two regimes slope coefficients β_1 and β_2 is denoted by γ . X_t indicates an m-dimensional vector of explanatory regressors including the threshold variable, inflation (π_t). The threshold model is specified explicitly in Equation 3. Specifically, to identify potential threshold effects in the inflation-growth relationship, we estimate a single threshold, two regime autoregressive distributed lag (threshold-ARDL) model of the form specified in Equation 4:

$$Gro_t = \alpha_{1i} + \sum_{j=1}^p \psi_{1i,j} Gro_{t-j} + \sum_{j=0}^p \omega_{1,j} x_{t-j} + \mu_{1,t}, \text{ if } -\infty < \pi_t < T_t$$

$$\alpha_{2i} + \sum_{j=1}^p \psi_{2i,j} Gro_{t-j} + \sum_{j=0}^p \omega_{2,j} x_{t-j} + \mu_{2,t}, \text{ if } -\infty < \pi_t < \infty \tag{3}$$

where x_t is the vector of independent variables as defined in Equation 1. In addition to establishing the threshold effect of inflation on growth, Equation 3 enables us to explain the effect of other control variables below and above the threshold level.

3.2 Data and Sources

The study examines the threshold effect of inflation on growth in Nigeria using secondary data for the periods of 1986 to 2022. The selection of 1986 as the starting point reflects the era of major initiatives to promote and sustain economic growth and development as part of Nigeria's Structural Adjustment Programme (SAP), which was implemented in 1986. Table 1 shows the description and measurement variables of interest as well as their sources.

Table 1: Data Description, Measurements and Sources

S/N		Description/Measurements	Source
1	GRO	GDP per capita growth (annual %)	WDI, 2023
2	INF	Inflation, consumer prices (annual %)	WDI, 2023
3	EXR	Official exchange rate (LCU per US\$, period average)	WDI, 2023
4	TOP	Trade (% of GDP)	WDI, 2023
5	FID	Domestic credit to private sector by banks (% of GDP)	WDI, 2023
6	GCF	Gross fixed capital formation (annual % growth)	WDI, 2023

Source: Authors' Compilation, 2023

3.3 Method of Analysis

This study adopts a threshold regression analysis following some extant studies (Mandeya & Ho, 2021, Nduricimpa 2017; Bawa & Abdullahi, 2012) to estimate the threshold level at which inflation becomes a clog on economic growth in Nigeria. However, by employing a threshold Autoregressive model, this present study differs from some studies on Nigeria's economy such as Mandeya and Ho (2021), Bawa and Abdullahi (2012), Khan and Ssnhadji, (2001) who adopt threshold models with Ordinary Least Squares assumptions. The threshold autoregressive estimation allows us to account for the intervening effect of the dependent variable (Okunade, et al., 2022; Okunade, 2022).

4. Results and Discussion

4.1 Preliminary Analyses

It is necessary to examine the normality, distribution, and degree of multicollinearity of variables before doing model estimations. The statistical features of our data are presented in Table 2. Table 2 shows that the means of all variables used are between the minimum and maximum values, showing that our data series are consistent. In terms of variability, it is discovered that exchange rate is the most volatile among the variables with standard deviations of 118.7% while the least volatile variable is economic growth proxied by annual GDP per capita growth (%). The Jarque-Bera statistics with corresponding probabilities revealed that the majority of the variables included in the study were not normally distributed, which is typical of most economic variables in developing nations such as Nigeria. Also, we present the results of the correlation matrix in Table 3 where the degree of multicollinearity among the independent variables was examined. The examination of the correlation matrix shows that none of the pairs of the regressors has a value higher than 60%, the highest correlation is between exchange rate (EXR) and financial development (FID) with 49.1% coefficient of correlation. Hence, we conclude that there is no problem of multicollinearity in the model.

Table 2: Descriptive Characteristics of the variables

	GRO	INF	GCF	TOP	EXR	FID
Mean	1.489447	19.42647	2.039670	33.94816	131.1854	17.43584
Median	1.403509	12.87658	2.551734	34.18262	125.8081	15.09194
Maximum	12.27614	72.83550	40.38866	53.27796	425.9792	27.37879
Minimum	-4.507149	5.388008	-23.74670	9.135846	1.754523	9.063329
Std. Dev.	3.695599	17.32923	11.70301	10.83141	118.7234	6.111141
Skewness	0.525616	1.764573	0.353546	-0.263676	0.910852	0.229031
Kurtosis	3.543211	4.837072	5.274351	2.439363	3.034101	1.372200
Jarque-Bera	2.158591	24.40414	8.745334	0.913305	5.117979	4.408481
Probability	0.339835	0.000005	0.012618	0.633400	0.077383	0.110334
Observations	37	37	37	37	37	37

Source: Authors' Compilation, 2023

Table 3: Correlation matrix of the variables

	INF	GCF	TOP	EXR	FID
INF	1.0000				
GCF	-0.0634	1.0000			
TOP	-0.1090	0.1399	1.0000		
EXR	-0.3456	-0.0754	-0.2468	1.0000	
FID	-0.3089	-0.1353	-0.1989	0.4905	1.0000

Source: Authors' Compilation, 2023

4.2 Threshold Effect of Inflation on Growth in Nigeria

The results in the Table 4 show that, on annual average, the optimal threshold level of inflation rate is 15.7% in Nigeria. Compared to the result in Table 2, the average inflation rate (per period) is significantly higher than the optimal threshold level of inflation rate. This implies that Nigeria has been operating above her capacity over some periods which has resulted in sustainable food price increase over the years. The finding show that below this optimal inflation threshold or level (15.7%), previous growth, inflation rate, gross capital formation, trade openness and financial development have positive effect on economic growth in Nigeria. However, above this optimal inflation threshold or level (15.7%), previous growth, inflation rate, gross capital formation, trade openness and financial development have negative effect on economic growth in Nigeria. The result also that inflation rate above the optimal level may disrupt the desirable effect of exchange rate on Nigeria's economic growth.

Hence, this revelation suggests that the inflation-growth relationship is conditional on a certain level of inflation rate before increases in price levels could have adverse effects on growth in Nigeria. Furthermore, Table 4 depicts the two extreme regimes and their estimation coefficients, as well as the threshold variable's (inflation rate) direct marginal effect, exchange rate, gross capital formation, trade openness and financial development in line with Okunade and Ajisafe (2022) and Okunade, et al., (2022). These variables were indicated by the coefficients in the first extreme regime, when inflation level is equal or less than the estimated threshold levels. Also, the coefficients in the second extreme regime reflect the marginal influence of the threshold variable, including other explanatory factors, when inflation rate exceeds the threshold level.

With both optimization algorithms considered to investigate the influence of inflation rate on growth, findings indicate that low inflation rate (when inflation rate is below the threshold level) has significant positive effects on growth in Nigeria. This suggests that at a level below the threshold value, the inflation rate could potentially stimulate growth. However, high rate of inflation (when inflation rate is higher than the threshold level) has a significant negative effect on growth at 5% level. The finding suggests that above the threshold level, sustained increases in price levels would harm or impede the growth prospect in Nigeria. This finding aligns with the conclusion of extant studies such as Mandeya and Ho (2021), Bakaere et al., (2015), Oluh and Idih (2015), Osuala, Osuala and Onyeike (2013), Bawa and Abdullahi (2012), Khan and Ssnhadji, (2001). Inflation, according to these studies, has a significant detrimental influence on growth. The finding is unsurprising given that Nigeria's inflation rate is presently above the optimal level (See Figure 1) and affecting development projects of the Federal Government, with negative spill over effect reverberating through the overall economy, having a serious impact on businesses and households.

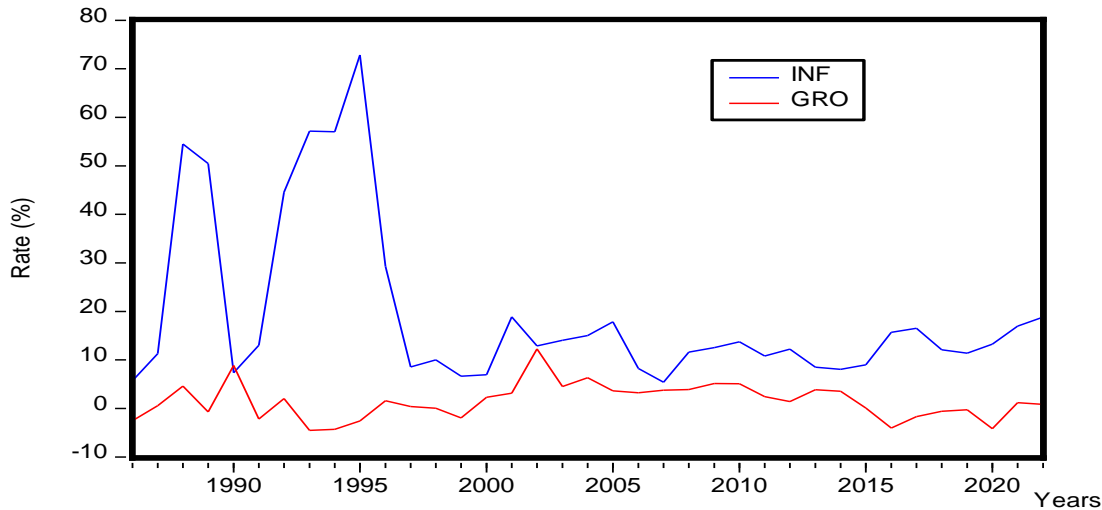
Table 4: Threshold Regression: Dependent Variable: GRO

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF < 15.69681 -- 24 obs				
Regime 1: Below Threshold				
GRO(-1)	0.935631***	0.158067	5.919210	0.0000
INF	0.292373**	0.086361	3.385475	0.0370
GCF	0.054165	0.059895	0.904318	0.3745
TOP	0.085407**	0.020808	4.104527	0.0239
EXR	-0.011213	0.012439	-0.901417	0.3760
FID	0.066924**	0.191198	3.500246	0.0293
C	-3.675547	4.188556	-0.877521	0.3886
Regime 2: Above Threshold				

15.69681 <= INF -- 13 obs				
GRO(-1)	-0.197821**	0.060735	-3.257100	0.0249
INF	-0.112397***	0.011957	-9.400100	0.0004
GCF	-0.082252	0.160435	-0.512680	0.6127
TOP	-0.126210	0.170313	-0.741044	0.4656
EXR	0.009713	0.016197	0.599701	0.5541
FID	-0.684018	0.373442	-1.831659	0.0789
C	17.88246	10.68966	1.672875	0.1068
R-squared	0.870224	Mean dependent var	1.489447	
Adjusted R-squared	0.793123	S.D. dependent var	3.695599	
S.E. of regression	3.519323	Akaike info criterion	5.611021	
Sum squared resid	309.6408	Schwarz criterion	6.133481	
Log likelihood	-91.80388	Hannan-Quinn criter.	5.795212	
F-statistic	61.33606	Durbin-Watson stat	2.228155	
Prob(F-statistic)	0.00262			

Note: *** p<0.01, ** p<0.05, * p<0.1

Figure 1: Trend of Inflation Rate and Economic Growth in Nigeria



5. Conclusion and Policy Recommendations

This present study examines the threshold effect of inflation on growth in Nigeria using secondary data for the periods of 1986 to 2022. The year 1986 was chosen as a beginning point to reflect the era of considerable measures to promote and sustain economic growth and development as part of Nigeria's Structural Adjustment Programme (SAP), which began in 1986. This study undertook an in-depth exploration of the inflation and growth nexus in Nigeria, focusing on the threshold effect – a non-linear relationship between inflation and economic growth. To understand the practical implications of the threshold effect on economic growth, the study employed threshold autoregressive modelling. The study found compelling evidence supporting the existence of a threshold effect in Nigeria. Below the identified threshold (15.7%), moderate inflation was

associated with growth stimulation through mechanisms like reduced real interest rates and increased investment. However, beyond this threshold level (15.7%), the negative effects of inflation became pronounced, hindering economic growth in Nigeria. This finding underscores the importance of adopting more flexible monetary and fiscal policies to maintain inflation within the growth-stimulating range. In conclusion, the study reaffirms the relevance of the threshold effect theory in understanding the inflation and growth nexus in Nigeria. Policymakers should consider context-specific thresholds when formulating monetary and fiscal policies that would trigger increases in the general price levels. This necessitates a departure from rigid inflation targeting in favour of more adaptive approaches.

Furthermore, businesses and investors must remain vigilant to the threshold effect's implications, adjusting strategies to navigate Nigeria's economic landscape effectively. The Central Bank of Nigeria should adopt a more flexible approach to monetary policy, considering the specific threshold inflation rate for the country. This flexibility will allow for timely adjustments to interest rates and money supply to maintain inflation within the growth-stimulating range. In addition, the Nigerian government should pursue fiscal policies that strike a balance between economic growth and inflation control. Investments in infrastructure and human capital should be prioritized to stimulate growth while ensuring prudent fiscal management. In this regards, businesses and investors should remain informed about the threshold effect and its implications. They should adjust investment and pricing strategies to respond effectively to varying inflation levels. Lastly, the Nigerian government and central bank should enhance communication with the public and businesses regarding policy changes, particularly those related to inflation and growth management. Implementing these recommendations will contribute to sustained economic growth, stability, and prosperity in Nigeria, benefiting both the nation and its stakeholders.

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Dividend Policy and Firm Performance: A Study of Selected Banks in Nigeria

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Abstract. This study investigated how the dividend policy affected the performance of a few Nigerian banks. Secondary data from the annual statements of the selected banks for the years 2010 to 2021 were used in the study. The study was guided by relevant specific objectives and hypotheses which were to test for the long run effects of the dividend policy and consider the effects of other determinants of bank performance for the period under study. The various preliminary tests and diagnostic tests were conducted to confirm that the data which was time series in nature were fit for empirical uses to avoid spurious results. The study utilized panel regression with the aid of E-views statistical package. The panel regression results indicates that the coefficient of the variables DEPOSIT, ASSET and Dividend indicate positive signs and are significant statistically. The positive coefficient of the variable DEPOSIT indicates that a percentage increase in the banks deposit increases the banks' performance by 15%. For the variables ASSET and Dividend, the results show that a percentage increase in the bank's asset and dividends increases the banks' performance by 002% and 02% respectively. The results therefore confirmed that dividend policy by banks can enhance the overall performance of selected quoted Nigerian banks.

Keywords: Dividend policy, firm performance, banks, Nigeria

1. Introduction

In corporate finance, dividend policy continues to be one of the most contentious topics. Modigliani and Miller (2015) seminal research demonstrated that, where investment policy was held constant and there was no friction in the market, dividend policy had no impact on shareholders' wealth. This position appears to have led to controversies that surround dividend policy (Olawaju, Migiro & Sibanda, 2018). Therefore, the Miller and Modigliani forecast has generated ongoing discussion and a conundrum over how enterprises can select a suitable and implementable dividend policy, particularly in emerging nations like Nigeria where there is no ideal market situation. Choosing a suitable and implementable dividend policy led to the emergence of various competing theoretical and empirical researches which explained why firms paid or did not pay dividends (Ideweke & Murad, 2019). After decades of non-stop research, Ideweke and Murad (2019) stated that dividend policy was still listed as one of the top ten crucial unresolved issues in the world of finance. As opined by Uwuigbe, Jafaru and Ajayi (2012), dividend policy continues to be one of the most crucial financial policies, not just from the company's perspective but also from the shareholders', customers', employees', regulators', and government's perspectives..

Over the years, a number of ideas have been put forth to determine whether there is a connection between

dividend policy and a company's financial performance. Idewele and Murad (2019) stated that there had however, not been any consensus on it. For instance, Miller and Modigliani (2016) questioned the importance of dividend policy and came to the conclusion that it had no impact on the value of the company or its financial performance. Meanwhile, Black (2016) averred that the more closely we examine the dividend picture, the more it resembles a puzzle with pieces that don't fit together.

In Nigeria, a number of local studies on dividend policy have also been conducted. For example, Uwuiigbe, Jafaru and Ajayi (2016) explored the connection between Nigerian listed companies' financial performance and dividend payout. However, they did not examine the nature and timing of the dividend policy; rather, they examined dividend policy as a determinant of ownership structure, company size, and dividend payouts. Idewele and Murad (2019) did a study to look into the connection between Nigerian deposit money banks' dividend policies and financial success. However, the study's exclusive focus was on dividend yield and payout ratio. They did not examine the frequency or format of dividend distributions. Ebire, Mukhtar and Onmonya (2018) investigated the effect of dividend policy on the performance of listed oil and gas firms in Nigeria. They focused on dividend payout ratio, retained earnings and dividend yield. They did not look at the timing and form of dividend payments. Simon-Oke and Ologunwa (2016) evaluated the effect of dividend policy on the performance of corporate firms in Nigeria. They focused on return on investment (ROI), earnings per share (EPS) and dividend per share (DPS). They did not look at dividend payout ratio, the timing and form of dividend payments. Oladipupo (2017) investigated the impact of dividend policy on shareholders wealth in Nigeria. He only concentrated on dividend payout but not on timing and form of dividend payments.

Research based on market prices, accounting ratios, and total factor profitability are the three basic methods to firm performance in social science research. (Bocean & Barbu as cited in Pintea & Fulop, 2015.). Various earlier studies employed various metrics to assess how well a company was performing. The majority of them used accounting-based performance indicators like Return on Assets (ROA), Return on Equity (ROE), and Economic Value Added (EVA), as well as market-based performance measures like Tobin's Q. The bulk of empirical studies' equivocal findings have been attributed to the use of one of the aforementioned

measures of firm performance. (Pintea & Fulop, 2015). The current study evaluates the impact of dividend policy on the performance of a selected listed Nigerian banks.

2. Literature Review

Dividends are sums of money that businesses pay to their shareholders. It is an after-tax profit that has been allocated to the company's owners (Eke & Okoh, 2018). A company's dividend policy specifies how profit should be distributed between it and its remaining owners. It is a clarification of the percentage of earnings that should be distributed as a dividend to shareholders, taking into account the organizational environment and their expectations. (Oladipupo, 2017).

It was Miller and Modigliani (1961) demonstrated that the value of a corporation was not impacted by dividends by presenting the M&M hypothesis and the dividend policy irrelevance argument. They reasoned that the effect was not necessarily caused by the payout itself but rather by the information conveyed by the dividend changes. According to Simon-Oke & Ologunwa (2016), dividend irrelevance theory, a company's stock price or cost of capital are unaffected by its dividend policy, and the value of the company is determined by the income it generates from its assets rather than how it is distributed between dividends and retained earnings.

The dependent variable, firm performance, is measured in numerous empirical research using other accounting techniques. (Al-Sa'eed, 2018). In various research, several metrics have been employed to assess corporate performance. When compared to a benchmark rate of return equal to the risk-adjusted weighted average cost of capital, ROA and ROE metrics, which are accounting-based statistics, are typically seen as an effective indicator of the company's profitability and the business. (Al-Matari, Al-Swidi & Fadzil, 2016). They are unique measurements of the profit before tax divided by total assets and profit after tax divided by equity respectively, and they can be easily obtained from the firm's annual report. Tobin's Q is a market-based measurement which is characterized by its forward-looking aspect and its reflection of the expectations of the shareholders concerning the firm's future performance (Wahla, ShahSyed & Hussain, 2016). ROA and ROE were employed as stand-ins for firm performance in this study. Tobin's q was also used to gauge firm performance as a robustness assessment.

3. Research Methodology

This study covers the period from 2010 to 2021. Secondary data are used. They are to be obtained from Central Bank of Nigeria Statistical bulletin, the Nigerian stock exchange fact book, and publication from the Federal Office of Statistics and banks annual report.

3.1 The Variable Under Study

The variables of interest for the study include, bank’s total profit after taxation; banks dividend , total bank equity declared during the periods under review, return on assets and return on equity. .

3.2 Model Specification

To estimate of the effect of dividend policy on banks performance in Nigeria from 2010-2021: a study of ten deposit money banks using total bank profit as a proxy for performance could be stated as follows

$$PROFIT = F(DEPOSIT, EQUITY, LOAN, INTEREST, ASSET, DIVIDE$$

The equation can be stated in linear relationship as follows:

$$PROFIT = \alpha_0 + \alpha_1 DEPOSIT + \alpha_2 EQUITY + \alpha_3 LOAN + \alpha_4 INTEREST + \alpha_5 ASSET + \alpha_6 DIVIDEND + \mu_t$$

where μ_t = Error term

Set definition

- PROFIT = Profit after tax declared by banks in their balance sheet
- DEPOSIT = Banks deposits
- EQUITY = Banks return on equity
- LOAN = Banks loan
- ASSET = Banks total asset declaration
- DIVIDEND = Banks earning per share

3.3 Estimation Procedure

The Panel model

The PROFIT model is estimated within a Generalized Linear Model (GLM) framework. First, it is assumed that strict exogeneity of explanatory variables conditional on unobserved, that strict exogeneity of explanatory variables conditional on unobserved effects obtains.

Second, the fixed effects estimator is well behaved asymptotically if the standard rank condition on the matrix of time-demeaned explanatory variables holds.

In this study, a Generalised Least Square (GLS) estimation procedure is adopted. The fixed effects models are considered. The fixed effects model is simpler to conduct and is defined according to the following regression model:

$$Y_{it} = \alpha_i + \beta' X_{it} + \varepsilon_{it} \dots\dots\dots(3)$$

where $i=1\dots\dots N; t=1\dots\dots N$

Y_t indicates the dependent variables while X_t determines the vector of k explanatory variables. $\alpha_i = 1\dots\dots N$ are constant coefficients specific to each institutions (banks). Their presence assumes that differences across the considered banks appear by means of differences in the constant term. These individual coefficients are estimated together with the vector of coefficients β .

In order to validate the fixed effects specification, the question is to prove, according to the empirical application, that the individual coefficients $\alpha_i, i=1\dots\dots N$ are not all equal

This corresponds to the following joint null hypothesis:

$$H_0: \alpha_1 = \dots \alpha_N = \alpha \dots\dots\dots(4)$$

It is rather the acceptance of the alternative hypothesis which is interesting if we want to differentiate between the situations in each bank considered in the sample and confirms the existence of significant heterogeneity across banking sector.

The assumption made about the intercept variable (α_i) had implications for the consistency and efficiency properties of estimates of β' in equation (3).

In the share price equation, the group-specific term reflects idiosyncratic preferences or characteristics of each bank. If the banks specific effect is assumed constant (but allowed to differ across units) a fixed effects (FE) model is generated.

Assuming heterogeneity across units in equation (1) implies that the effect of all omitted variables is the same for a given cross sectional unit through time but varies across cross-sectional units for a given point in time.

The appropriate statistic of the test is a Fisher distributed one with $\left(N - 1, \sum_{i=1}^N T_i - N - K \right)$ degrees of freedom under the null hypothesis and is defined as follows:

$$F = \frac{SSR_0 - SSR_1 \sum_{i=1}^N T_i - N - K}{SSR_1 N - 1} \dots\dots\dots(5)$$

where SSR_0 and SSR_1 are, respectively, the sum of squared residuals provided by the estimation of the constrained model (under the null hypothesis that no individual specific coefficients are considered) and the sum of squared residuals relative to the fixed effects model (equation (3)) is obtained.

4. Data Analysis and Result

4.1 Descriptive Statistics

The descriptive statistics for the variables under consideration are therefore presented in table 1 below:

Table 1: The Descriptive statistics

	PROFIT	DEPOSIT	EQUITY	LOAN	INTEREST	ASSET	DIVIDEND
Mean	1634118.	4473263.	8.379797	30058508	56416182	1.53E+08	11208294
Median	11096.00	41236.00	0.185000	175657.0	417406.0	762881.0	47621.00
Maximum	45475040	75819628	248.0000	5.63E+08	7.13E+08	1.07E+10	2.05E+08
Minimum	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Std. Dev.	5710103.	11920566	31.38972	89918054	1.24E+08	9.94E+08	34859796
Skewness	5.591270	4.157023	5.546930	4.496960	3.221475	10.25586	4.109120
Kurtosis	37.40324	22.53686	36.76185	24.03934	14.46797	108.8666	20.04897
Jarque-Bera	6379.583	2197.710	6156.815	2552.279	843.5011	56688.74	1746.258
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	1.91E+08	5.23E+08	980.4363	3.52E+09	6.60E+09	1.78E+10	1.31E+09
Sum Sq. Dev.	3.78E+15	1.65E+16	114296.5	9.38E+17	1.80E+18	1.15E+20	1.41E+17
Observations	117	117	117	117	117	117	117
Cross sections	10	10	10	10	10	10	10

Source: Authors' Computation from the E-views

From the table 1 above, the panel descriptive statistics for the variables under consideration indicated that from 2010 to 2021, all the variables under study showed an averaged positive mean values with 117 observations and 10 cross sections. The standard deviation indicated that the highest standard deviation is recorded by the variable LOAN, while the least standard deviation is recorded by variable INTEREST. The Jarque-Bera (JB) test of normality for the variables under consideration revealed that all the variables are significant at 5% level. This shows that the variable are normally distributed.

The Hausman test

Before the estimation of a panel regression, the Hausman test is used to make a choice between the fixed effect model and the random effect model of panel data analysis.

The Hausman test

Redundant Fixed Effects Tests			
Pool: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.639490	(9,101)	0.0006

Source: Authors' Computation from the E-views

From the fixed effect test results, the null hypothesis is therefore rejected since both P-Values are less than the significance values of 1, 5 and 10 percent respectively. This implies that the fixed effect model is superior to the random effects model, for explaining the banks performance.

Panel unit root /stationarity test

The results of the panel unit root tests are shown in Table below. The test held that all banks have unit roots with regards to their variables against the alternative hypothesis that at least some panel members are without unit root.

Table 3: The panel Unit root test

Levin, Lin & Chu t*			Cross-section	Levin, Lin & Chu t*				
LEVEL DIFFERENCE			FIRST DIFFERERENCE					
Variable	Statistics	Probability	10		Statistics	Probability	Cross-section	
PROFIT	-1.29827	0.0971	10	108	-8.33005	0.0000	10	
DEPOSIT	-0.77132	0.2203	10	105	-3.76197	0.0001	10	93
EQUITY	23.4093	1.0000	10	107	-95.1521	0.0000	10	94
LOAN	0.58100	0.7194	10	108	-8.12541	0.0000	10	99
INTEREST	0.58695	0.7214	10	104	-2.76582	0.0028	10	106
ASSET	-1.74979	0.0401	10	105	-4.97668	0.0000	10	96
DIVIDEND	-4632.11	0.0000	10	105	-5.05441	0.0000	10	94

Source: Authors' Computation from the E-views

The test reveals that five of the variables are not stationary at level difference. Only one variable is stationary at level difference. At first difference, all the variables are stationary e at 5 percent significance level for the common and individual effect tests.

Panel Cointegration test

Having established with the panel unit root test that the variables are integrated, it has become essential to perform a co-integration test. Table 5.8 presents the Pedroni panel co-integration test results.

The panel cointegration test results

Pedroni Residual Cointegration Test					
Alternative hypothesis: common AR coefs. (within-dimension)					
		Statistic	Prob.	Weighted	Prob.
				Statistic	Prob.
Panel v-Statistic		-2.417924	0.9922	-3.335372	0.9996
Panel PP-Statistic		2.466898	0.9932	-7.486486	0.0000
Panel ADF-Statistic		3.426418	0.9997	-2.133784	0.0164
Alternative hypothesis: individual AR coefs. (between-dimension)					
		Statistic	Prob.		
Group PP-Statistic		-12.17022	0.0000		
Group ADF-Statistic		-2.980533	0.0014		

Source: Authors' Computation from the E-views

The results from the Pedroni's statistics indicates that the null hypothesis that there is no cointegration between the variables is rejected. This implies that there is long run relationship between banks' profit, and the independent variables.

The panel regression result

The regression results are shown in the table below. As already indicated, the banks' performance are estimated using the fixed effect technique. All the models are estimated to produce robust standard errors. The inclusion of robust standard errors helps in containing the econometric problems of heteroscedasticity (Green, 2008).

The panel regression results

Dependent Variable: PROFIT?				
Method: Pooled EGLS (Cross-section weights)				
Included observations: 12				
Cross-sections included: 10				
Total pool (unbalanced) observations: 117				
Linear estimation after one-step weighting matrix				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	513676.9	106058.7	4.843326	0.0000
DEPOSIT	0.159969	0.030249	5.288368	0.0000
EQUITY	-351.5450	852.9261	-0.412163	0.6811
LOAN	0.001089	0.005998	0.181569	0.8563
INTEREST	-0.003728	0.001981	-1.881909	0.0627
ASSET	0.002293	0.000475	4.831768	0.0000
DIVIDEND	0.021023	0.008752	2.401947	0.0181
Effects Specification				
Cross-section fixed (dummy variables)				
Weighted Statistics				
R-squared	0.776215	Mean dependent var		1733274.
Adjusted R-squared	0.742980	S.D. dependent var		3438492.
S.E. of regression	1890925.	Sum squared resid		3.61E+14
F-statistic	23.35508	Durbin-Watson stat		1.690079
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.859893	Mean dependent var		1634118.
Sum squared resid	5.30E+14	Durbin-Watson stat		0.878173

From the panel regression results in table above, the coefficient of the variables DEPOSIT, ASSET and Dividend indicate positive signs and are significant statistically. The positive coefficient of the variable DEPOSIT indicates that a percentage increase in the banks deposit increases the banks’ performance by 15%. For the variables ASSET and Dividend, the results show that a percentage increase in the bank’s asset and dividends increases the banks’ performance by 002% and 02% respectively. The coefficient of the variable LOAN indicates a positive sign and insignificant statistically.

Also, the coefficient of the variable EQUITY shows a negative sign and insignificant statistically; while the coefficient of the variable INTEREST indicates a negative sign and is significant statistically. It shows that a percentage increase increases in the rate of interest reduces banks’ performance by -0.003%.

Statistically, the F-statistic is interpreted indicates that the overall estimate of the regression have a good fit and is adequate statistically. The R² - (R-squared) which measures the overall goodness of fit of the entire regression shows the value as follows 0.776215. The adjusted R² value is 0.74298. It shows that the independent variables explain the dependent variable to the tune of 74%. The Durbin Watson statistics result with a value of DW (1.690079) indicates that there is no auto correlation among the variables under consideration and the overall regression is significant statistically.

The panel cross section fixed effect results

Fixed Effects (Cross)	
_ZENITH--C	-710829.5
_FIRST--C	-1284313.
_POLARIS--C	322701.8
SUMMA_FCMB--C	-507376.7
_STANBIC--C	4990906.
_FIDELITY--C	-1249501.

_UBA--C	-509642.3
_UNION--C	-499898.6
_ENTERP--C	-512469.7
_ACCESS--C	-224550.9

On the fixed effect of the individual banks under consideration, the coefficients of the individual banks indicate positive for POLARIS and STANBIC banks. The implication is that holding other things constant, the higher level of competitions enjoyed by the banks increases their profit margin to 322701.8 and 4990906 units respectively. On the other hand, the fixed effect coefficient of ZENITH, FIRST, FCMB, FIDELITY, UBA, UNION, ENTERP and ACCESS banks show negative signs. The implication is that holding other things constant, a decrease in the level of competitions enjoyed by the banks decreases their profit margin respectively.

5. Conclusion and Recommendations

From the result of the panel regression, the descriptive statistics of the variables considered for the period covering 2010 to 101 depicted that an averaged positive mean values with 117 observations and 10 cross sections. The standard deviation indicated that the highest standard deviation is recorded by the variable LOAN, while the least standard deviation is recorded by variable INTEREST. The Jarque-Bera (JB) test of normality for the variables under consideration revealed that all the variables are significant at 5% level. This shows that the variables are normally distributed.

The Hausman test results indicates that for explaining the banks’ performance the fixed effect model is superior to the random effects model. The panel unit root test result reveals that all the variables are stationary at first difference for the common and individual effect tests. The Padroni panel co-integration test results indicates that the null hypothesis that there is no cointegration between the variables is rejected at 5% significant level. The panel regression results indicates that the coefficient of the variables DEPOSIT, ASSET and Dividend indicate positive signs and are significant statistically. The positive coefficient of the variable DEPOSIT indicates that a percentage increase in the banks deposit increases the banks’ performance by 15%. For the variables ASSET and Dividend, the results show that a percentage increase in the bank’s asset and dividends increases the banks’ performance by 002% and 02% respectively. The coefficient of the variable LOAN indicates a positive sign and insignificant statistically. Also, the coefficient of the variable EQUITY shows a negative sign and

insignificant statistically; while the coefficient of the variable INTEREST indicates a negative sign and is significant statistically. It shows that a percentage increase increases in the rate of interest reduces banks’ performance by -0.003%. Statistically, the F-statistic is interpreted indicates that the overall estimate of the regression have a good fit and is adequate statistically. The R² - (R-squared) which measures the overall goodness of fit of the entire regression shows the value as follows 0.776215. The adjusted R² value is 0.74298. It shows that the independent variables explain the dependent variable to the tune of 74%. The Durbin Watson statistics result with a value of DW (1.690079) indicates that there is no auto correlation among the variables under consideration and the overall regression is significant statistically.

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Disruptive Technology and Accounting Education in Nigeria Federal Universities: Issues, Challenges, and Way Forward

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Abstract. This study aims to examine the effect of Disruptive Technology on accounting education in Nigeria Federal universities. The dimension of Disruptive Technology is Electronic Learning (e-Learning) while the measures of accounting education are quality accounting education and reduction in loss of academic time in teaching and learning of accounting. The study explored the perceptions of Accounting Students and Lecturers on Disruptive Technology and accounting education amidst issues and challenges of paucity of funds, incessant shutdown of academic activities caused by industrial actions by various staff unions and lockdowns caused by pandemics such as COVID-19. It used Expansive Learning theory as its theoretical underpinning and adopted exploratory qualitative research design. Data were collected through Online Survey questionnaire which was distributed and collated in April, 2022. Descriptive Statistics was used in data analysis. The results show that accounting students and lecturers are favorably disposed to the adoption of e-Learning in teaching and learning of accounting. The findings also support that e-Learning will improve the quality of accounting education and help reduce loss of academic time in teaching and learning of accounting during periods of industrial actions and lockdowns when adopted. The study concludes that e-Learning has a positive influence on accounting education in Nigeria Federal Universities. Therefore, recommends that Nigeria Universities Commission (NUC) should formulate guidelines on the use of e-Learning. Federal Government should provide adequate funds for Federal Universities for improved staff remunerations and welfare to avoid incessant strike

actions; boost infrastructural requirements and course material developments needed for e-learning.

Keywords: Disruptive Technology, e-Learning, Accounting education and Nigeria Federal Universities.

1. Introduction

Overtime, accounting education has been very pivotal in determining the quality of accounting profession. Zhang, Dai and Vasarhelyi (2018) argued that the rate of change in technology continually disrupts traditional processes in every area of life. Therefore, accounting education will not be an exception in this Fourth Industrial Revolution (4IR) age. Consequently, it is very imperative for all stakeholders in accounting education to devise novel and innovative processes and methods for effective teaching and learning of accounting in the universities in general and federal universities in Nigeria in particular in this Disruptive Technology (DT) era. Zhang, Dai and Vasarhelyi (2018) revealed that students who graduate from the traditional accounting programmes do not possess the skills and knowledge required by businesses particularly in enterprises that require high-level automation and Artificial Intelligence (AI), therefore creating a mismatch. Afolabi (2014) contended that though accounting graduates are computer literates, they possessed inadequate skills in accounting principles, procedures and initiatives.

DT is presently taking the world by storm. Gould (2017) asserted that accounting profession is radically changing, driven by DT and changing

practices. According to Ibrahim, Sallha & Rashid, (2020), DT arose as a result of the progress of Big Data, AI and Cloud. DT examples include: Online News Sites and Platforms, e-Learning, AI, Internet of Things (IoT), Blockchain, Robotic Process Automations (RPA), e-Commerce, Advanced Analytics, Ride-Sharing Apps, GPS Systems (Corporate Finance Institute (CFI), 2022; Housley, 2015; Christensen, Raynor & McDonald, 2015).

The DT of focus in this paper is DTs in education. Dikumar 2018 asserted that DTs in education include: o-Learning; Chat-Based Collaboration Platforms. Sale (2002) cited by Ogedegbe and Oyaniyi (2010) defined e-Learning as the utilization of electronic technology to convey education and training applications, monitor the performance of learners and report their progress. Ajegbomogun, Okunlaya and Alawiye (2017) opined that easy delivering of educational content is boosted by e-Learning. SHIFTeLearning (2018) stated that due to the necessity to effectively and efficiently disseminate education, limiting learning into the confine of four walls of classrooms was no longer possible. Ogedegbe and Oyaniyi (2010) then concluded that e-Learning is the larger umbrella covering Online Learning (o-Learning), Digital Learning (d-Online) and Mobile Learning (m-Learning).

The traditional mode of teaching students of all disciplines, accounting students inclusive over these years in majority of Nigeria federal universities has remained majorly in-person teaching method, also referred to as face-to-face studies or on-campus teaching or campus-based teaching or one-on-one teaching, this mode requires students to be physically present in the four walls of the universities for their academic activities. This traditional mode of teaching is susceptible to lots of problems.

1.1 Statement of the Problem

This study was motivated by firstly, the issue of poor funding which leads to lack of key infrastructure in the federal universities generally (Ogunode & Abubakar, 2020) and accounting departments specifically; lack of cutting-edge technological facilities for teaching and learning like internet facilities, smart boards and other Information and Communication Technologies (ICT). Secondly, Coronavirus (COVID-19) pandemic brought about the issue of lockdown of several institutions globally in a bid to forestall further spread of the virus (NCDC, 2022). No one knows the next pandemic, the virus nor the severity.

Finally, there is the problem of incessant strike actions in the public university system (Ogunode & Abubakar, 2020) making the workers to withdraw their services. In 2022 in Nigeria, there are currently strike actions by the four (4) staff unions in the Federal Universities. Academic Staff Union of Universities (ASUU) started theirs on February 14, 2022, National Association of Academic Technologists (NAAT) started on March 21, 2022, Senior Staff Union of Nigerian Universities (SSANU) and Non-Academic Staff Union of Educational and Associated Institutions (NASU) joined on March 28, 2022 (Agbakwuru & Nwabughio, 2022; Lawal, 2022).

Consequently, from February 14, 2022 there has been complete shutdown of all academic activities in the Federal Universities in Nigeria up till the time of completing this study in April, 2022. These breaks in academic activities result in loss of academic time for the students and lectures with several negative consequences to the students, lecturers and the society at large. These delays cause the extension of students' graduation time; the delay in admission of millions of secondary school-leavers; increase in youth restiveness and other social vices due to idleness; loss of zeal for education by the students, among many more others.

Every trade union is entitled to industrial actions according to labour laws, so also are students entitled to learning based on contractual agreement of paying school fees and being entitled to the education they paid for as at when due.

1.2 Aim and Objectives of the Study

The aim of this study is to examine the effect of DT on accounting education in federal universities in Nigeria. The specific objectives are: to determine the effect of e-learning on quality accounting education and to ascertain the influence of e-learning on reduction of loss of teaching and learning time (academic time) occasioned by frequent academic shutdowns and lockdowns. Hence, the key research question that arises in this study is: can federal universities in Nigeria leverage on DT in accounting education? Other sub-research questions include: does e-learning have an effect on quality accounting education? Can e-learning be effectively deployed to reduce loss of academic time occasioned by frequent academic shutdowns and lockdowns?

The scope of the study covers accounting students and lecturers in the Federal Universities excluding National Open University of Nigeria (NOUN) and

Open and Distant education programmes in some Federal Universities. It is delimited to issues pertaining to DT and Accounting Education. It focused on the proxy of the exogenous variable DT, e-learning and the measures of the endogenous variable accounting education: quality accounting education and reduction of loss of academic time. The researchers went further to proffer simple and innovative ways forward to achieving quality and sustainable accounting education for accounting students and ease of delivering quality accounting contents by accounting lecturers seamlessly in this DT era witnessed in the present 4IR.

Several researchers have studied e-learning and education like Osuji and Nwoke (2019), Olutola and Olatoye (2018), Ajegbomogun et al (2017), Islam and Selim (2006) but there is a gap in knowledge on studies on DTs such as e-learning and accounting education amidst issues and challenges of paucity of funds, incessant shutdown of academic activities caused by industrial actions by various staff unions and lockdowns caused by Pandemics such as COVID-19 pandemic. There is also a period gap in the time these other researches were carried out as some of them do not reflect current realities.

This study is significant to governments, students, lecturers, parents, guardians, policy-makers in the educational sector and the general public. It is timely and solution-driven in its approach as it brings transformational change in teaching and learning of accounting in federal universities in Nigeria.

This section is the introductory part of the study. The second and third sections comprise of literature review and methodology respectively. The fourth section is findings and discussion. Finally, the fifth section contains issues, challenges and ways forward alongside conclusions and contributions to knowledge.

2 Literature Review

2.1 Conceptual Review

Disruptive Technology (DT)

DT creates an entirely new industry or product by displacing a conventional technology (Anam, 2019). According to Dawsey (2022), five (5) DTs in education are Online learning (o-Learning), Artificial Intelligence (AI) Guided learning, Chat-Based collaboration, Virtual and Augmented Reality (VR and AR). E-learning is disrupting the conventional classroom learning (U-EENI, 2022). Hence, DT is conceptualized in this study as that technological

innovation that majorly changes the processes, procedures or methods enterprises, institutions, industries operate their affairs. Bower and Christensen (1995) asserted that managers should be mindful of overlooking new technologies.

E-Learning

According to Hedge and Hayward (2004) cited in Gunga (2010) e-learning is an innovative methodology for conveying electronically facilitated, learner-centered, well-designed, and interactive learning environment to anybody at any time and at any place through the utilization of the internet and digital technology. Osuji and Nwoke (2019) defined e-learning as the method of accessing online teaching, learning and research materials with the application of ICT facilities.

Some authors erroneously use Distance Learning and e-Learning interchangeably, though in some cases the two do overlap but they are by no means the same (Guri-Rosenblit, 2005). Distance education philosophy is basically to make education/learning reach a diverse people from different and remote locations globally while e-learning enhances learning electronically even with the students and teachers being in the same building.

Ogedegbe and Oyaniyi (2010) opined that m-Learning is under the umbrella of e-Learning. Therefore, m-Learning is theorized in this study as a part of e-Learning whose tools comprises of hand-held mobile devices and palmtops that is not just electronic and digital but also mobile as it is usable on the go. Consequently, digital learning (d-Learning), mobile learning (m-Learning) and online learning (o-Learning) are to be conceptualized in this study as components of electronic learning (e-Learning). The focus of this study is on e-Learning and not Open and Distance Learning.

Federal Universities and Regulatory Frameworks in Accounting Education in Nigeria

As at March 2022, there are forty-nine (49) Federal Universities in Nigeria including National Open University of Nigeria (NOUN) (NUC, 2022). For this study, NOUN is excluded because they run an exclusive Open and Distant Education. Federal Universities of Agriculture, Health Sciences and Technology that do not offer accounting are excluded in this study as well.

National Universities Commission (NUC) is the government agency under the Federal Ministry of Education that is in charge of management and

development of quality university education in Nigeria. One of their functions is to initiate and encourage expertise in ICT usage for delivering services both in the commission and the university system in Nigeria (NUC, 2022).

There are two Professional Accounting Bodies enacted by the Act of the Parliament saddled with the responsibility of ensuring the professional and educational development of Accountants, they are Institute of Chartered Accountants of Nigeria (ICAN) and Association of National Accountants of Nigeria (ANAN) (Uche 2002 cited in Akhidime & Eriabie 2013).

Departments of Accounting in various Universities have their core mandate in providing accounting education to both Undergraduate and Post-graduate programmes in order to award Accounting degrees such as Bachelor of Science (B.Sc.) for Undergraduate students; Post-Graduate Diploma (PGD), Master of Science (M.Sc.), Master of Business Administration (MBA), Doctor of Philosophy (Ph.D) for Graduate students with options of Full-Time or Part-Time Study Programmes (Department of Accounting Brochure University of Port Harcourt, 2018).

Accounting Education

Accounting is defined as the art and science of collecting, recording, measuring, classifying, analyzing, summarizing, presenting and interpreting financial and non-financial information to users for decision making (Association of Accountancy Bodies in West Africa (ABWA), 2009; Rankin et al., 2012; AICPA 1941 cited in Hamm, 2002; Pyle 1977 cited in Ama, 2000). The scope of Accounting covers Financial Accounting, Auditing, Management Accounting, Performance Management, Financial Management, Taxation, Forensic Accounting, Auditing, Public Sector Accounting, Social and Environmental Accounting (ABWA, 2009). Accounting education is the transfer of knowledge of standards and principles of accounting to individuals (Okolie, 2013). For this study, accounting education is conceptualized as the process of teaching and learning of accounting in the Universities.

Quality Accounting Education

The word quality has been defined from different dimensions by different authors. Munasinghe and Bandara 2014 proposed six (6) quality dimensions for accounting education to be: Tangibles such as satisfactory campus facilities, handiness of modern equipment and computer laboratories; Curriculum which comprises of transferable and flexibility of knowledge and skills, relevance to future jobs; Competence which includes adequate academic staff with requisite academic and professional qualifications and research skills, utilization of emerging technologies as a tool in teaching and learning. Others are Assessments and Monitoring; Corporate Collaboration and finally Counseling. Hence, quality accounting education is conceptualized in this study as the excellence in the teaching and learning of accounting in the Universities.

Loss of Academic Time in Teaching and Learning of Accounting in Federal Universities

Loss of academic time in teaching and learning arises when the time for studies are lost by circumstances beyond the control of both the students and the lecturers.

2.2 Theoretical Framework

This study is anchored on Expansive learning theory formulated by Engestrom in 1987. This theory is an extension of Activity Theory that was framed from Vygostsky's model of human activity of 1978 (Flavin, 2012; Engestrom & Sannino, 2009). Activity theory posits that actions by humans do not arise as a direct transmission between object and subject but through the intervention of tools. Expansive learning model added social elements to the activity model by infusing three social elements which are: rules, community and division of labour. Rules signify the regulations and conventions guiding the activity; community denotes those the activity impact on and division of labour embodies how the work in the activity is shared to different persons and the hierarchy (Flavin, 2012).

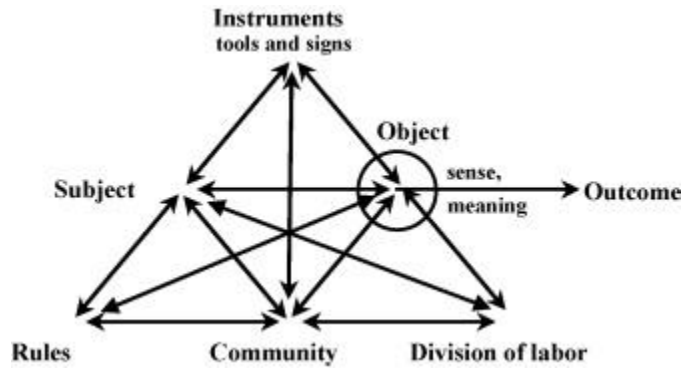


Fig. 1.1 Expansive learning Model
Source: Engestrom & Sannino, 2009

This theory is considered germane due to the urgent need to explore disruptive technology tool like e-Learning to getting high-quality and uninterrupted teaching and learning outcome in the midst of the social elements or factors affecting accounting education in Nigeria Federal Universities. Rules could be likened to NUC guidelines for accreditation of accounting education in the universities and laws on the adoption of e-Learning as an add-on to the traditional mode of teaching. Community could be likened to students, lecturers, management, staff unions, the university community and the society at large. Division of labour could be equated to how the duties in the university are shared to different persons in hierarchical order like the Vice Chancellor, Deans, and Heads of Departments.

2.3 Empirical Review

Several related empirical works have been carried out by researchers. In Nigeria, Osuji and Nwoke (2019) in their study discovered that Pre-Service teachers had positive perceptions on the importance of e-learning in science education and that e-learning positively impacts on the training of these teachers in higher institutions. Similarly in Poland, Grabinski, Kedzior and Krasodomska (2015) results showed a positive perception of students to blended learning. They found that the major setbacks of e-classes is the students inability to ask questions regularly and teachers cannot be contacted directly as it was in the traditional mode of teaching.

Islam and Selim (2006) in their study in Bangladesh concluded that e-learning has gained wide popularity in institutions in developed countries but unfortunately in developing countries, it was still a dream due to very high cost of ICT infrastructure and many other socio-economic factors. In Nigeria which is a developing country, Ogedegbe and Oyaniyi (2010) found that emphasis need to be made in the

application of e-Learning and m-Learning to all levels of education consisting of primary, secondary and tertiary levels. They concluded that ICT plays a very key role in the educational system and recommended that government should have agreement with major ICT firms like CISCO, Microsoft and other stakeholders to extend the knowledge and the use of ICT.

Olutola and Olatoye (2018) studied the Assessment of E-Learning Resources Utilization by Students of Tertiary Institutions in Katsina State, Nigeria while Ajegbomogun et al (2017) studied Analytical Study of E-learning Resources in National Open University of Nigeria (NOUN) using Abeokuta study center, Ogun State as a case study. Olutola and Olatoye (2018) found no significant gender based and age based differences in utilization of e-learning by students in these institutions in Katsina state but there is significant difference as regards to institutions and class levels. However, most of the respondents in Ajegbomogun et al (2017) affirmed the availability and accessibility of the e-learning resources in the Abeokuta Study Center of NOUN, but they experienced irregular power supply and frequent breakdown of the server.

Bupo and Ndinechi (2015) in their study in Anambra State, they found that students in the tertiary institutions in the State usually go online to check for their results and other educating material and fairly often read e-books and e-journals and other e-learning applications. They recommended that e-learning platforms should be introduced as a learning management system for tertiary institutions.

Akhidime and Eriabie (2013) in their study Educational Development and Production of Accountants in Nigeria: Challenges and Way Forward, identified that the late take-off of accounting education in Nigeria; the inherent

limitations in the tertiary institutions and the poor handling of the production of professional accountants by ICAN and ANAN were the hindrances on accounting education development and the production of the desired quality of accounting professionals in Nigeria.

Berechet and Istrimschi (2011) studied Becoming a Modern University, from Real Approaches to Virtual Challenges. They found that new ICT in educational and research field such as virtual classroom, e-Learning, videoconferences, digital television can help to increase the interest people have in acquiring knowledge and break the distance barrier in communication. They concluded that for universities to reach its desired goal on being modern and efficient in service delivery, they should combine traditional methods of teaching with the modern ways brought about by ICT innovations. They described digitization and virtualization of education and research as a must-have for all institutions at the moment.

Overall, this study recognized a gap in knowledge in previous studies above as many of the previous studies failed to emphasize the association between DT and accounting education in Nigeria Federal Universities. The measures of the dependent variable: quality accounting education and reduction of loss of academic time caused by frequent strike actions and lockdowns; and the proxy of the independent variable e-learning were scarcely linked as well. The currency of the previous studies is also a gap as this study used current data and information to present current realities. Hence, adding new knowledge to the body of knowledge.

3. Research Methodology

The study adopted exploratory qualitative research design and data were collected through Online Survey questionnaire. Literal facts were obtained from journals, on-line publications and other secondary sources. The online questionnaire was

distributed and collated in April, 2022. Descriptive Statistics was used in data analysis as tables and percentages were presented using excel spreadsheet for easy understanding of the degree of agreements of the respondents on a particular survey question. The population of this study is students and lecturers that partake in teaching and learning of accounting in Federal Universities in Nigeria. The target population is accounting students and lecturers in Department of Accounting, University of Port Harcourt, Rivers State, Nigeria. The accessible population is Accounting Students and Lecturers in online WhatsApp Groups of Department of Accounting lecturers and Full-Time undergraduate students in 200, 300 and 400 (Final) Levels in University Port Harcourt. 100 Level (Year-1) students were exempted in this study because they have not started studying core accounting courses (Department of Accounting Brochure University of Port Harcourt, 2018).

Online survey was utilized due to the absence of students and lecturers in university premises due the strike actions. Online Surveys and the use of WhatsApp Groups are part of DTs in use in research (Chen, Wang and Tang, 2021; Jailobaev, Jailobaeva, Baialieva & Baialieva, 2021). Consequently, the distribution of the survey questionnaire was done through the different Class WhatsApp Groups of the students and lecturers. The Class Representatives assisted in sharing the survey in these WhatsApp Groups for the participation of the students. Census sampling was used as all the members of the WhatsApp Groups that make up the accessible population were given the opportunity to respond to the questionnaire.

The researchers used 5-Point Likert scale and the responses were subjected to ratings of 0-4 below:

- SA = Strongly Agree 4
- A = Agree 3
- U = Undecided 2
- D = Disagree 1
- SD = Strongly Disagree 0

4. Results and Discussion

Table 4.1 Analysis of respondents in the WhatsApp Groups as at April, 2022

S/N	Class of Respondents	Population of Respondents
1	Accounting Lecturers	17
2	400 Level Students	232
3	300 Level Students	194
4	200 Level Students	243
	Total	686

Out of the 686 respondents that make up the sample size, the overall responses were 214 representing 31.20% of the total respondents. This response rate is favourable when compared with previous studies (Okwuosa, 2021).

Table 4.2 Summary of Responses (Expressed in percentages).

S/N	QUESTIONS	SA	A	U	D	SD
1	Disruptive Technology such as Electronic Learning (e-Learning) should be adopted in Teaching and Learning of Accounting in Federal Universities in Nigeria.	25%	59%	9%	6%	1%
2	Hybrid-Teaching Method which is the combination of e-Learning and Traditional face-to-face teaching should be adopted in Teaching and Learning of Accounting in Nigeria Federal Universities.	72%	20%	6%	1%	1%
3	E-Learning will improve the quality of teaching and learning of accounting in Federal Universities in Nigeria.	53%	32%	7%	5%	3%
4	E-Learning will help to reduce the loss of academic time in teaching and learning of accounting during periods of strike actions by different staff unions in the Federal Universities in Nigeria and Lockdown caused by Pandemics such as COVID-19.	69%	26%	4%	1%	0%

Generally from the responses, there is a positive disposition of accounting students and lecturers on DT and its effect on accounting education as 25% and 59% supports the use of e-Learning in teaching and learning of accounting, making it a total of 84% of respondents who responded positively. 9% were undecided, whereas, 6% and 1% disagreed and strongly disagreed respectively. A total of 92% of the respondents were favourably disposed to the adoption of Hybrid-Teaching Method which is the combination of e-Learning and Traditional face-to-face teaching in line with the study of Grabinski, Kedzior and Krasodomska (2015). The findings also support that e-Learning will improve the quality of accounting education with a total of 85% favourable responses concurring with the findings of Berechet and Istrimschi (2011). 95% of the respondents have the perception that e-learning will help reduce loss of academic time in teaching and learning of accounting during periods of industrial actions and lockdowns.

5. Issues, Challenges and Ways Forward

In this section, issues, challenges and ways forward in accounting education using DT are robustly discussed as a follow up to the perceptions of respondents.

5.1 Issues

There are critical issues that ensure effective deployment of DT such as e-Learning in accounting education in Nigeria federal universities. They are discussed below.

5.1.1 The Structure of Courses in Accounting Discipline

Gunga (2010) opined that the internal structure of a discipline and the technical language are major determinants in the instructional method to be deployed during teacher-learner interchange and adoption of e-learning. Where the assimilation of accounting education by students during the one-on-

one teachings is difficult in ordinary pedagogy, implementing e-learning might be more difficult. Therefore, deploying an effective e-Learning requires devising an interesting innovative approach that would ignite a renewed interest of the students to understand the courses in accounting and a new zeal for the lecturers to lecture well.

5.1.2 The Issue of which e-Learning Tool to Use.

Deciding on which e-learning tool to use in each of the Federal Universities should be based on some factors such as financial capabilities of the institutions, the location and the stage of their development. The issue of the best tools that can effectively track the progress of learning and the contents accessed by the users should be considered critically.

5.1.3 Regulations, Standardization and Monitoring of e-Learning

The issue of standard regulations, guidelines and monitoring on the use of e-learning in federal universities should be critically looked into by NUC and the professional bodies in Accounting else, different universities will use any standard it pleases, therefore affecting the standard of quality service delivery of accounting education.

5.1.4 Security and Privacy of the University Database

This is a major issue of discussion in e-learning environments. Discussions should be on exploring the best e-learning tools that will safeguard the database of staff, students and course materials. Every ICT environment possesses a risk for its users including accessibility and privacy, hence measures of reducing these risks should be considered in the usage of e-learning.

Physical security of e-learning tools and infrastructure should be well-thought-out. The issue of loss of the gadgets or accidental damage of the

fragile equipment by staff or students is a crucial matter to be considered as well.

5.1.5 Natural Resistance to Change

The natural resistance to change is a natural human factor. Both lecturers and students might initially resist the usage of DT. This is in line with theory of Disruption by Christensen as new processes are usually challenged by incumbents (Christensen, Raynor & McDonald, 2015). It is until they are made to understand the benefits and objectives of its usage that they will key into it wholeheartedly.

5.1.6 Skill Development

E-learning encourages self-directed learning therefore, its effective usage requires skills such as time management, goal setting, problem solving and self-reflection and developing. These skills take practice and time to build by users.

5.2 Challenges

The several challenges in the adoption of e-learning as a mode of teaching and learning accounting in the Federal Universities include:

5.2.1 Funding

Many authors have widely written on the funding problems faced by university education in Nigeria and this has been a perennial issue caused by poor budgetary allocation to education generally in Nigeria compared to the population of the students (Okolie, 2013).

5.2.2 Infrastructural Challenges

There are several infrastructural challenges in the University, however the challenge in focus here is ICT equipment and e-learning enabling gadgets such as laptops, computers, accounting software for training the students; internet subscriptions, power supply; problem of inaccessibility of telecom services in some areas where federal universities are located; poor or no intra-connectivity of the faculties and departments with the university central ICT facilities. Students and lecturers also suffer some personal infrastructural challenges that can hinder effective e-learning usage such as: high cost of data to use the internet; high cost of hand-held mobile devices such as smart phones (Android phone), palmtops and their accessories; security of their personal e-learning gadgets, among others.

5.2.3 Frequent Strike Actions by Staff Unions

With all the industrial actions by the different staff unions in the federal universities in Nigeria, completing the course work by the lecturers becomes nearly difficult and this results in rushing of academic activities whenever the strikes are called off. Students also tend to forget most of what they have learnt before the strikes and also loose the zeal to read.

5.3 Ways Forward

Following the Expansive learning theory which this study is hinged on and positive perceptions from respondents, the researchers suggest the ways forward for an effective utilization of DT such as e-Learning tool that would be convenient, seamless and promote uninterrupted teaching and learning that would ultimately give the desired outcome of quality accounting graduates with robust consideration of all the social elements.

Adoption of Hybrid Teaching Mode

This study recommends that integrating e-Learning as an add-on to the traditional mode of teaching and learning is a way forward to bridging the gaps created in academic activities caused by lockdowns and frequent industrial actions. Hybrid-Teaching mode is the method of adopting both physical and virtual means of learning as a generally acceptable mode of teaching. Adopting this mode and using it effectively will enable in giving the students adequate, uninterrupted and sustainable accounting education.

Choice of e-learning Systems

E-learning systems recommended are: Web-Based Course Management Systems (WBCMS) and m-Learning-Based Systems (mLBS) or a combination of both in accounting education in the Federal Universities.

Web-Based Course Management Systems(WBCMS)

Web-Based Course Management System (WBCMS) is a system with a database back-end that aids teaching and learning and manages course activities and tasks (Aljawarneh et al., 2010). Their advantages include good security and privacy that: control student access, guest access, protects lecturer's intellectual property and students' privacy; prevents hackers and crackers from copyrighted materials; update and release course materials selectively and logging of assignments submitted. WBCMS encourages paperless learning; it is convenient, comfortable and makes teaching and learning easier.

Examples of available WBCMS e-learning systems are WebCT, MOODLE, WebBoard and Blackboard (Aljawarneh et al., 2010).

M-learning-Based System (mLBS)

M-learning is the transmission of education content via social and content interactions which can be conveniently accessed from anywhere through the use of personal electronic mobile devices. mLBS uses hand-held devices and portable technologies such as mobile phones and tablets, hand held computers, mp3 players, notebooks. They are also simple and easy-to-use-tech-tools.

Fombona, Pascual-Sevillano and Gonzalez-Videgaray (2017) stated that m-Learning gives quite different, greater and easy accessibility to information and sometimes comes along with unequalled innovations like playful activities, informal and friendly interactions, iconic virtual, membership of specific groups and networks and much more interesting innovations.

The researchers put forward four (4) simple and innovative m-Learning solutions that can be used to teach accounting students. They are:

E-Lecture Notes: These are lecture notes converted into electronic forms which the students can freely download through their emails, WhatsApp, Facebook, Telegram etc. These e-Lecture notes can contain any or a combination of texts, symbols, formula and images. Simple mobile applications (Apps) such as WPS and Canva can be easily used to produce e-lecture notes for students.

Master Classes: This is the ability to conduct classes using on-line-real-time Webinar Apps such as Zoom, Google Classroom, Google Meet, GoToWebinar, Conference Calls, Facebook, WhatsApp, You-Tube etc., most of which can be recorded and the videos watched later by the students who miss the live broadcast.

Online Video Courses: This is a way of creating videos that the students can gain access to and learn at their own pace.

Audio Programmes: Here, the lecturer converts his or her classes to Audio files that the students will listen to.

For an effective usage of e-learning tools, resources such as trackers, alarms, planners can help students manage their learning. These give students more responsibility and help them build the necessary

skills as they learn to manage learning by themselves. In the period of physical schooling/in-person schooling, students rely on their lecturers to set learning goals, planning and time management for them. Sometimes the Course-Representatives (Course-Reps) are the ones reminding the course-mates time for lectures, but in e-learning, learning time and goals are set by the students themselves as the materials are online for them to learn at their convenience anytime anywhere. There are also opportunities for one-on-one coaching and question and answer sessions through video calls or zoom sessions. The lecturers can make e-Learning interesting for the students by using short videos, adaptive learning games and using collaborative hands-on projects and activities.

5.3.3. Regulations on the Use of e-Learning and Seamless NUC Accreditation Process

NUC should come up with guidelines that will be in line with international best practices on e-Learning that will cover issues of philosophy; objectives; curriculum and pedagogy. There should be a minimum benchmark that any university that wishes to use e-Learning should attain before it can be accredited. The process of accreditation should be seamless and not fraught with bureaucratic bottlenecks inherent in the public sector administration in Nigeria. Quality Assurance and Quality Control (QA/QC) Units of these universities should be empowered internally to monitor compliance to standards in e-Learning.

5.3.4 Enlightenment Campaigns, Trainings and Re-training of Staff

There is need for adequate enlightenment and education of all stakeholders in the University system on the need to incorporate e-Learning as an add-on to the one-on-one classroom teaching. This will encourage its easy acceptance. In addition, lecturers, students, administrative and technical staff in the Universities need to undergo trainings and re-training for an effective utilization of e-learning.

5.3.5. Adequate Funding of Federal Universities

The bottom-line of most labour union struggles in the universities is hinged on poor funding. Where enough funds are provided for infrastructure and staff welfare, cases of industrial strikes will be very minimal. Federal Government should provide more funds to the Federal Universities to boost the infrastructural requirements needed for e-learning such as power supply, internet facilities, laptops,

smart-boards, smart-phones, Web-Based Course Management Systems (WBCMS), Course Material Developments, improved staff remuneration and staff welfare.

5.3.6 Adequate Interconnectivity of ICT in the Universities

Considering the cost of having internet facilities separately in each of the various departments, faculties, schools, colleges and units in each university, a central Information, Communication and Telecommunication Centre (ICTC) should be made functional and have effective interconnectivity with all departments, faculties, schools, colleges and units for better efficiency.

5.3.7 Provision of Subsidized Internet Access for Lecturers and Students

Federal government, corporate bodies and philanthropists should assist in providing Internet access for lecturers and students by way of subsidizing their data subscriptions and other personal m-learning tools through grants.

6. Conclusion

The study concludes that e-Learning has a positive influence on accounting education in Nigeria Federal Universities. It further concludes that e-Learning has a positive effect on quality accounting education. Furthermore, e-Learning when deployed and effectively utilized reduces loss of academic time occasioned by frequent academic shutdowns and lockdowns because the students can learn from home during these periods.

E-learning benefits include technological skills development and exposure, simplicity, convenience, portability and mobile learning. E-learning also helps students to develop skills like time-management, goal-setting and problem-solving skills required in self-directed learning which is very important in their development even after graduation.

7. Contributions to Knowledge

Away from what other researchers have done, this study primarily differs as it is one of the early attempts to examine the effect of DT on accounting education in Nigeria federal universities and the proxies used are distinct, therefore, adds to the growing body of knowledge with its solution-driven approach.

This study further contributes to knowledge with current data and information presenting current realities that integrating e-Learning with traditional mode of teaching and learning of accounting in the federal universities in Nigeria aids in producing quality accounting graduates. These graduates would possess cutting-edge technological and broad-based analytical skills required in the ever dynamic business world whether as employees, captains of industry, business managers or entrepreneurs that drive economic growth and sustainable development.

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Part Two

Journalism and Media Studies



Exploring Mass Media Exposure and Perception of Terrorism Threats among Residents in Ibadan, South West Nigeria

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Abstract. There is a growing consensus globally that a symbiotic relationship exists between the media and terrorism. In the light of ongoing security situation confronting Nigeria, it has become very critical to analyze and understand people's perception of terrorism threats. Previous studies have focused greatly on media coverage of terrorism while there appears to be dearth of studies exploring the correlation between citizens' perception of terrorism threat and their exposure to the mass media. This study, therefore, investigated exposure to mass media and perception of terrorism threats among the residents in Ibadan South West Nigeria. The study adopted cultivation theory while cross-sectional survey served as the research design. Probability and non-probability (stratification, simple random, purposive and convenient) procedures were employed in selecting (n=339) respondents. Results revealed that perceived level of terrorism threats to self and the community to be high while no significant relationship exists between exposure to mass media information on terrorism threats and perceived terrorism threats to self and community among residents in Ibadan. The study recommends that the federal and state authorities overhaul their security apparatuses and strategies in addressing the challenges of terrorism threats in the country.

Keywords: Terrorism threats, perception, South West Nigeria, Ibadan, mass media, Boko Haram

1. Introduction

Terrorism assumed a dangerous and frightening dimension globally after the terrorist attacks on the United States of America (USA) on 9/11/2001 (now popularly referred to as 9/11), train bombing in Madrid in 2004 and London train bombing in 2005. The events of 9/11 in the US served to draw the attention and perspective of many to the menace of terrorism globally (Oyeniyi, 2010, Ajah & Okunola cited in Obasi, Igbo & Abiodun, 2021). Now, the

threats of terrorism have become so real in many countries. Ugwa and Okonkwo (2015) had argued that the aftermath of these attacks has reached a point that the battle against terrorism around the globe has increased in a geometric proportion. Without any doubt, globally terrorism has risen to a sublime and global community in a bid to maintain global peace and stability unanimously agreed to counter terrorism in all its forms and to also bring its perpetrators to justice (Majekodunmi, 2015). Although there may be variations in the intentions, nature and magnitude of acts of terrorism, globally, efforts are being geared towards its containment to the barest minimum.

Nigeria has had her own share of terror perpetuated by different terrorist groups. Arguably, there have been some terrorist groups (like the Niger Delta Militants, Indigenous People of Biafra [IPOB], Movement for the Actualization of Sovereign State of Biafra [MASSOB]) in the country which have been localized in their operations. However, the dynamics changed with the onset of Boko Haram. Omede and Omeden (2015) alleged that the insecurity situation in Nigeria seemed to have assumed higher and more complex dimensions with the onset of the sect. Boko Haram, considered one of the deadliest sects since they appeared on the scene in 2002, exacerbated the security situation in the country. The authors referred to above also claimed that besides the frequency and intensity of deadly attacks and carnages, insecurity situation in Nigeria cuts across cities, towns and villages. Beyond the monumental human and material consequences of Boko Haram activities, the continued existence of the country as an entity appears to be hanging precariously in a balance.

Terrorism is designed to have psychological effects that reach far beyond its impact on the immediate victims or object of an attack (Shekwolo, Nanlir, Temitope & Aondoaver, 2021). The central aim of terrorism is not so much the act of violence or the killing of a target, but rather the dissemination of

terror and uncertainty among a population as well as the spread of the group's message through the newsworthiness of the violent act (Spencer, 2012). The media reporting such violent acts has been seen from a mutually beneficial point of view. Scholars (Spencer, 2012, Ngige, Badekale & HammanJoda, 2016) have argued that there is a symbiotic relationship that benefits both the media and the insurgents.

The Nigerian mass media have been accused of being used in fanning the ember of terrorism in the country. The growing concern, especially in Nigeria, about the relationship between the mass media and the threat of terrorism cannot be totally ignored. The ubiquitous nature of, and the pervasiveness of the mass media in the lives of people, may imply that Nigerian people are not oblivious of the reality of terrorism threats in the country. The power and influence of media narratives are evident in their surveillance function of keeping the citizens adequately informed about events happening within and outside their immediate environments. However, media narratives may have implications on citizen's perception of the terrorism threats.

It is, therefore, not surprising that scholars are interrogating the nexus between the mass media and the threats of terrorism in Nigeria. For instance, Ngige et al. (2016) investigated the media and Boko Haram insurgency in Nigeria, Kupoluyi & Awotunde (2019) examined media reportage of Boko Haram insurgency in Nigeria, Asemah (2013) study focused on public perception of media framing of terrorism, Kente & Sheyigari (2021) investigated news media framing and the coverage of Boko-haram insurgency in the Northeast Nigeria while Shekwolo et al. (2021) conducted a study on social characteristics and perception of terrorism in Borno State, Nigeria.

Cohen-louck (2016) had argued that one important issue that needed to be analyzed and understood in the light of the tense and ongoing security situation in the State of Israel was the citizen's perception of terrorism. In the same vein, in view of the disturbing and growing insecurity in Nigeria, it has become imperative to interrogate the issue of citizen's perception of these terrorism threats in the country, in relation to their exposure to mass media information on terrorism threats. The perception of the public toward terrorism has been seen to have affected Nigeria's political, economic and social insecurity which encompasses all developmental goals (Shekwolo et al., 2021). This notwithstanding, none of the studies mentioned above focused on the variables of interest of this present study. This current

study, therefore, investigated the relationship between exposure to mass media and perception of terrorism threats among residents of Ibadan, south west Nigeria. The study area was selected based on the argument made by Shekwolo et al. (2016) that beyond targeting people within their environs, and inflicting injuries and destroying their properties, terrorists aim to send fear to those who are not within their immediate vicinities.

The study adopted the cultivation theory, propounded by George Gerbner in the 1960s, as the theoretical underpinning. Cultivation is a sociocultural theory regarding the role of television in shaping viewers' perceptions, beliefs, attitudes, and values (Gerbner & Gross, 1976). The primary hypothesis of cultivation theory is that the more people watch television, the more they will come to adopt its underlying messages. That is, the more they watch television, the more likely they are to hold beliefs that are consistent with the world as it is portrayed on television (Shrum, 2017). This study hypothesized, therefore, that the more exposed the respondents are to mass media information on terrorism, the higher their perception of terrorism threat to them and their community.

The attraction on television was because at the time of the development of cultivation theory television was the dominant storytelling medium, hence most of the theory's development and testing focused on the influence and effects of television on viewers' perceptions of social reality (Shrum, 2017). However, research frontiers have expanded beyond television to other media such as social media. This is not surprising considering the pervasiveness and ubiquitous nature of social media networks in the lives of users. Although there were three areas of analysis at the conception of the cultivation analysis, up till date cultivation analysis has continued to be the primary focus of most media research by scholars (Shrum, 2017).

The following research questions guided the study: 1.) What is the level of perceived terrorism threat among residents in Ibadan South West Nigeria? 2.) What is the exposure pattern to mass media information on terrorism among residents in Ibadan south west Nigeria? 3.) What is the relationship between exposure pattern to mass media information on terrorism and perception of terrorism threat among residents in Ibadan South West Nigeria? 4.) Do some demographic variables (such as sex, age, level of education, place of residence and religious affiliation) have a significant relationship with perception of

terrorism threat among residents in Ibadan South West Nigeria?

2. Research Methodology

2.1 Study Design

The study adopted a cross-sectional survey research design in order to reach the target population who are residents of Ibadan. This design was deemed appropriate in order to harness their perception and opinions on terrorism threats to them and their community.

2.2 Participants

The participants in this study are residents of Ibadan aged 18 years and above. Residents below 18 years were excluded from the study since they are regarded as minors. Participation in the study was not compulsory and their right to withdraw from the study was not infringed upon.

2.3 Sampling Procedure and Sample Size

The probability and non-probability sampling procedures (stratification, simple random, purposive and convenient) were utilized in the selection of residents who took part in the study. Ibadan municipality was stratified along urban and semi-urban areas. Simple random sampling technique was used in the selection of the communities while purposive and convenient sampling procedures were used in the selection of the respondents. The rationale for the stratification of the communities into urban and semi-urban was to investigate if place of residence would have influence on respondents' perception of terrorism threat. Out of a total of three hundred and fifty (350) copies of questionnaire administered, three hundred and thirty nine (339) were returned.

2.4 Data Collection

Three (3) research assistants who were trained assisted in the data collection. Data collection lasted for a total of two (2) weeks. The research assistants were instructed to administer and retrieve the copies of the instrument after completion by the respondents. They were also to ensure that all the items were answered. These decisions not only ensured very high return rates but also ensured that the copies of the questionnaire were usable.

2.5 Method of Data Analysis

Descriptive statistics expressed in simple percentages and frequency counts were adopted in order to analyse the descriptive data. Furthermore, Spearman rho, t-test and One Way ANOVA were used in order to establish relationship between the variables.

2.6 Measures

Questionnaire, which was utilized as the instrument for data collection, has a total of forty five (45) items and four (4) sections. These sections focused on the variables of interest of the study – demographics, mass media information seeking behaviour on terrorism threats and perception of terrorism threats to self and community. These sections are discussed separately.

2.7 Demographics

In order to generate their demographic information, respondents were asked to respond to their sex, age, marital status, religious affiliation, level of education, local government area of residence.

Information seeking behaviour on terrorism threats from the mass media

This section has a total of twelve (12) items. The battery of questions probed the respondents' pattern of mass media exposure, information seeking behaviour on terrorism threats, opinions on mass media coverage of terrorism threats and other (alternate) sources of information on terrorism threats. Their opinions were also sought regarding government sources handling of information on terrorism threats as well as the credibility of news and information on threats of terrorism from government sources.

Perception of terrorism threats to self and community

In order to measure respondents' perception of terrorism threat to self, the statements they responded to focused on their perception of control, vulnerability and fear of terrorism threat. Items on control focused on loss of control, helplessness due to uncertainty and inability to predict threats. Items on vulnerability focused on feeling of victimization and vulnerability to terrorism while items on fear of terrorism focused on feeling of fear, anxiety, danger and emotional distress among the respondents. Respondents' perception of threat to their communities was measured by asking them to

respond to statements that focused on social and psychological factors. In all, this section has a total of sixteen (16) statements with a 5-point Likert Scale response options where 1= strongly agree and 5= strongly disagree. Based on their responses, perception of terrorism threat was categorized into two (2) levels - low and high. These levels apply to both threats of terrorism to self and community.

Opinion on most serious crime threats facing their community and the country

Opinions of respondents were sought on the most serious crime threats facing their community and the country. Respondents were asked to select only one crime threat facing their community and the country from the list of crime threats provided. The options include armed robbery, terrorism, burglary, kidnapping, gang, banditry threats and others. The “others” option required the respondents to provide just one crime threat each for their community and the country.

3. Analysis of findings

Socio-Demographic Information of Respondents

Table 1 reflects the socio-demographic data of the respondents who participated in the study. Majority of the respondents were 26years and above (n=239;70.5%), are males (n=194;57.2%), were married (n=179;52.8%), were Christians (n=244;72.0%), lived in urban(n=200; 59.0%) and had HND/First Degree (n=173; 51.1%).

Table 1: Socio-demographic information of the respondents

All	Demography Characteristics	Frequency	Percent (%)
Age of the respondents			
Young adults	18-25years	100	29.5
Old adults	26 and above	239	70.5
	Total	339	100.0
Sex of the respondents	male	194	57.2
	female	145	42.8
	Total	339	100.0
Marital status of the respondents	single	144	42.4
	married	179	52.8
	others	16	4.8
	Total	339	100.0
Religious affiliation of the respondents	christian	244	72.0
	moslem	88	26.0
	traditionalist	7	2.0
	Total	339	100.0
Place of residence of the respondents	urban	200	59.0
	semi-urban	139	41.0
	Total	339	100.0
Level of education of the respondents	wassce	31	9.1
	nce/ond	43	12.7
	hnd/first degree	173	51.1
	masters/phd	76	22.4
	others	16	4.7
	Total	339	100.0

Exposure pattern to mass media information on terrorism threats

Respondents always get news and information of terrorism threats from the mass media. Finding in Table 2 reveals that majority (n=183;54.0%) always are exposed to news and information on terrorism threats from the mass media.

Table 2: Exposure pattern to mass media information on terrorism threats among the respondents

Response	Frequency	Percentage
always	183	54.0
occasionally	123	36.3
rarely	33	9.7
Total	339	100.0

The study also probed further into other media issues such as extent of, and satisfaction with coverage of terrorism threat by the mass media, credibility of information of terrorism threats from the mass media. Residents believe that the mass media give enough coverage to the issue of terrorism threat. Finding shows that more respondents believe that the media have given too much (n=34;10.0%) and much(n=199;58.7%) coverage to terrorism threats while less believe that mass media have given little (n=94;27.7% and very little(n=12;3.5%) coverage to terrorism threats. It is, therefore, not surprising that residents expressed their satisfaction on the attention mass media have given to the issue. Put together respondents who are very satisfied (n=19;5.6%) and satisfied(n=200;59.0%) are more than those who are not satisfied (n=105;31.0%) and not very satisfied(n=15;4.4%) on the attention mass media have given to terrorism threats. Residents are of the opinion that traditional media are more credible source of news and information about terrorism threat than the social media. This is evidenced by the finding that majority (n=185;54.6%) of the respondents stated that traditional media are more credible source of news and information about terrorism threats than the social media while minority(n=154;45.4%) thought otherwise. A follow-up question focused on which media respondents would turn to for news and information in case of terrorism threat. Surprisingly, majority (n=198;58.4%) said that they would turn to social media while a lesser number(n=141;41.6%) of the respondents said that they would turn to the traditional media for news and information in case of terrorism threats. Besides turning to the mass media for news and information about terrorism threats, other sources that the residents turn to are friends (n=109;32.2%), colleagues/class members(n=100;29.5%), family members(n=56;16.5%) and government officials(n=39;11.5%), in that order.

Perceived terrorism threat to self

In order to enhance analysis, response options “strongly agree and “agree” were merged together to represent “agree” “while “strongly disagree” and “disagree” represent “disagree”. Finding on Table 2 reveals that majority of the respondents believe that terrorism is a threat to them. In response to all the items, majority of the respondents agreed that terrorism is a threat to them. For instance, majority (n=234;69.0%) agreed that they have reduced the frequency of travel due to terrorism threats on Nigerian roads while only a small number (n=65; 19.1%) disagreed with the statement. Again, a total of (n=177;52.2%) of the respondents agreed that they feel a sense of loss of control of things happening around their environment because of terrorism threats, while a total of (n=100;29.5%) of the respondents disagreed with the statement. A total (n=62;18.3%) of the respondents were undecided on the issue.

Table3: Respondents’ opinion on terrorism threat to self

Statement	Agree	Undecided	Disagree
I always feel a sense of loss of control of things happening around my environment because of terrorism threats	177(52.2%)	62(18.3%)	100(29.5%)
I always feel threatened because I am not able to predict terrorism threats in my community	161(47.5%)	67(19.8%)	111(32.7%)
I always feel so unsafe because of terrorism threats in my community	175(51.7%)	36(10.6%)	128(37.7%)
I am always worried or concerned about being attacked by terrorists	174(51.3%)	77(22.7%)	88(26.0%)
I have stopped going out at night because of terrorism threats	169(49.8%)	64(18.9%)	106(31.3%)
I have reduced the frequency of my travels due to terrorism threats on Nigerian roads	234(69.0%)	40(11.9%)	65(19.1%)
I always feel a sense of helplessness because of terrorism threats in my community	134(39.5%)	88(26.0%)	117(34.5%)
I am sometimes afraid that I may be exposed to terrorism attack in my community	160(47.2%)	87(25.7%)	92(27.1%)

Categorization of level of terrorism threats to self

Based on their responses, residents were categorized based on the perception of level of terrorism threats to self. Majority (n=238;70.2%) of the respondents perceive level of terrorism threat to self to be high while minority(n=101;29.8%) of the respondents perceive level of terrorism threats to be low. The implication of this finding is that many of the residents perceive terrorism to be a threat to their personal lives.

Perceived terrorism threats to community

Responses were also collapsed in order to enhance analysis. The response options “strongly agree and “agree” were merged together to represent “agree” “while “strongly disagree” and “disagree” represent “disagree”. The respondents in this study appear not to trust and welcome strangers into their community. This is evident in Table 3 where the majority (n=232;68.5%) of the respondents agreed that people in their community are now suspicious of strangers who come into their community because of terrorism threats while fewer respondents disagreed with the statement. Similarly, a larger number (n=201;59.3%) agreed that people in their community no longer trust strangers because of terrorism threats while fewer number(n=86;25.4%) of the respondents disagreed with the statement. However, respondents believe that people in their community still maintain social interaction despite terrorism threats. Majority(n=176;51.9%) disagree that people in their community no longer feel free to attend social functions (such as funerals, marriages, house warmings) organized in the community because of terrorism threats. A lesser number (n=98;28.9%) agreed with the statement while those who were undecided were (n=65;19.2%). Furthermore, majority (n=150;44.3%) disagreed that social functions (such as funerals, marriages, house warmings) are not allowed into the night because of terrorism threats while lesser number(n=129;38%) agreed with the statement.

Table 4: Respondents’ opinion on terrorism threats to their community

Statement	Agree	Undecided	Disagree
The people in my community are no longer willing to help their neighbours because of terrorism threats in our community	117(34.5%)	56(16.2%)	164(49.3%)
The people in my community no longer welcome strangers into our community because of terrorism threats	138(40.7%)	59(17.4%)	142(41.9%)
The people in my community are now suspicious of strangers who come into our community because of terrorism threats	232(68.5%)	52(15.3%)	52(16.3%)
The people in the community no longer feel free to attend social functions (such as funerals, marriages, house warmings) organized in community because of terrorism threats	98(28.9%)	65(19.2%)	176(51.9%)
In my community social functions (such as funerals, marriages, house warmings) are not allowed into the night because of terrorism threats	129(38.0%)	60(17.7%)	150(44.3%)
The people in my community no longer keep late nights	193(57.0%)	50(14.7%)	96(28.3%)
The community where I live has put in place extra security measures to guard against terrorism threats to our community	188(55.5%)	63(18.5%)	88(26.0%)
The people in my community no longer trust strangers because of terrorism threats to our community	201(59.3%)	52(15.3%)	86(25.4%)

Categorization of level of terrorism threats to the community

Similarly, based on their responses, residents were categorized based on the perception of level of terrorism threat to their community. Majority (n=219;64.6%) of the respondents perceive level of terrorism threat to their community to be high while minority(n=120;35.4%) of the respondents perceive level of terrorism threats to their community to be low. The implication of this finding is that many of the residents perceive terrorism to be a threat to their community.

Most serious crime threats facing their community and the country

Residents identified armed robbery threats (n=171;50.4%), burglary threats(n=75;22.1%), gang threat(n=36;10.6%) and terrorism threats(n=25;7.4%) in that order as the most serious crime threats facing their community. However, a reversal of these crime threats in their community was evident as residents identified serious crime threats facing the country as terrorism threats (122;36.0%), kidnapping threats(n=89;26.3%), armed robbery threats(n=85;25.15) and banditry threats(n=23;6.8%) in that order. The implication of this finding is that residents believe that the pattern of crime threats facing their local community are different from the ones facing the entire country.

Relationship between exposure pattern to mass media and perception of terrorism threats among the respondents

In order to investigate any relationship that exists between exposure patterns to mass media and perception of terrorism threat among the respondents, Spearman’s rho was employed to analyze the data generated. Considering that perception of terrorism threats was explored separately (for self and community), this was also applied to this analysis. At Table 4, it was revealed that a relationship exists between exposure to mass media and perception of terrorism threats to self. However, the Spearman's rho correlation coefficient between exposure patterns and perceived terrorism threats to oneself is 0.096. This indicates a weak positive relationship between these two variables. Importantly, this correlation value does not attain statistical significance at the 5% level, as evidenced by the p-value of 0.077, which exceeds the conventional threshold of 0.05. The implication of this finding is that an increased exposure to mass media information on terrorism threats does not translate to perceived high level of terrorism threats to self and vice versa.

Similarly, Spearman rho correlation coefficient between exposure patterns and perceived terrorism threats to the community is 0.041. This indicates a weak positive relationship between the two variables. This also does not reach a statistical significance at the 5% level as indicated by the p-value of 0.456, which surpasses the significance threshold of 0.05. This means that an increased exposure to mass media information on terrorism threats does not lead to perceived high level of terrorism threats to the community and vice versa.

Table 5: Relationship between exposure pattern to mass media and perception of terrorism threats among the respondents

		Exposure pattern	Threat to self	Threat to community
Exposure pattern	Pearson correlation	1	.096	.041
	Sig. (2-tailed)		.077	.456
	N	339	339	339

Relationship between some demographic variables (such as sex, age, level of education, religious affiliation and place of residence) and perception of terrorism threats among the respondents.

Analysis for this was done in two parts. In the first part, T-test comparing respondents’ perception of terrorism threats grouped by sex, age and place of residence was carried out. Finding (see Table 5) shows that the females have a higher mean score of 55.77 while the males have a lower mean score of 54.97. However, the T-test shows that there is no significant difference between the two groups on their perception of terrorism threats ($t(337)=-0.557$, $p=.578$). This shows that the sex of the residents does not influence their perception of terrorism threats.

Finding also shows that the older adults have a higher mean score of 55.81 while the younger adults have a lower mean score of 54.19. The T-test shows that there is no significant difference between the two groups on their perception of terrorism threats ($t(337) = -1.077$, $p = .282$). The implication is that the age of the respondents does not have any significant relationship with their perception of terrorism threats.

Finally, respondents who reside in semi-urban areas have a higher mean score of 56.56 while those who reside in urban areas have a lower mean score of 54.46. Similarly, the T-test reveals that there is no significant difference between the two groups on their perception of terrorism threats ($t(337) = -1.458$, $p = .146$). This shows that area of residence of the respondents does not influence their perception of terrorism threats.

Table 6: T-test comparing respondents’ perception of terrorism threats grouped by sex, age and place of residence

Sex	N	Mean	Df	t-test	Sig
male	194	54.9794	337	-.557	.578
female	145	55.7793			
Age	N	Mean	Df	t-test	Sig
young adult	100	54.1400	337	-1.077	.282
old adult	239	55.8159			
Place of residence	N	Mean	df	t-test	Sig.
urban	200	54.4600	337	-1.458	.146
semi urban	139	56.5612			

Sig. level = 0.05

In this second part, One-way ANOVA comparing respondents’ perception of terrorism threats grouped by religious affiliation and educational level was carried out. Finding shows that traditionalists, Christians and moslems have mean scores of 56.28, 55.46 and 54.85 respectively (see Table 6). The F-value is 0.090 while the p-value is 0.914(this is greater than the 0.05 level of significance). Therefore, no significant relationship exists between respondents’ religious affiliation and their perception of terrorism threats.

Furthermore, finding reveals that the mean scores of the respondents with varying educational levels range from 54.3226 to 57.8553(see Table 6). Although there are some variations in their scores, further analysis revealed that there is no significant difference within the groups on their perception of terrorism threats ($F(334) = .996, p = .410$). This indicates that the respondents' level of education does not influence their perception of terrorism threats.

Overall, the findings reveal that demographic variables (sex, age, place of residence, religious affiliation and educational level) do not significantly influence the residents’ perception of terrorism threats.

Table 7: One-way ANOVA comparing perception of terrorism threats among the respondents grouped by religious affiliation and educational level

Religion	N	Mean	df	F	Sig.
<i>christian</i>	244	55.4631	336	.090	.914
<i>moslem</i>	88	54.8523			
<i>traditionalist</i>	7	56.2857			
<i>Total</i>	339	55.3215			
Education level	N	Mean	Df	F	Sig.
<i>Wassce</i>	31	54.3226	334	.996	.410
<i>Nce /Ond</i>	43	55.5814			
<i>hnd/first degree</i>	173	54.3873			
<i>masters/phd</i>	76	57.8553			
<i>Others</i>	16	54.6250			
<i>Total</i>	339	55.3215			

Sig. level = 0.05

4. Discussion of findings

The study shows that residents of Ibadan are always exposed to mass media information on terrorism threats. The ubiquitous nature of the mass media in the modern society enables media users to key into the surveillance function of the mass media. The increased security threats and citizen awareness have consequences. Therefore, considering the uncertainty, frequency and enormity of the terrorism threats and attacks, it is not surprising that the residents have adjusted to keeping track of related events in their immediate and remote environments.

Previous studies have interrogated the different aspects of the symbiotic relationship between the Nigerian media and terrorism (Asemah,2013, Ngige et al, 2016, Ajakaiye et al., 2021). For instance, the study by Ajakaiye et al.(2021)found out that the press in Nigeria is discharging its corporate social responsibility by setting and sustaining public consciousness on the injustice and inhumanity of the abduction of the Chibok girls. This current study also shows that the mass media give enough coverage to the issue of terrorism threats and attacks. However,

divergent opinions on this issue have been expressed by other scholars. Whereas some scholars (Ngige et al., 2016, Awoviebe, Gbigbidje & Temisere (2019) and other concerned stakeholders have argued strongly on the mutually beneficial relationships between the media and terrorists’ groups, the mass media thrive in breaking news and as such terrorists’ groups depend on them to “propagate” the message of their attacks. Indeed the former British Prime Minister Margaret Thatcher, paid specific attention to this effect by calling the media the “oxygen” of terrorists (Muller, Spaaij & Ruitenberg cited in Ngige et al., 2016).

The study by Lemyre, Turner, Lee & Krewski, (2006) showed that the Canadian media was cited as the source most often referred to when seeking credible information about terrorism, while elected politicians and government officials were referred to as the least. This current study also corroborated their finding. The traditional media are the most credible source while government officials are the least credible sources that the residents turn to when seeking news and information about terrorism threats. This is not surprising considering that government

officials, considered the mouth piece of government, will not speak to jeopardise the interest of the government that they represent. This may amount to a case of self indictment.

Globally terrorism threats and attacks have become a joint issue that no country can afford to ignore, although the intensity and frequency may vary. Terrorism is designed to have psychological effects that reach far beyond its impact on the immediate victims or object of an attack (Shekwolo et al., 2021). The varying scope and impact on different locations may be a key moderating factor on how citizens perceive these threats. For instance, Lemyre et al.'s. (2006) study reported that terrorism was perceived as low to moderate threat to the Canadian population and an even lower threat to themselves as individuals while Cvetkovic et al. (2018) study revealed that participants exhibited low levels of perception vis-a-vis the future likelihood of terrorist attacks occurring in their Belgrade communities. However, this current study showed that the perceived level of terrorism threats to self and community is high among the Ibadan residents. This result is not unexpected considering that the country is at the cross roads in its fight against insurgent groups. Oladele cited in Shekwolo et al. (2021:252) painted a grim picture by stating that "the nation Nigeria has witnessed brutal confrontation and massive assaults from terrorist group which is undoubtedly the most blood-thirsty and destructive in terms of demonic brutality, mindless savagery and flagrant disobedience to the principles of peace and stability".

This study also revealed that no significant relationship exists between exposure to mass media information on terrorism threats and perceived terrorism threat to self and community. Although Shekwolo et al. (2021) obliquely made reference to the fact that fear and uncertainty of terrorism attacks may spread to people who are exposed through broadcast, this appears not to be the case in this study. This finding, therefore, did not support the key assumption of the cultivation theory as discussed earlier. There is need for further studies to interrogate the relationship between other sources, such as interpersonal sources, and perceived terrorism threats.

Some studies (Cohen-Louck, 2016, Cvetkovic et al., 2018) have established a correlation between some demographic variables and perception of terrorism threats or risks. However, this current study did not show any significant relationship between demographic variables and residents' perception of terrorism threats. Ewetan cited in Shekwolo et al.

(2021) had noted the alarming level of terrorists' attacks in North-Eastern Nigeria and in different parts of the country, so it is not unlikely that everyone, irrespective of their gender, age, religious affiliation etc, will feel threatened as they may be the targets of attacks.

5. Conclusion and Recommendation

This study investigated the relationship between mass media exposure and perception of terrorism threats among residents of Ibadan South West Nigeria. The main findings of this study revealed that residents of Ibadan are always exposed to mass media information on terrorism threats, perceived high terrorism threats to self and community but that there was no significant relationship between exposure to mass media information on terrorism and perceived terrorism threats to self and community.

Since the public perception of the risks(threats) of terrorism are very important for directing risk management decision-making and for preparedness planning (Cvetković et al., 2018), this study recommends that the Federal and state authorities overhaul their security apparatuses and strategies in addressing the challenges of terrorism threats in the country. It is important that the concerned authorities make terrorism their first policy priority. This has become imperative based on the devastating effects that terrorism threats may be having on the political, social and economic development of the country.

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Reporting Terrorism in the era of Politics and Electioneering in Nigeria

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Abstract. Terrorism is a serious global social phenomenon which has assumed a pandemic dimension. International bodies such as European Union and United Nations have expressed concern about phenomenal rise of terrorists' activities with unanimous agreement that terrorism is a deliberate act by an individual or group against a country, its institution or its people. The study is anchored on Agenda setting and Framing theories of the media and relies on archival materials, extant literature and media reports in the contemporary Nigeria environment. Terrorism may be triggered by unfair treatment meted out to individual, groups, or institutions, poverty, unequal distribution and utilization of resources, oppression and suppression of the less privileged members or groups in society, etc. Reporting terrorism is a hard nut to crack on the part of the reporter who is entangled in the precarious terrain of the area of assignment and the media organization he/she is working for. The reporter sometimes finds himself/herself in a dilemma as he is faced with the task of reporting facts (not fiction) amid ensuring that the media organization is not offended. The priority of the reporter should be to get the fact of the story and present it in an unbiased and objective manner devoid of suspicion. The impact of terrorism on the citizenry is enormous. Aside the loss in human lives, it can damage its economic, political and social fabrics of the nation. At the professional plank, many journalists have lost their lives in the cause of reporting terrorist acts. The study recommends the reduction of poverty, inequality, promotion of justice and fairness and the rule of law, greater participation in governance, and improvement in intelligence gathering among others.

Keywords: Terrorism, reportage, poverty, participatory governance, democracy.

1. Introduction

Terrorism is a serious global social phenomenon with enormous social implications on nations. International bodies such as European Union and United Nations have expressed concern about phenomenal rise of terrorists' activities with its attendant negative consequences on nations' political, economic and social fabrics (Vincent, 2007, p.210). Terrorism may be triggered by unfair treatment meted out to individuals, groups, or institution, poverty, unequal distribution of resources, oppression and suppression of the less privileged members or groups in the society by the powers that be. Deliberate efforts by victims of the oppressed, poverty, injustice, unfair treatments to avenge may be the compelling reasons why they may resort to terrorism as a way of responding to the aggressor's mischievous and wicked acts against them.

Terrorism has inflicted fear and peace has been greatly undermined in families, churches, institutions of learning, government offices and communities. In fact, the fear of terrorist acts have become the beginning of wisdom in Nigeria. It has become difficult for Nigerians to sleep with two eyes closed because of activities of terrorists among farming communities, especially in Northern Nigeria. This has been aggravated by activities of herdsmen who killed innocent farmers and rape their wives at the slightest provocation. In fact, it has become normal for aggrieved communities to abandon their ancestral homes for fear of being exterminated by the invading herdsmen. In Churches and Mosques, the killing of worshippers during religious services has become common place.

Reporting terrorism is a hard nut to crack as the reporter is entangled in the precarious terrain of the

area of assignments and the media organization the reporter is working for. The reporter sometimes finds himself in a dilemma as he is confronted with the task of reporting facts ensuring that the media organization is not offended. The priority of the reporter should be to exercise utmost responsibility in his reportage as he has a stake in the peace and tranquility of the society.

Reporting terrorism is a sensitive issue which requires tact on the part of the reporter because; terrorists rely on media coverage to amplify their gruesome deeds. Exercising constraints by the reporter to mitigate terrorist activities therefore becomes imperative.

2. Reviews of Literature

It is necessary to explain a number of concepts and terms that are pertinent to the understanding of this discourse.

Terrorism defined:

Although terrorism takes different definitions, there is a unanimity in its opinion depending on the perpetrators and terrorist acts. Bodies such as the European Union and United Nations have drafted statements and policies defining terrorism. They agreed that terrorism is a deliberate act by an individual or group against a country, its institutions, or its people. The intent is to damage its economic, political and social configuration. Under such a rubric terrorism is that which is directed against countries. Other uses are conveniently side stepped (Vincent, 2007, p.261).

Terrorism may take either of two shapes: state terrorism – when governments are the aggressors or state and non state dimension. Governments may sometimes participate in terrorists' acts which may not be publicly pronounced. Those who perceive themselves as marginalized or oppressed/suppressed will engage in acts of terrorism. Incidents of terrorism have been in the increase in recent times and will likely continue as long as it appears to be the available options for the marginalized and oppressed in different climes. It is even worse, especially that most terrorists are hardly captured and some terrorist acts have political undertone.

Sometimes, security personnel are compromised and leak intelligence connive or collaborate surreptitiously to unleash mayhem on innocent citizens. It is believed and has been proven that ransom payments are shared with the security

personnel and chief negotiator. They have been many confessions where arrested terrorists named the military as chief sources of weapon supply. The recent jail break in Abuja Kuje Prisons where the Minister publicly admitted that there was intelligence report a couple of days alluding to the jail break but was ignored before the incidence is a case in point. Umueri and Galadima (2012, p.3) say terrorism is the use of violence for political aims or to force the government to acct. Citing Schlesinger *et al.*, (1983), terrorism is perceived as bad and must be tackled in a way even without following democratic or legal procedure. They further aver that:

Terrorism has become a common place in the Nigerian Clime. Apart from the Nigerian Civil war, terrorism was not common in Nigeria until about October, 19, 1986 when a renowned investigative journalist, Dele Giwa of the *News Watch* Magazine was killed with a parcel bomb in his residence in Lagos. Since then there have been pockets of bomb blast in some parts of the country but it assumed a larger dimension of very wide scale of dangerous magnitude with the killing of Mohammed Yusuf, the sect leader of Boko Haram by the police. His death marked a new phase in terrorism in Nigeria. Since then, Nigeria has not known peace and the situation has been compounded by the poor economic state of the nation. Thus, the introduction of kidnapping for ransom by bandits and insurgents has been largely attributed to business for survival. The implication is that, there is more to terrorism other than religious coloration (Ekhareato & Olley, 2012, p.84). Lending credence to the view cited by Ekhareato & Olley, (2012, p.84), Imobighe (2002) avers that: Terrorists themselves see their acts as legal pursuit of political ends. They also add that terrorism is the use of violence to oppress or suppress opposing voices on one hand and the use of violence against the government and people in a geographical location for selfish reasons on Developments regarding their activities suggest that the quest for power or the failure of their leaders to get maximum benefits from the political system appears to be the remote cause of the groups' emergence and terrorist activities. This same reason can be adduced for the formation and activities of terrorist groups around the world.

He further states that:

Structural factors such as economic, social and political issues relating to wealth distribution and inter-ethnic relation, facilitating factors which include the degree.

Terrorism is associated with propaganda when it is used as a tool to influence public opinion formation. When it is approved by the government, it is referred to as state terrorism, but when the message emanates from a non-governmental group, it is called non-state terrorism. Non-state terrorism is an alternative for diplomacy. This view is strengthened by Vincent (2007, p. 256) who avers that:

non-state terrorism is carried out by a collection of social and political players and propaganda as a channel for alternative diplomacy. Sometimes, smaller state actors may become involved but normally in clandestine ways. The players at the forefront are almost always non-state entities that feel terrorism is an alternative way to counter better-equipped states of multi-national industry interests.

Terrorists' activities in Nigeria are greatly influenced by the aforementioned. This can be attributed to the havoc unleashed on the masses in Nigeria by the rising tempo of insurgence and banditry in the northern part of the country. The rising incidents of kidnapping for ransom are largely influenced by the clandestine and evil activities of bandits, herdsmen and some disgruntled elements in the society.

Terrorism may be perceived differently by different segments of the society depending on orientation, ideology and goal the terrorist act may serve the aggressors or perpetrators of the act. In this regard, a genuine military operation targeted to defend the territorial integrity of the nation may be labeled a terrorist act by the victims. Vincent (2007, p.256) aligns with this view when he states:

Sometimes a bonafide military uprising may be called an act of terrorism.... Clearly, the rebels found in the early American colonies saw themselves as freedom fighters, whereas the British perceived them as something akin to irritating terrorists. As noted earlier, "one man's terrorist is another man's freedom fighter"

Vincent (2007, p. 256) further cites Rourke (1999) who explained that what constitutes terrorism is in the eyes of the beholder. The foregoing explains that terrorism is complete and laced with political and religious undertones. Terrorism has metamorphosed into different contexts since its emergence (Vincent, 2007, p.256), tracing the origin of the term avers that:

The term terrorism first entered in European languages after the French revolution of 1789. In early years, it was largely through violence that French governments tried to impose a radical new order on suspicious and reluctant public. Consequently, from the very beginning, we find that terrorism was acknowledged as a form of control that

could be imposed by a dictatorial government against its own subjects.

He further avers that:

In the 19th century, the term terrorism became associated with non-governmental movements. For many years, terrorism continued mostly through the assassination of leaders, such as the killing of Australia, Archduke Ferdinand by a 19-year old Bosnian Serb student in Saragero on June 28, 1914.

By the 20th century, terrorism had expanded beyond assassination of political leaders and head of states. European colonial powers saw pressure to withdraw from colonies such as that which happened in Ireland. The Easter rebellion on Easter Monday, April 24th, 1916, marked the uprising of Irish nationalists against the British. Some 16 men were executed in the British immediately or soon after the rebellion (Vincent, 2007 p. 257).

Another form of terrorism emerged as indigenous populations began to advance support for the leadership claims in emerging post-colonial states in the height of political independence. Even after the withdrawal of European control in their colonies, terrorism continued in many places, personified in the killing of police and local official, aircraft hijackings, hostage taking and bombings. Causes championed by terrorists rested on revolutionary socialism and nationalism as well as religion. Vincent, 2007 further states:

The close of the 20th century saw a new form of religious cultural-based terrorism emerge under the direction of Osama bin Laden. The Arab-born freedom fighter who had once been trained by the United States for battle against the Soviets in Afghanistan became leader of a fairly small Islamic group known as Al-Qaeda (The Base). Al-Qaeda Muslim extremism provided an interpretation of Islam that arguably rationalized the killing of military, government officials, and civilians.

3. Theoretical Framework

This article is anchored on three relevant theories: structural conflict theory, framing theory of the media and social responsibility media theory.

Structural conflict theory holds that conflict stems from the ways societies are structured and organized. In other words, conflict is a product or outgrowth of the nature the society is patterned and organized. According to this theory, the society is patterned into two broad categories, the bourgeoisie and the proletariat.

The bourgeoisie is a minute entity but exercises more power and influence on the larger category, the proletariat because they control the means of production and distribution in the society. The proletariat are the masses who bear the brunt of exploitation, injustice, poverty disease etc. in other word; the masses survive at the mercy of the bourgeoisie.

The proletariat play second fiddle. The implication is that economic exclusion, injustice, poverty, disease, exploitation and other forms of deprivations are the sources of conflict in society. The theory argues that conflicts are predicated on the consequences of the exploitation, domination, suppression, oppression, injustice and man inhumanity to man as a whole. As can be argued in this discourse, the relevance of this theory is hinged on the fact that terrorism is rooted in conflicts and structural imbalance of the society.

Framing theory in mass communication refers to how the media packages and presents information to the public. According to the theory, the media highlights certain events and then places them within a particular context to encourage or discourage certain interpretations. The implication is that the media exercises a selective influence over how people view reality. Anthropologist Gregory Pateson is credited with first posting the theory in 1972. Framing is an extension of the Agenda Setting Theory and is sometimes referred to as second-level agenda setting because of its close relation to Agenda-setting.

Framing theory is hinged on the following assumptions:

Journalists select the topics they will present and decide how they will be presented. This determines the issues audiences think about and how they think

Audiences interpret information through their own frames. Audiences' frames may overlap or contradict the media's frames.

Journalists must choose which events to cover or which to ignore. They must decide which facts; values and perspectives will be mentioned or given prominence. This means journalists apply their own interpretative frames when packaging news. Reporters are influenced by social norms, pressure, many interest groups, journalistic routines and their own ideological or political orientations. As a result, some evaluations contained within news reports are promoted over others. This affects audiences by limiting how they perceive and interpret events.

Since reporting terrorism is hinged on how the media packages and present terrorist acts in the news room and this goes a long way in determining how

audiences perceive and think about terrorist issues, the framing theory of the media is relevant in understanding the views of the audience members in terrorist related issues.

The social responsibility media theory is hinged on the premise that media practitioners should be socially responsible in that they have a stake in the stability and well being of the society in which they operate. The assumptions of social responsibility media theory include the fact that everyone should individually work for the good of the society; everyone is able to make a change for the better; one person can make a difference.

Social responsibility is ethics that guide any action, be it media or other obligations. The theory assumes that the press which has enormous responsibilities to discharge must do so with utmost responsibility and caution knowing that it has a duty to preserve democracy and inform the public based on the society's needs and interests.

The theory is relevant in that the media should observe ethical standards by being truthful and fair in the interest of the public in their reportage and exercise restraint for public good, knowing that they have a stake in the stability and well-being of the society.

4. Causes of Terrorism

Many factors are at the centre of terrorism in Nigeria in particular and globally. They range from ethno-religious, political, economic, inequality, poverty, injustice, oppression and suppression of smaller and less privileged groups by the majority and superior groups in the society.

Most terrorist activities have been fuelled by unresolved political issues. For instance, continued terrorism in the Middle-East has persisted as a way to battle Israeli occupation of the West Bank and Gaza. The Israelis with superior military weapons have often resorted to heavy handed attacks on Palestinians which have often been responded to by Palestinian act of terrorism. Unfortunately, the United States has been supportive of the Israeli position while most Middle-East neighbours and Arabic nations have been critical. Similarly, in Nigeria, the terrorist activities of IPOB (Independent People of Biafra) have been hinged on political injustice and marginalization meted out to the Igbos since the civil war.

Religion is also at the centre of terrorism. The close of the 20th century, a new form of religious/cultural

based terrorism emerged, spearheaded by Osama bin Laden. The Arab-born freedom fighter, who was trained by the United State for battle against the Soviets in Afghanistan became leader of a fairly small Islamic group known as Al-Qaeda. This religious sect of Muslim Extremism provided a justification of Islam that arguably rationalized the killing of military, government officials and civilians. All these Al-Qaeda perceive as oppressive Western Forces seeking to dominate Muslim countries were targets of the sect.

Locally speaking, the activities of Boko Haram Muslim sect are largely attributed to religion. Boko Haram (Western Education is sinful) sees itself as a religion reformist. The group which was formed in 2002 has used violence to unleash carnage in the country since 2009 when its activities became intensified. The situation worsened with the killing of their leader Mohammed Yusuf.

Domination and suppression of the smaller groups by the larger and politically powerful group could be responsible for terrorism both at the global and local levels. A case in point is in Sudan where they have a backlash against a government dominated by Muslim Arabs, a war that borders largely on racial, religious and regional differences. The war against the government which is dominated by the northern region has been sustained by the southern portion which is predominantly black. Christians in Nigeria, particularly in the North Central typified by Benue, Taraba, Nassarawa, and Plateau states, terrorism has taken the form of herdsmen-farmers clashes with many lives and properties destroyed. Kaduna state in the North-Western part of the country is not left out. In this banditry and insurgencies, many families have been wiped out as a result of the clashes.

The recent invasion of Ukraine by the Russian forces is a typical instance of a more technologically powerful country unleashing violence on the less powerful country. Terrorism in the Russian-Ukraine war is a sheer exhibition of untamed imperialistic ambition of Russia to annex some of the territories of Ukraine. The Ukraine-Russian war is a manifestation of dictatorial tendencies usually unleashed by the powerful nations on the smaller and less powerful nations.

The media can aggravate terrorist act by their reportage. This view is shared by Vincent (2007, p. 264) who avers that:

....through the use of modern communication media, bin Laden has reached a level of influence that few countries have ever been able achieve. This

demonstrates the power of the so-called "fear factor"....

Generally speaking, terrorism has been fuelled globally and nationally by global inequalities and the imbalance in power, poverty, injustice and dictatorship and disregard for democratic tenets.

Terrorism in Nigeria has been heightened by security operatives. This is compounded by poor knowledge of security intelligence by security operatives, especially the police and other military personnel at check-points. Issues of terrorism have been in the increase in Nigeria as a result of police and other military personnel who killed at the slightest provocation. A recent case is the killing of Mrs. Omobolanle Raheem, a Lagos-based Lawyer by an Assistant Superintendent of Police (ASP). Drambi Vindi, the officer attached to the Ajah Divisional Headquarters of the Lagos State Police Command. Cases of unwarranted killing citizens of innocent killers and extra-judicial killings by security personnel at road or security checks abound in Nigeria.

5. Media Reportage in the Era of politics and Electioneering

The operation and practice of the press in any society is based on the political, religious, cultural beliefs and economic conditions of that society. It is dynamic and takes into consideration the political situation of the society in which it operates. But media practitioners like other human beings in the society are prone to several temptations and influences: These range from newsroom tradition, political or ideological orientations, ethno-religious interests, business interests, etc and these impose enormous constraints on the media practitioners to take a crucial decision which may make or mar the society.

Regardless of the final outcome of the story on terrorism, the way the public perceives the story depends ultimately on who writes the story. But public sentiments may arise and will be influenced by the way the story is packaged and presented by the reportage.

The job of a reporter is worsen in the era of political and electioneering where every bid of the reporter or media is perceived and interpreted with political connotations, while the government in power perceives and interprets every step of the media as politically motivated no matter the level of objectivity and truthfulness embedded in the terrorist

story especially if the story impinges on the incompetence and shortcoming of the government. Unfortunately, while the sitting government is on the defensive, the opposition would always put it on their toes. The reporter's role becomes very sensitive and crucial for public perception and reaction.

Terrorists may be encouraged or discouraged to intensify their acts depending on media reportage. This view synchronizes with Vincent (2007, p.262) who avers that:

Terrorists have relied on media coverage in response to their gruesome deeds. It is through such coverage that these acts gain enormous power. Recognizing this power, the British government has also made it illegal for any broadcaster to air interviews with IRA members and their families.

Blame war has presently existed between the government and the opposition and this is likely to escalate in this season of election of political office holders – the presidency, national assembly, governors and state legislatures. The question now is: where does the terrorism reporter stand amid the precarious political circumstances he/she finds himself? From available indices, reporting insurgency, banditry and terrorism in general has not been the problem of the media in general as media have been at its best according to Ekwueme and Akpan (2012, p.49-50) who affirm this view:

The media have in the performance of the duties of informing and educating the audience reported the sect's armed insurrection against the people of Nigeria in all its gory details. Even with the acclaimed power of the mass media to influence public opinion, group's activities have not just continued but become more deadly as they target high-profile government officials, police officers as well as anybody who voices criticisms against them.

It is this continuous and unabated terrorism in the country that concerns have been raised about the problems of the mass media to curb the excesses of terrorism and a call for a change in strategy. It has also been observed that media reportage of terrorist acts may trigger more acts of terrorism by terrorist groups or potential terrorists who would be galvanized or motivated to engage in terrorism. This view aligns with Ineji (2011, p. 64-65):

People with similar interests are usually linked to others...but the negative consequence is that, persons with anti-social interests can be linked as easy as possible thereby creating havoc for the society. It is also possible that media attention to terrorists and other anti-social groups might prompt others in the same way.

The media constitute very important channels for the escalation or aggravation of terrorism. This could be desperation to sway public opinion in their reportage. Some world leaders affirm this position thus as Vincent, (2007, p.20-29) affirms.

Even President Bush conceded during a December 20, 2004 press conference.... "Car bombs are effective propaganda tools." Likewise, the terrorist involved in planning and carrying out attacks of 9/11 undoubtedly counted on the extensive playtime on televisions and presence on the front pages of newspapers worldwide (Vincent, 2007, p.262).

From the foregoing, it may be safely said that sensational reportage by the media, both traditional (conventional media) might have aggravated terrorist acts in many countries of the world. The question is: has the Nigerian media reportage been objective, accurate, fair and unbiased? Has the media given a full and comprehensive account of insecurity in this country? Is the opposition fair in criticizing the federal government on insecurity? Have the media been neutral and objective in reporting terrorism. In the era of politics and electioneering requires tact, maturity, responsibility and responsiveness on the part of the mass media. How did the media handle the Kuje jail break? Intelligence report has it that security agencies were aware of the planned jail break. How did the media report on the issue? The media are susceptible to allegation of bias by government and the opposition. Media practitioners reporting terrorism must be above board if their reportage has to be credible.

6. Addressing the Terrorism Reportage Challenge in Nigeria

One way of mitigating terrorism challenge is to stop glorifying terrorist activities by the mass media since it has been ascertained that terrorists often relied on media coverage to intensify their gruesome deeds. More often than not, gory details of acts of terrorism seem to have emboldened terrorists and potential terrorists to display their insidious acts.

There is need for re-orientation and perception about perpetrators of terrorism who believe it is a proper alternative to or a way to right injustice and unfair treatment meted out by oppressors.

Another way to curtailing terrorism is to play down on ethno-religious sentiments. Terrorism will reduce to the barest minimum if religious extremists and fanatics imbibe the spirit of religious tolerance. This would also dissuade governments from taking actions predicated on religious imperatives.

Terrorist act may be drastically reduced at the global and national levels if deliberate efforts are geared towards the promotion of equitable governance policies and eradicating poverty as some of the incidents of terrorism (kidnapping and abduction) are encouraged by the payment of ransom by victims to satisfy the kidnapers.

Also, increase access to communication technologies which could easily give information on terrorist acts may help the quickly nip in the bud issues and acts of terrorism. There is need for governments to deliberately put in measures that would improve the welfare of the populace if poverty and inequalities are reduced. There is no doubt that part of the solution to terrorism would have been achieved.

7. Summary and Conclusion

Terrorism is a serious global phenomenon with enormous social implications on nations. Concerns have been raised about phenomenal rise of terrorists' activities with its attendant negative consequences on nations' political, economic and social fabrics. Terrorism has taken a great toll on Nigerian society and activities of terrorists have been fueled by banditry, insurgency, farmer-herdsmen clashes, kidnapping etc. terrorism has integrated all fabrics of the society, including places of worships (churches and mosques).

Reporting terrorists' activities by the mass media is a herculean task as media practitioners find themselves in a precarious situation because of intervening factors-political and ideological orientation, business interests, ethno-religious considerations etc.

It has been argued that activities of terrorists have been aggravated by poverty, inequality, injustice, suppression and oppression by the privileged class and revenge by the smaller and deprived segments of the society. To tame the monster, concerted efforts and measures must be put in place to redress the ugly trend among which are government efforts to address poverty, improvements in communication technologies and imbibing a sense of patriotism, responsibility and responsiveness by the mass media.

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Part Three
Social Psychology



Peer Group and Family Background as Correlates of Indiscipline among Adolescent Students in Ovia North East LGA of Edo State, Nigeria

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Abstract. The study assessed peer group and family background as correlates of indiscipline among adolescent students in Ovia North East Local Government Area. The study adopted the descriptive survey with the correlational approach design and the questionnaire was the instrument used for collecting data from a sample of two hundred and seventy (270) students who were randomly selected from nine secondary schools in Ovia North East Local Government Area of Edo State. Two research questions were raised and their corresponding hypotheses were also formulated to guide the study and tested at 0.05 level of significance. The reliability obtained had an r value of 0.78. The data collected were analyzed using Pearson Product Moment Correlation Co-efficient formula. The results revealed that peer group influence and family background significantly influences indiscipline among adolescent students. Based on the findings, it was recommended among others that since the primary upbringing of children lies with parents and one of the significant factors that promulgates indiscipline are family background; thus, parents should always inculcating the right moral values in their children by conforming to societal norm themselves so that they will not influence their wards negatively.

Keyword: Peer Group, Family Background, Indiscipline, Adolescent

1. Introduction

Education is a critical tool for the transformation of the individual and the society (Asiyai, 2012). However, one major problems bedeviling secondary education in Nigeria today is indiscipline, which to a very large extent is threatening the core to which the secondary school system was established. School indiscipline has been over time an issue of concern for policy makers, school administrators, educators and the public in general and this is due to the outbreak of

aggressiveness, violence, vandalism and so on among peers which has led to increase in out of school children, deviant behaviours, examination malpractice, lateness and poor academic performance among students (Ahanor, 2019). Indiscipline and its intended outcomes have had negative effect in the school system, such that it has become more difficult for most teachers to maintain law and order in the classroom thus affecting students' academic performance (Esewi, 2018). Ibrahim (2012) noted that indiscipline is a behavioural disorder that is classified as an act of delinquency and it often cause a lot of mental, emotional, intellectual and physical damage to the victim either at home or at school; pointing out that an undisciplined child is an uncontrollable child and can do just about any damage when he or she does not get whatever he or she wants. It must however be noted that indiscipline does not restrict itself to education alone; it permits all facets of human life. These acts have either been carried out individually by the students or as a group, which results to rioting or revolts among them and these goes a long way to militates against effective teaching, learning and production of useful acceptable members of the society.

Indiscipline are usually higher in public school than in the privately owned school, because majority of students in the formal are perceived to be from low income family, they live in economically distressed neighbourhoods, thus leading to anxiety, irritability, stress, and hyper vigilance (Agbonlahor, 2017). The problem of indiscipline affects all schools irrespective of gender, family background and school type though the degree and magnitude vary from school to school. Indiscipline is a multifaceted phenomenon regarding its displays and causes as well as its meanings and functions in the social, psychosocial and teaching fields; while behaviours that conflict with desirable learning, can also be referred to as indiscipline (Leach, 2003). Owie (2015) lamented that

secondary schools have become an abode of indiscipline to the extent that teachers are beating up after school for reprimanding acts of indiscipline to the point they are inflicted with various degree of injury. Instead of finding books and other learning materials in the bags of many students, what you find are dangerous weapons such as machetes, knives, broken bottles and in some cases guns. Zubaida (2009) identifies various forms of indiscipline among the secondary school students to include; truancy, lateness to school, cultism, drug abuse, insulting/assaulting, stealing, rioting, and many other antisocial vices.

Secondary school students in Nigeria falls within the adolescent age bracket of ± 10 years to ± 19 years. It is a period of transition from childhood to adulthood, at this stage the adolescents' are subjected to psychological fluctuations, while searching for their personalities. It is a stage a lot of developmental changes occur and this tends to create loss of stability and imbalance in their personality causing them to experience difficulty in obeying rules and regulations (Aibieyi, 2018). Adolescence is a period of transition during which change in group belongingness from childhood to adulthood takes place and creates a gap in an individual that contribute to uncertainty of behaviour, and it is characterized by introduction into risk behaviours like violence, unprotected sexual intercourse and drunk driving (Brown & Larson, 2009). The adolescent spends much of his time with the members of his peer group. There are diverse factors that promulgate indiscipline among secondary school students but for this study the researchers are however assessing peer group influence and family background as it promulgates indiscipline in schools. Nothing can be more devastating to the adolescent than to be rejected by his age mates (Lavy & Shlosser, 2007). So many teenagers today are involved in drugs and alcohol as a result of the influence from their peers (Adebayo, 2017). The teenagers' get involved as a way of satisfying their curiosity.

Dele (2018) noted that peer group are a child group of friends and equals, who exhibits their own form of behaviour and value, and are made up of the playgroups, schoolmates, and the clique. Peer pressure also often perceived as peer influence involves changing one's behaviour to meet the perceived expectation of others (Burns & Darling, 2002). It is emotional or mental forces from people belonging to the same social group (such as age, grade or status) to act or behave in a manner similar to themselves (Zimmerman, 2003). Omoregbe (2019) noted that peer group connotes a group of people who have share similar interests, age, background, or social status and influencing each other's beliefs and behaviour; it is natural,

healthy and important for adolescent to have and rely on friends as they grow and advance in life. Peers play a large role in the social and emotional development of adolescents (Allen, 2015). A peer could be any one you look up to in behaviour or someone who you would think is equal to your age or ability (Hardcastle, 2002). Peer pressure is commonly associated with episodes of adolescent risk taking (such as delinquency, drug abuse, sexual behaviours, because these behaviour commonly occur in the company of peers. They could also encourage each other to skip classes, steal, cheat, use of drugs or alcohol, or become involve in other risky behaviours. Majority of adolescents with substance abuse problems could have started using drug or alcohol as a result of peer pressure. However, it could also have positive effects when youth are pressured by the peer toward positive behaviour such as volunteering for charity or excelling in academics (Landau, 2002).

Chiedu (2019) carried out a study on peer group influence as correlate of student's level of indiscipline in some selected secondary schools in Delta State, with its findings revealing that students tend to exhibits deviant behaviour as a result of the influence of their peers. Ibrahim (2015) opined that peers usually introduce an individual to drugs and subsequent abuse which provide a temporary escape for the user from harsh realities of the life and other related personnel problems.

The family is the smallest unit of the society and it is the first agent of socialization for the child therein they are first taught the foundation of behavioural pattern, it has a great influence on the behaviour of the child, and this influence can either be positive or negative. Burnett, Sebastian, Cohen, and Blakemore, (2011) defined family as the process by which people acquire values, beliefs, norms and forms of behaviour considered appropriate in the society in which they belong. While, family background refers to all the objects, forces and conditions in the family which influence the child physically, intellectually and emotionally (Ryan, 2002). The socio-economic status of a family is perceived to have a replicating effect on the behaviour of the child and to a large extent determine their aspiration in life; with easy access to information regarding their children's health, as well as social, emotional and cognitive development (Brown & Larson, 2009). Parental and home background is perceived as a major factor when considering the cause of indiscipline among children (Goethe, 2001); while their indulging in indiscipline may be influenced by their parent's involvement in similar activities. It is perceived that children from broken homes may also take respite in the act of indiscipline, as a home that is characterized by child abuse,

intolerance, violence, insecurity and hostility may be a breeding ground for indiscipline.

A study carried out by Ighodaro (2015) on the influence of parents rearing patterns on undergraduate student attitude towards indiscipline revealed that lack of parental moral instructions encourages children to be undisciplined. He further noted that many parents tend to love their children to the point that they fail to discipline them even when they do what is wrong, such children becomes deviants and uncontrollable. Measures taken to deal with indiscipline are barely adequate given the fact that there exist no administrative or legal guidelines which could be referred to in such cases and to some extent, academic success usually depends upon student's ability adhere with laid down rules and shunning of indiscipline in academic situations. It is therefore pertinent at this juncture to provide therapeutic measures to students' involvement in armed robbery, rape, cultism, examination fraud and some other unruly behaviour which make headlines in our print and electronic media (Olalekan, (2016); Ogwuda, 2006; Komolafe & Ajao 2006). Based on these, this study seeks to assess the influence of peer group and family background as correlates of indiscipline amongst adolescent students in Ovia North East Local Government Area of Edo State

1.1 Purpose of the Study

The purpose of the study is to assess peer group influence and family background as correlates of indiscipline among adolescent students in Ovia North East Local Government Area of Edo State, so as to seek measures at nipping the ugly trend in the bud.

1.2 Research Questions

- Is there a relationship between peer group influence and students' indulgence in indiscipline?
- Is there a relationship between family background and students' indulgence in indiscipline?

1.3 Hypotheses

- Peer group influence will not significantly influence students 'indulgence in indiscipline.
- Family background will not significantly influence students' indulgence in indiscipline.

2. Research Methodology

The study adopted the descriptive survey with the correlational approach design. It was suitable in assessing peer group and family background as correlates of indiscipline among adolescent students because the researcher did not manipulate any variable of interest. The population of the study was all senior secondary class two students in Ovia North East Local Government Area of Edo State. There are twenty-eight (28) public secondary schools, comprising of one (1) boys school and twenty-seven mixed secondary schools (Ministry of Education, 2022/2023 Session). Purposive sampling was first used to select the mixed schools by the researcher with adequate representation of male and female representative sample. The sample for the study was selected through balloting without replacement. The names of the remaining twenty-seven mixed schools (27) were then written in papers folded and put in a ballot container, out of which nine (9) schools were randomly selected, thus using one third of the total population. Then thirty (30) students were then randomly selected from each of the nine schools making a total of two hundred and seventy (270) respondents

Table 1: Distribution of Sample of students in Ovia North East Local Government Area

S/N	NAME OF SCHOOL	NO. OF STUDENTS
1	Army Day Secondary School,Upper Ekehuan	30
2	Army Day Secondary School,Isihor	30
3	Iguedaiken Secondary School,Ekiadolor	30
4	Ezomo College,Ora-Ifon	30
5	Nifor Secondary School, Nifor	30
6	Ekosodin Secondary School, Ekosodin	30
7	Okada Grammar School,Okada	30
8	Ise Grammar School,Utekon	30
9	Okokhuo Secondary School,Okokhuo	30
	Total	270

The instrument used for data collection was a structured questionnaire titled "Students' Attitude to Indiscipline (SAI)" designed by the researchers to elicit information as regards the influence of peer group and family background on adolescent students' indulgence in indiscipline. The questionnaire had two sections; Section A and Section B. Section A seek demographic information concerning the respondents while section B adapted a four point Likert scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree(1),with two parts namely, Peer group influence on adolescent students indulgence in indiscipline and Family background influence on adolescent students indulgence in indiscipline with a total of twenty-five items altogether. The instrument was tested for reliability using the test re-tests method with an interval of 2 weeks. It was done by administering instrument to 20 students who were part of the population but not part of the sample selected and scores obtained were analyzed using Pearson Product Moment Correlation Co-efficient and a reliability co-efficient of 0.78 was obtained, which indicated that the instrument was reliable.

3. Result

Table 2: H₀₁: Peer group will not significantly influence students' indulgence in indiscipline

Variables	N	Pearson(r)	Sig.	Decision
Peer group And Indulgence in Indiscipline	240	.376	.521	Ho Rejected

P<0.05

Table 2 shows a calculated value of .376 at an alpha level of 0.05. Therefore, the calculated value is greater than the alpha level. Thus the null hypothesis which states that peer group will not significantly influence students' indulgence in indiscipline is rejected. Consequently, peer group does influences adolescence students indulgence in indiscipline.

Table 3: H₀₂: :Family background will not significantly influence students' indulgence in indiscipline.

Variables	N	Pearson(r)	Sig.	Decision
Family background And Indulgence in Indiscipline	240	.513	.677	Ho Rejected

P<0.05

Table 3 shows a calculated value of .513 at an alpha level of .05 the calculated value is greater than the alpha level. Thus the null hypothesis which states that family background will not significantly influence students' indulgence in indiscipline is rejected. Consequently, family background does influences adolescence students indulgence in indiscipline

emotional or mental forces, belonging to the same social group exhibits their own form of behaviour and value, and is made up of the playgroups, schoolmates, and the clique. Peer group influence is commonly associated with episodes of adolescent risk taking (such as delinquency, drug abuse, sexual behaviours,

4. Discussion on the Findings

The finding lends credence to the assertion made by Chiedu (2019) and Ibrahim (2012). who asserted that peer group influence is a major factor of indiscipline among secondary school student's and that these students tend to exhibits deviant behaviour as a result of the influence of their peers who usually introduce them to drugs and other delinquencies, which to the students help to provide a temporary escape from the harsh realities of life and other related personnel problems. The result corroborates Dele (2018), Burns and Darling (2002), Allen, (2015) and Hardcastle (2002).Who found peer group to be persons controlled by same

Family background was also found to be significantly influence student's level of indulgence on indiscipline in secondary schools. This finding is in consonance with the findings of Goethe (2001) who perceived Parental and home background as a major cause of indiscipline in children and stated that adolescents' indulgence in indiscipline could be influenced by their parent's involvement in similar activities. The researchers also perceived that children from broken homes may also take respite in the act of indiscipline, as a home that is characterized by child abuse, intolerance, violence, insecurity and hostility may be a breeding ground for indiscipline. In furtherance to the aforementioned a study by Ighodaro (2015) who asserted that lack of parental

moral instructions encourages adolescents to be undisciplined and noted that many parents tend to love their children to the point that they fail to discipline them even when they do what is wrong, such children becomes deviants and uncontrollable

5. Conclusion

From the aforementioned findings of the study, it was concluded that peer group and family background are factors that promulgates indiscipline and hence there is need to encourage a strong and supportive peer group activities that will influence students positively through counseling and other therapeutic measures. Also parents are advised to be alive to their responsibility of been responsible parents, as this would serve as a model worthy of emulation

6. Recommendations

Based on the findings of the study, the following recommendations were made:

- The primary upbringing of children lies with parents and one of the significant factors that influences indiscipline is family background. Therefore, parents have a major role to play in helping their children inculcate the right morals values that will advert them from been influenced negatively. Furthermore, parents should teach their children to appreciate honesty, hard work and integrity. Additionally, parents should closely monitor their children to know who they are always with.
- The researchers' advocate that counseling psychologists and counselors be employed in public schools to meet the inadequacy of teachers and also train the teachers on how to assist adolescents in schools overcome indiscipline and other forms of delinquent behaviour so as to attain academic satisfaction and fulfillment in life.
- The researchers advocate the need for counseling psychologists in public schools so that from time to time they should organize seminar/workshops in order to increase awareness on the adverse effect of indiscipline on students learning and how it hampers performance.
- School administrators should actively involve teachers in management of students' discipline with early referrals made, as their active involvement will keep students on their toes all the time, and hence help in maintaining the desired discipline standards.

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Parental Pressure and Cybercrime Engagement among Youth in Nigerian Tertiary Institutions

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Abstract. This study examined the connection between parental pressure and cybercrime engagement among Nigerian youth in tertiary institutions. The rise in technology has reshaped interactions and activities, leading to increased online engagement in Nigerian tertiary institutions. However, concerns about the negative consequences, specifically cybercrime, have arisen. This study aimed to understand the influence of parental pressure on youth experiences, explore links between parental pressure and cybercrime, and identify mediating factors. Employing a quantitative approach, a questionnaire survey was administered to undergraduate students in Nigerian tertiary institutions. The sample consisted of 400 participants from Lagos State University and Yaba College of Technology, chosen through multistage cluster sampling. Regression analyses revealed negative associations between parental pressure indicators and academic performance, psychological well-being, and decision-making processes among Nigerian youths. Furthermore, the study found that heightened parental pressure increases the likelihood of youth engaging in cybercrime to meet academic and career expectations. Mediation analyses indicated the pivotal roles of personal motivations, socioeconomic backgrounds, and psychological attributes in mediating the relationship between parental pressure and cybercrime involvement. These findings emphasize the need for supportive environments that prioritize academic and psychological well-being. Collaborative efforts among stakeholders are crucial for addressing the negative outcomes arising from parental pressure and fostering positive youth development.

Keywords: Cybercrime, motivation, parental pressure, scam, youth

1. Introduction

In the modern digital era, the rapid advancement of technology has brought about unprecedented changes in how individuals communicate, interact, and conduct various activities. With the proliferation of digital platforms and the integration of the Internet into nearly every aspect of daily life, the youth population, especially those enrolled in Nigerian tertiary institutions, has become increasingly engaged in online activities (Akinyetun, 2021a). However, alongside the immense benefits offered by the digital age, concerns have arisen about potential negative consequences, particularly concerning cybercrime. One intriguing aspect that warrants exploration is the potential link between parental pressure and the propensity of youths in Nigerian tertiary institutions to engage in cybercriminal activities.

Cybercrime is a multifaceted and complex phenomenon that encompasses a broad spectrum of illicit activities that exploit digital technologies for criminal purposes. These activities range from hacking and identity theft to online fraud and cyberbullying. The interconnectedness of the digital world has provided cybercriminals with new avenues to perpetrate their actions, often leading to significant financial losses, psychological distress, and societal disruption (Chen, 2023). While the scope and impact of cybercrime are well recognized, the factors that contribute to its emergence among youth, particularly in Nigerian tertiary institutions, remain an area of investigation.

Nigeria, with its large population and growing economy, has experienced the rapid integration of technology into various spheres of life. However, along with the numerous advantages of technology, the country also faces challenges related to cybercrime. In Nigeria, cybercrime often takes the form of '419 scams', where individuals engage in fraudulent activities to obtain money under

pretences (Omodunbi et al., 2016). Such criminal activities have led to substantial financial losses and tarnished the nation's reputation globally (Hamisu et al., 2020). The prevalence of cybercrime among Nigerian youth raises questions regarding the underlying factors that contribute to their involvement in such illicit activities.

Parental pressure is a sociocultural phenomenon observed across various societies, including Nigeria. Parents often wield a significant influence over their children's academic pursuits, career choices, and life trajectories. Although parental guidance and support are essential for a child's development, excessive or unrealistic expectations can lead to adverse outcomes. In Nigerian tertiary institutions, where students are often expected to excel academically and secure promising careers, the pressure to meet these expectations can be overwhelming (Nwangwu et al., 2022). Thus, a critical question emerges: Could there be a link between the pressure imposed by parents and the inclination of Nigerian youth in tertiary institutions to engage in cybercrime? This question assumes significance, as the stress and anxiety resulting from parental expectations might drive some students to seek alternative paths to meet these expectations, potentially leading to the adoption of deviant behaviours such as cybercrime. The pressure to succeed in a competitive academic environment, coupled with the allure of the digital world, could foster an environment conducive to cybercriminal activity (Garba, 2023).

This study explored the intricate relationship between parental pressure and cybercrime among youth in Nigerian tertiary institutions. The central focus is to ascertain whether parental pressure contributes to students' propensity to engage in cybercriminal activities. By delving into the experiences, perceptions, and motivations of Nigerian youth, this study aims to uncover the underlying dynamics that link parental pressure and cybercrime.

This study is significant for several reasons. First, it addresses a gap in the literature by exploring the nuanced relationship between parental pressure and cybercrime, shedding light on the potential motivations driving Nigerian youth to engage in cybercriminal activities. Second, the study's findings can inform educational institutions, policymakers, and parents about the implications of excessive pressure on students' mental health and behaviour. Third, this research contributes to the broader discourse on cybercrime prevention and intervention strategies, with the potential to shape future policies aimed at addressing this issue.

The existing body of literature on cybercrime in Nigerian tertiary institutions has primarily focused on aspects such as the types, prevalence, and socioeconomic impact of cybercriminal activities (Akinyetun et al., 2021; Garba, 2023; Nwangwu et al., 2022; Omodunbi et al., 2016). While these studies provide valuable insights into the multifaceted nature of cybercrime, a significant research gap remains that necessitates further exploration. Specifically, the potential relationship between parental pressure and youth engagement in cybercrime in Nigerian tertiary institutions has received limited attention.

Although research has acknowledged the role of sociocultural factors and personal motivations in cybercrime engagement (Chen, 2023), the influence of parental pressure on such behaviour remains unclear. While studies have highlighted the prevalence of parental pressure in Nigerian society (Nwangwu et al., 2022), there is a dearth of comprehensive investigations into whether excessive parental expectations and pressure contribute to or shape the propensity of youth to engage in cyber-criminal activities. Consequently, the gap lies in the absence of an in-depth understanding of how parental pressure, as a sociocultural factor, may interact with other determinants to influence youth involvement in cybercrime within a tertiary education setting.

To bridge this gap, there is a need to explore the lived experiences, perceptions, and motivations of Nigerian youth in tertiary institutions regarding parental pressure and its potential impact on their digital behaviours, including engagement in cybercrime. In light of the limited attention paid to the interconnection between parental pressure and cybercrime among Nigerian youth, this research offers valuable insights into the multifaceted dynamics that underlie youth engagement in cybercriminal activities within the context of Nigerian tertiary institutions.

1.1 Research Objectives

- To understand the impact of parental pressure on the experiences of Nigerian youth in tertiary institutions.
- To explore the potential association between parental pressure and the likelihood of Nigerian youth engaging in cybercriminal activities.
- To identify potential mediating factors that influence the relationship between parental pressure and youth engagement in cybercrime.

1.2 Research Hypotheses

H0₁: There is a significant relationship between parental pressure and the experiences of Nigerian youth in tertiary institutions, impacting their academic performance, psychological well-being, and decision-making processes.

H0₂: High levels of parental pressure increase the likelihood of Nigerian youth engaging in cybercriminal activities to meet academic expectations and career aspirations.

H0₃: The relationship between parental pressure and youth involvement in cybercrime is mediated by personal motivation, socioeconomic background, and psychological attributes.

2. Literature review

Akinyetun (2021a) examined the link between poverty, cybercrime, and national security. Poverty in Nigeria has been shown to drive youth towards cybercrime as a means of realizing their aspirations. The connection between cybercrime and national security is highlighted as cybercriminal activities can lead to violence, manipulation, and cyber-espionage. Akinyetun et al. (2021) extended this discussion to the effects of the Covid-19 pandemic, where youth unemployment has surged, potentially exacerbating cybercrime rates. In another article, Akinyetun (2021b) linked youth unemployment and cybercrime, arguing that the dearth of legitimate opportunities drives young individuals to resort to cybercrime. Access to technology and digital tools further amplifies this vulnerability, fostering a culture of cybercrime among youth.

Aladenusi and Odumuboni (2022) underscore the escalating threat of cybercrime in Nigeria, highlighting its ranking among the countries most affected by Internet crimes. The authors emphasize the adoption of cyber insurance by organizations to manage risks and losses due to cybercrime, as well as the need for enhanced cybersecurity measures to counter increasingly sophisticated cyber-attacks. Meanwhile, Ayub and Akor (2022) delved into the emergence of cybercrime due to advancements in information and communication technology (ICT) in Nigeria. The study discusses various cybercrime categories and examines the government's efforts to combat these crimes through legislation and enforcement agencies. Nzeakor et al. (2022) analyzed the current trend in cybercrime awareness and its relationship with victimization experience among Internet users. The study revealed the prevalence of awareness and the types of cybercrimes most recognized by participants, as well as a positive correlation between awareness and victimization.

Aladenusi and Odumuboni (2022) highlighted the increasing sophistication of cyber-attacks and the use of Artificial Intelligence (AI) and Machine Learning (ML) by cybercriminals. The authors stressed the need for organizations to match these techniques to effectively combat cyber threats. Ayub and Akor (2022) discussed the vulnerabilities introduced by the proliferation of mobile phones and other computer devices, emphasizing the need for user education and technical capacity building to mitigate cybercriminal activities. Nzeakor et al. (2022) provided insights into the diverse levels of awareness among Internet users, emphasizing the importance of distinguishing between computer-assisted and computer-focused cybercrime categories. Omodunbi et al. (2016) outline the various forms of cybercrime prevalent in Nigeria, including fraudulent electronic mail, identity theft, hacking, cyber harassment, and more. The study emphasizes the detrimental effects of cybercrime on individuals, the economy, and the nation's international reputation. Nwangwu et al. (2022) extend the analysis by investigating how the COVID-19 lockdown increased internet traffic and consequently heightened cybercrime vulnerability. This article reveals a significant increase in young people's arrests suspected of being involved in cybercrime during the lockdown.

Garba (2023) focuses on a specific region, Dandume Local Government Area of Katsina State, highlighting prevalent cybercrimes such as yahoo attacks, social media hijacking, credit card threats, and more. This study underscores the need for community education and awareness-raising efforts to combat these crimes. Nwangwu et al. (2022) delve into the attitudes of university students toward cybercrime and education during the COVID-19 pandemic. The findings revealed a concern among students that cybercrime is not necessarily evil, which may normalize such activities. Despite this perception, most respondents still value education. However, the lockdown distraction from studies due to increased vulnerability to cybercrime activities indicates the need for both awareness campaigns and academic support. Omodunbi et al. (2016) highlighted the need for detection and prevention techniques to combat cybercrimes in Nigeria, underlining the importance of strategic measures to counteract the alarming growth of these crimes.

Taofik et al. (2021) investigated the levels of cybercrime awareness and involvement among tertiary institution students in Zamfara. The study suggests that, while there is a satisfactory level of awareness, only a small percentage of students exhibit a solid theoretical understanding of the nature and types of cybercrimes outlined in Nigeria's Cybercrime Act 2015. This finding

implies that although students are generally aware of cybercrimes, a comprehensive understanding of the legal framework and various types of cybercrimes is lacking. Afachung (2023) focuses on self-control, materialism, and the need for achievement as predictors of cybercrime behaviour among youths in Ibadan metropolises. The study revealed that a higher need for achievement and materialism corresponds to more positive inclinations towards cybercrime behaviour, while self-control leads to a decrease in such behaviour. This study highlights the complex relationship between personal traits and cybercrime behaviour, emphasizing the role of motivation and self-regulation.

Afachung (2023) further examined the impact of gender and employment status on cybercrime behaviour among youths in the Ibadan Metropolis. The study found that both gender and employment status significantly influence cybercrime behaviour. This result emphasizes the importance of considering contextual factors when understanding and predicting cybercrime behaviour. Moreover, Adekanmbi and Ukpere (2020) explored the influence of materialism on attitudes towards fraudulent behaviours among university finance officers in Southwest Nigeria. Although not directly focused on cybercrime, this study underlines the broader connection between materialism and dishonest behaviour, which could extend to cybercrime.

Two studies, Bello and Griffiths (2021) and Hamisu et al. (2020) adopted criminological frameworks to analyze cybercrime. Bello and Griffiths (2021) utilize Routine Activity Theory (RAT) to understand the motivations of cybercriminals, the characteristics of suitable targets, and the capability of law enforcement agencies to counter cybercrime. Similarly, Hamisu et al. (2020) focused on Nigeria’s cybercrime

landscape, highlighting common types of cybercrime and evaluating the government’s efforts to combat this issue.

Hamisu et al. (2020) identify government initiatives to combat cybercrime and highlight areas of success and weakness. The study acknowledges positive outcomes but underscores the need for more effective enforcement and collaboration among stakeholders. Bello and Griffiths (2021) examined the capabilities of law enforcement officers and members of the Cybercrime Advisory Council (CAC) as ‘capable guardians’ to mitigate cybercrime activities. These findings suggest that a lack of proper education and awareness, along with inadequate training for law enforcement officers, contributes to the prevalence of cybercrime in Nigeria.

Anteyi (2023) introduces the concept of transforming cybercrime gangs into cybersecurity specialists through workforce development. The study highlights the role of economic circumstances in driving individuals towards cybercrime and emphasizes the untapped technical talent in Nigeria. By providing legitimate opportunities for technical skills and fostering a robust cybersecurity workforce pipeline, Nigeria could potentially redirect the talent of cybercriminals towards legitimate purposes.

The reviewed studies shed light on the broader context of cybercrime and its associations, they do not delve into the role of parental pressure as a contributing factor. The studies underscore the multifaceted consequences of cybercrime proliferation, however, the focus remains on socioeconomic, sociopolitical and sociocultural drivers. The studies do not explore the potential influence of parental pressure on cybercrime proliferation among Nigerian youth.

Table 1: Themes in the Literature

Theme	Description	Sources
Types and Forms of Cybercrime in Nigeria	The literature discusses various forms of cybercrime prevalent in Nigeria, such as fraudulent electronic mail, identity theft, hacking, cyber harassment, spamming, phishing, online fraud, and digital piracy. These activities exploit the Internet’s growth and acceptance and pose threats to individuals, institutions, and the economy.	Omodunbi et al. (2016), Nwangwu et al. (2022), Garba (2023), Hamisu et al. (2020)
Impact of Cybercrime on the Economy and Society	The impact of cybercrime on Nigeria’s economy and society is highlighted. Financial losses, disruption of sectors such as telecommunications, and damage to the nation’s international reputation are discussed as the consequences of cybercrime.	Omodunbi et al. (2016), Nwangwu et al. (2022), Bello & Griffiths (2021), Hamisu et al. (2020)
COVID-19 Lockdown and Cybercrime	The COVID-19 pandemic lockdown measures have led to increased Internet usage and vulnerability to cybercrime attacks. The literature underscores the surge in cybercrime activities during this period and the need for increased awareness and prevention measures.	Nwangwu et al. (2022)
Cybercrime Awareness and Education	The literature emphasizes the importance of cybercrime awareness and education among students, law enforcement agencies, and the general population. This suggests that adequate education is crucial for effectively combating cybercrime.	Tafa Taofik et al. (2021), Nwangwu et al. (2022)
Role of Law Enforcement and Preventive Measures	The role of law enforcement agencies and preventive measures in addressing cybercrime is also discussed. Collaborative efforts, capacity building, and the enforcement of relevant laws and policies have been identified as crucial	Bello & Griffiths (2021), Anteyi (2023)

	strategies.	
Factors Driving Cybercrime	Human and social factors such as materialism, the need for achievement, and the lack of opportunities for legitimate economic activities have been explored as drivers of cybercrime. These factors influence offenders' motivations and victimization.	Akinyetun (2021a), Akinyetun (2021b), Akinyetun et al., (2021), Afachung (2023), Anteyi (2023)
Challenges in Cybercrime Mitigation	Challenges in mitigating cybercrime are addressed, including a lack of awareness, inadequate training for law enforcement officers, and gaps in cybersecurity workforce development. These challenges have contributed to the persistence of cybercrime in Nigeria.	Bello & Griffiths (2021), Anteyi (2023)
International and Global Perspectives on Cybercrime	The literature discusses cybercrime in an international context, acknowledging its global nature. The convergence of technology, the Internet's role, and the complexities of tackling cybercrime on a global scale have been highlighted.	Chen (2023), Anteyi (2023), Hamisu et al. (2020)

3. Research Methodology

3.1 Design

A quantitative method research design was adopted to examine the relationship between parental pressure and cyber-crime engagement among youth in Nigerian tertiary institutions. The study employed a questionnaire survey to gather data from undergraduate students in Nigerian tertiary institution. This approach allowed for the collection of quantitative data on participants' perceptions of parental pressure and their engagement in cybercrime.

3.2 Population

The study population comprised undergraduate students enrolled in diverse courses and across different levels in selected tertiary institutions. This population was particularly relevant because of the prevalence of cybercrime among Nigerian youth and the potential influence of parental pressure on their digital behaviours. The inclusion of a broad range of courses and levels was to ensure a representative sample that offers insights into the experiences of youth from various academic backgrounds and socioeconomic contexts in the selected institutions.

3.3 Sample Size and Sampling Procedure

A sample size of 400 undergraduate students was chosen from selected tertiary institutions in Lagos State. To determine the sample size, a multistage cluster sampling procedure was employed to select the participants for this study. In the first stage, two tertiary institutions – one University and one Polytechnic – Lagos State University and Yaba College of Technology were randomly chosen from Lagos State, Nigeria. In the second stage, five faculties were randomly selected from each institution. Within the selected faculties, participants were recruited using a combination of convenience sampling and systematic sampling to give a total of 400 participants. To ensure a diverse representation of participants, efforts were made to include students from different academic years. The sample included a mix of 100, 200, 300 and 400-level students (ND 1, ND 2, HND 1 and HND 2 in the case of the polytechnic. For each selected department, students were informed of the study's purpose and procedures. Participation was voluntary, and students were assured of confidentiality and anonymity.

Table 2: Sampling Procedure

Stage	Sampling Method	Number of Units Selected
1	Random sampling	2 tertiary institutions (Lagos State University, Ojo and Yaba College of Technology, Yaba)
2	Random sampling	5 faculties and 10 departments per institution (for a total of 10 faculties and 20 departments)
3	Convenience sampling and systematic sampling	20 participants per department (for a total of 400 participants)

3.4 Data Collection and Analysis

Data collection in the quantitative phase involved the administration of a Likert-scale questionnaire to participants. The questionnaire comprised 18 items that captured participants' perceptions of parental pressure and their engagement in cybercrime activities. The Likert-scale response options ranged from 'Strongly Disagree' to 'Strongly Agree', allowing participants to express their views on a continuum. The data collected was analysed using Statistical Package for Social Sciences (SPSS v.22).

4. Results

Table 3: Demographic Characteristics of Participants

Demographic Characteristics	Frequency	Percentage
Age Range		
- 18-22 years	64	66%
- 23-27 years	80	20%
- 28-32 years	56	14%
Gender		
- Male	180	45%
- Female	220	55%
Faculties		
- Arts	80	20%
- Science	100	25%
- Engineering	60	15%
- Social Sciences	70	17.5%
- Management Sciences	90	22.5%
Institutions		
- University	200	50%
- Polytechnic	200	50%
Academic Level		
- 100 Level	34	8.5%
- 200 Level	56	14%
- 300 Level	64	16%
- 400 Level	46	11.5%
- ND 1 (Polytechnic)	58	14.5%
- ND 2 (Polytechnic)	62	15.5%
- HND 1 (Polytechnic)	44	11%
- HND 2 (Polytechnic)	36	9%

The analysis of participants’ demographics revealed that 66% of participants fell within the age range of 18-22 years, while 20% were aged 23-27 years and 14% were aged 28-32 years. Thus, the majority of respondents were between 18-22 years old. The gender distribution showed that 45% of the participants were male and 55% were female, indicating that the majority of the respondents were female. Among the selected faculties, 20% were arts, 25% were science, 15% were engineering, 17.5% were social sciences, and 22.5% were management sciences. Hence, students from the management sciences were more represented in this study. The study involved two institutions, Lagos State University and Yaba College of Technology, each of which contributed 50% of the total participants. Regarding academic levels at the university, the distribution is as follows: 100 Level (8.5%), 200 Level (14%), 300 Level (16%), and 400 Level (11.5%). The distribution of polytechnic levels was ND 1 (14.5%), ND 2 (15.5%), HND 1 (11%), and HND 2 (9%). This indicates that a majority of the respondents are from 300 level and ND 2, respectively.

Testing of Hypotheses

Hypothesis 1: There is a significant relationship between parental pressure and the experiences of Nigerian youth in tertiary institutions, impacting their academic performance, psychological well-being, and decision-making processes.

Table 4: Regression Results for Hypothesis 1

Dependent Variables	β (Coefficient)	p-value
Academic Performance	-0.25	<0.001
Psychological Well-being	-0.18	0.003
Decision-making Processes	-0.12	0.032

The regression analyses revealed statistically significant negative relationships between parental pressure indicators (academic expectations, pressure to meet expectations, career aspirations, and influence on online activities) and the three specified outcomes: academic performance, psychological well-being, and decision-making processes. As parental pressure increased, participants reported lower academic performance ($\beta = -0.25$), poorer psychological well-being ($\beta = -0.18$), and more challenging decision-making processes ($\beta = -0.12$). These results support Hypothesis 1, indicating that parental pressure impacts the experiences of Nigerian youth in tertiary institutions.

Hypothesis 2: High levels of parental pressure increase the likelihood of Nigerian youth engaging in cybercriminal activities to meet academic expectations and career aspirations.

Table 5: Logistic Regression Results for Hypothesis 2

Independent Variables	Odds Ratio	p-value
Academic Expectations	1.32	0.013
Pressure to Meet Expectations	1.49	0.002
Career Aspirations	1.28	0.029
Influence on Online Activities	1.18	0.127

The second hypothesis posits that high levels of parental pressure increase the likelihood of Nigerian youth engaging in cybercriminal activities as a means of meeting academic expectations and career aspirations. To test this hypothesis, a logistic regression analysis was conducted to determine the relationship between parental pressure indicators and the likelihood of engaging in cybercrime. Logistic regression analysis revealed that academic expectations, pressure to meet expectations, and career aspirations were statistically significant predictors of the likelihood of engaging in cybercrime. As these parental pressure indicators increased, the odds of youths engaging in cybercriminal activities also increased. However, the influence of online activities is not statistically significant. These findings support Hypothesis 2, suggesting that youth may turn to cybercrime to cope with the high parental pressure related to academic and career expectations.

Hypothesis 3: The relationship between parental pressure and youth involvement in cybercrime is mediated by personal motivation, socioeconomic background, and psychological attributes.

Table 6: Mediation Analysis Results for Hypothesis 3

Mediating Factors	Indirect Effect	p-value
Personal Motivations	0.08	0.006
Socioeconomic Background	0.05	0.038
Psychological Attributes	0.06	0.021

The third hypothesis proposed that the relationship between parental pressure and youth involvement in cybercrime is mediated by personal motivations, socioeconomic background, and psychological attributes. Mediation analyses were performed to examine whether these factors played a mediating role in the relationship between parental pressure and cybercrime engagement. The results of the mediation analyses indicated that all three mediating factors—personal motivation, socioeconomic background, and psychological attributes—played a significant mediating role in the relationship between parental pressure and youth engagement in cybercrime. These factors collectively accounted for a substantial proportion of the variance in the relationship. This finding supports Hypothesis 3, suggesting that personal motivation, socioeconomic factors, and psychological attributes act as mediators in the pathway between parental pressure and cybercrime engagement.

5. Discussion on the Findings

The first hypothesis posited a significant relationship between parental pressure and the experiences of Nigerian youth in tertiary institutions, impacting academic performance, psychological well-being, and decision-making processes. The findings from the regression analyses confirmed this hypothesis, demonstrating that higher levels of parental pressure were associated with lower academic performance, poorer psychological well-being, and more challenging decision-making processes among youth. These results echo the findings of previous

studies that have highlighted the detrimental effects of excessive parental pressure on various aspects of youth development (Kulakow et al, 2021). The influence of parental pressure on academic performance may stem from parents’ elevated expectations of their children’s educational achievements. The pressure to meet these expectations could potentially contribute to heightened stress levels among students, negatively affecting their ability to excel academically (Curran, 2022). Moreover, the psychological toll of such pressure could manifest as decreased well-being, potentially leading to adverse mental health outcomes. The observed influence on decision-making processes implies that youth facing intense parental pressure might struggle to make autonomous choices, potentially hampering their personal growth and development.

The second hypothesis suggests that high levels of parental pressure increase the likelihood of Nigerian youth engaging in cybercriminal activities to meet academic expectations and career aspirations. The logistic regression results corroborated this hypothesis, revealing a significant positive relationship between parental pressure indicators and the likelihood of youth engaging in cybercrime. Specifically, the pressure to meet expectations, academic expectations, and career aspirations was linked to a higher likelihood of engaging in cybercriminal activities.

The allure of cybercrime as a means of coping with academic pressure and striving for career success could stem from the appeal of quick monetary gains and the perception of a lower risk of

detection compared with traditional criminal activities (Segbenu, 2023). As parents' expectations increase, youth might perceive cybercrime as a way to achieve success, in line with these expectations (Ayodele et al, 2022). This finding underscores the need for a multifaceted approach to address youth involvement in cybercrime, including not only legal consequences but also targeted interventions to mitigate parental pressure and promote healthier coping mechanisms.

The third hypothesis proposed that the relationship between parental pressure and youth involvement in cybercrime is mediated by personal motivations, socioeconomic background, and psychological attributes. The mediation analyses supported this hypothesis, revealing that these factors play a significant role in shaping the link between parental pressure and engagement in cybercriminal activities. The influence of personal motivations such as financial gain or peer recognition could amplify the effect of parental pressure on cybercrime engagement. Similarly, the socioeconomic background may further influence the attractiveness of cybercrime as a means of achieving financial stability (Ibrahim, 2016; Zhu et al, 2021). Furthermore, psychological attributes, including stress-coping mechanisms and psychological well-being, might moderate how youths respond to parental pressure and whether they resort to cybercrime as a coping strategy.

This study indicated a relationship between exposure to cybercrime and adverse effects on academic performance, psychological well-being, and decision-making processes. This negative impact can be attributed to stress, anxiety, and fear stemming from cybercrime experiences, which hinder effective functioning in various spheres of life. Additionally, individuals with high academic expectations, a sense of pressure to meet these expectations, ambitious career aspirations, and susceptibility to online influences are more inclined to engage in cybercrime. These factors contribute to heightened stress, anxiety, and frustration, and increase vulnerability to cybercrime participation. Likewise, those motivated to succeed may take unlawful risks to attain their goals, especially when facing unrealistic expectations. Furthermore, socioeconomic background plays a role in cybercrime engagement. Individuals from disadvantaged backgrounds might resort to cybercrime because of limited legitimate economic opportunities, using it as an avenue for financial gain. Limited access to education and resources in lower socioeconomic strata also increases the susceptibility to cybercrime involvement. Psychological attributes such as low self-control and impulsivity significantly influence cyber-crime

participation. These traits increase the likelihood of engaging in risky and illegal behaviours. Additionally, attributes such as a lack of empathy and a tendency to externalize blame are linked to victimizing others through cybercrime.

This study underscores that exposure to cybercrime correlates with negative consequences in academic, psychological, and decision-making aspects. Factors such as high academic expectations, career aspirations, online influences, socioeconomic backgrounds, and psychological attributes collectively shape individuals' inclination towards cybercrime.

6. Conclusion

This study examined the intricate interplay between parental pressure and the involvement of Nigerian youth in cybercrime. The results of this study show that the ramifications of parental pressure unfold across various dimensions. The psychological toll it exerts might manifest as compromised well-being, potentially engendering unfavourable mental health conditions. Additionally, the study suggests that youth contending with intense parental pressure might face challenges in navigating autonomous choices, potentially impeding their personal growth. It appears that the allure of cybercrime as a coping mechanism and conduit to career success is propelled by the promise of swift financial gains and a perception of lower risk compared to conventional criminal activities. With rising parental expectations, youth perceive cybercrime as an avenue to align themselves with burgeoning expectations and achieve anticipated success. Furthermore, the study revealed that the interplay of personal motivations, socioeconomic factors, and psychological attributes collectively to youth engagement in cybercrime as a result of parental pressure. This study necessitates a collaborative endeavour, uniting parents, educators, policymakers, and mental health professionals to not only mitigate the adverse repercussions of parental pressure but also to shepherd the youth towards a positive and holistic development.

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Western Framings Versus the Lived Experience of Populations Exposed to Trafficking in South-south Nigeria

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Abstract. Human and Sex trafficking issues represent contemporary global social problems which are yet to be solved. Women and young girls are particularly still exposed to the danger of maternal mortality, unwanted pregnancy, sexually transmitted diseases and other health and social consequences. Many victims suffer human rights abuses including confinement and effective captivity, physical and sexual assaults. Through human trafficking and sex trafficking, a nation's active population is threatened and exploited with young people unable to attain their full potential. This has major implications for development impediments especially for source countries like Nigeria in Africa where a large number of young girls and women are annually recruited for sex work in Europe and other foreign countries. This research thesis uses qualitative research methods to explore tensions between Western framings of the phenomena and the lived experience of populations exposed to human trafficking in the area of study.

Keywords: Human and Sex trafficking, Western Framings, Lived Experience of Populations Exposed to the Phenomenon, Understanding Nature and Dynamics, Edo state, South-south Nigeria

1. Introduction

Human trafficking is a recent social problem profiled to have strong historical background starting with the Trans-Atlantic slave trade that lasted about 400 years ending around the mid late 19th century (see, Scarpa, 2008; also see Agbu, 2003; Bales 2004; Jones et al. 2007; Musto, 2009). Bales particularly is consistent in drawing similarities between the trans-Atlantic slave trade and human trafficking. Bales (2004) and Venkatraman, (2003) termed human trafficking as a modern day slavery. Connecting the current human trafficking activity to the trans-Atlantic slave transactions however remains a subject of debate which reflects the complexities surrounding the conceptualization of the phenomenon.

Researchers also often argue that human trafficking is rather a recent global social problem associated with increased cross border migration. With late modernity the phenomenon appears to have escalated and attained greater political consideration.

Various claims about the nature and scale of the problem of human trafficking have drawn criticism and the same time endorsement. One argument holds that more 'slaves' exist today in the world than in 1861 when the Trans-Atlantic slave trade was abolished (Bales 2012; Skinner 2009). Other reports indicate human trafficking is now the third most profitable sector of organised crime, after drug smuggling and illicit arms transfer (Klobucha, 2016; United Nations, 2006). The International Labour Organization (ILO) (2016) estimates 40.3 million victims of human trafficking globally in 2016 and almost 5 million of these were victims of forced sexual exploitation. These 2015, 2016 reported figures may have increased with more than 30% in this year 2023 if projections have to be made.

Assertions as above could however be faulted with researchers questioning the definitions employed and/or the methods used to arrive at such estimation (see, Panigabutra-Roberts 2012 and Weitzer, 2014). The critical need for analysts to carefully examine the quality of data sources and procedures used in arriving at figures when estimating the magnitude of any illicit vice is often proposed. Arguments are that estimates of human trafficking are difficult to determine especially because of the secrecy of the practice (Blackburn et al, 2010), hence the need for caution while relying on figures often given.

Authors posit that the negative impact of trafficking on the physical, mental, social and psychological wellbeing, especially of women and children cannot be over looked (see, Costel et al 2001; Muntabhorn 2002). Trafficking women and girls for prostitution abroad has particularly serious

implications, for both the image and the socio-economic condition of any involved country (Nwanwene, 2011). Broadly, with human trafficking, a nation's active population is seen as threatened and exploited with young people unable to attain their full potential (US TIP, 2015; Roby et al, 2008). Rights violated through sex trafficking for example includes the rights to health and social services as provided for in Articles 22 and 25(1) of the Universal Declaration of Human Rights (UDHR), Article 12 and Article 13(2)(c) of the International Covenant on Economic, Social and Cultural Rights (ICESCR) and many others (Oyekanmi & Okunola 2017). However, emphasis on these inherent violations and consequences of sex trafficking has been criticised as overstated and misrepresented (see, O'Connell Davidson, 2017; Weitzer, 2012).

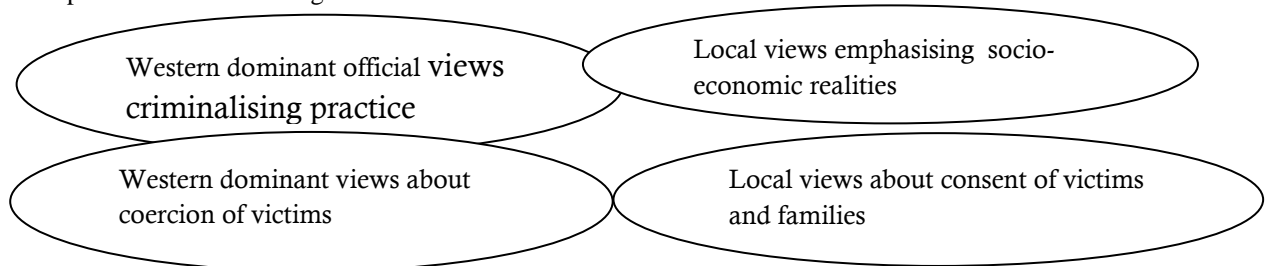
2. Focus of the Paper and Conceptual Frame Work

This paper focuses on investigating certain debates regarding the dynamics and characteristics of human and sex trafficking especially from south-south Nigeria to Europe. In the process the paper tries to examine a conceptual frame work which captures popular assertions and perspectives about cross border trafficking from source in developing countries to destinations in developed European countries. The frame work presents that state actors, practitioners, commentators and even researchers often make assertive but contentious statements regarding the nature and dynamics of cross border human trafficking from endemic nations to typical destinations countries. That this contentious statement may not match or do well to clarify the actual lived experience of victims at home in sending nations. The conceptual frame work is presented as seen below.

2.1 Conceptual frame work

Generally, global understanding and conceptions of human trafficking have been subject to

Conceptual framework in diagram



In line with the frame work, the paper attempts to problematise the conflicts between the understanding of the causes, dynamics and nature

considerable contest. This partially poses a challenge in developing agreed responses and finding effective solutions to the problem. Western legislatures often link it to criminal tendencies and inclination towards anti-social behaviour (Chuang, 2006) as a result, Western government overwhelmingly positioned trafficking within a framework of crime control and prevention. Many researchers and commentators, mostly in source countries, (e.g in West Africa) (see Okonofua et al. 2004; Akor 2011) have argued that broader social economic factors need to be considered. Also pro-liberal anti-human trafficking Western researchers like Bennet (1999) and Musto (2009) partially agree with the source country researchers, prioritising socio-economic factors. The West has also been in conflict with the local source country commentators and other researchers regarding the conditions under which victims are moved to destination countries from their homes before they are exploited sexually. There is also disagreement as to whether victims are usually aware of the condition they are placing themselves or not before leaving source country.

The paper consequently reflects a conceptual pattern highlighting the following tensions in perspectives.

Context of dominant Western conception of human and sex trafficking which favours criminalisation (Anderson & Davidson, 2003; Chuang, 2006; Farley, 2004; UNODC, 2019) versus local understanding which emphasises socio-economic realities and social structural conditions (Soderlund, 2005; Okonofua, 2004)

Context of Coercion by Syndicates (US TIP 2019; UNODC, 2016) versus Consent by victims and families (Okojie et al 2003 and Okonofua et al, 2004)

The conceptual frame work of the paper can better be viewed by looking at a graphical representation of it as put below.

of sex trafficking in the studied region by both the destination Western country and source African

country local authorities, commentators, and exposed populations.

3. Research Methodology

This is basically a qualitative study. Unstructured open-ended face to face interviews and focus group discussion instruments were used. Participants were drawn through a purposive method. Those selected included ex-victims, relations of victims, inhabitants of the region, government officials, National Agency Against the Trafficking of Persons (NAPTIP) officials and non-governmental organisations officials responding to human and sex trafficking in the region.

3.1 Field Data

Poverty and Vulnerability of Victims Escalating Human trafficking

Findings from the field data help to confirm or disprove assertions especially regarding the arguments reflected in the conceptual frame work of the paper. First, meanings embedded in responses from victims and other interviewees demonstrated that poverty is not just a driving force behind sex trafficking, but a common factor in the vulnerability of many victims from the region. This may negate idea of the criminalisation tendencies of the dominant Western perspective. For instance, some of the responses said:

...Poverty is a major driving force Poverty dehumanises, you are no longer a rational human being...yes. Poverty reduces the options that are available to you, you then end up in doings like allowing your child to become trafficked... Poverty has been identified as a common factor in the vulnerabilities of the women we support...their experience of poverty has limited their life chances often rendering them susceptible to traffickers. {HTP07-NGO1}.

It is because of poverty and the background about your family...things not going well... for your family... that is why women always decide to go to abroad... {HTP 10/10 - victim}. Another victim said:

In Nigerian Pidgin English

Like me now... wetin make me commont be say..., I reason am say... I dey stay Nigeria, to even eat self na problem... so naim make me say make I travel out, naim I still go...{...}{HTP01/08 – victim}.

In correct English

Like me now...what made me to travel is ...I thought about my living condition in Nigeria...to even eat is a problem, so ...that was what made me to go {HTP01/08-victim}

Poor Economy and Devaluation of the Nigeria Naira

“devaluation of the country’s money, made European money, ...the Pound, the dollar... to have more value than previously... People became interested in going abroad, not only for schooling, but also for the purposes of work” (HTP07-NGO1).

“... at least we were succeeding in our campaign in telling people, ... we can make it here...but in the last four years, it has not been easy. People whom we set up businesses for as an alternative so they don’t go...You do your business, one year, two years, business is folding up... they start thinking of going again...” (HTP07-NGO1).

For this participant quoted above, there appears to be no hope in sight for stopping out-migration and sex trafficking from the region with the worsening economic situation leading to further devaluation of the country’s currency (ibid). Another participant said:

...Like today if you compare a dollar to naira, about 450, 480 {then} there about... So by chance, this woman or this girl is trafficked abroad, and she sends home a hundred or two hundred dollars, look at the exchange rate, a lot of money has come... {HTP08-NGO2}.

Socio-cultural Practices like patriarchy were also reported by respondents as contributory to the spread of the practice

...In Edo state, the women are not considered as an equal of the man. She is considered as disposable... Her degree of that sense of self-worth is dependent on how useful she is to the men in her life... {HTP07, NGO1}.

Patriarchal tendency is seen as a cultural reality in the area predisposing women particularly to becoming targets for the expansive sex trade in Europe.

...They will say that if you educate a girl child, it is a waste...so some persons really don’t see it as a necessity to educate a girl child. And if a girl child is not educated and she is left at home and somebody just come...en... and say I have a tomatoes farmer in Italy...{...} they said I should help them recruit worker... or they are looking for nannies... so the girl child is there to just go into it... (HTP08-NGO2).

... Our culture of inheritance that the woman has no right in the parent’s house or whatever, is also a fact. They are left to fend for themselves. So when such opportunity presents itself to them, they grab it with both hands to be in competition with the men... that is another reason why a lot of them go...{HTP08-NGO2}.

Apart from its direct role in the practice of sex trafficking as illustrated above, gender inequality has also been considered as contributory to some undesirable social-economic conditions including poverty in the area (Ugiagbe et al, 2011).

There is also the finding that perceptions and decision making and sometimes desperation among individuals and families in the area of study are realities. This precedes a situation where families and victims sometimes give consent to traffickers before departing for destinations in Europe. This respondent said:

"...Families and victims do not sufficiently know the difference between migration and trafficking to make informed choice...that is part of the reasons for the prevalence..." (HTP07- NGO 1). The above participant further explains:

... Now the practice is that the families hold meetings and tell the children ...we have decided, Osaretin, should come and travel, so that our family situation can improve... (HTP07- NGO1). (Interviews were conducted by the researcher and two female research assistants)

4. Findings /Discussion

In view of the focus of the paper, the results of the research are discussed here mainly under two broad headings which link the findings to the arguments presented in the conceptual framework.

Criminalisation of Trafficking versus Socio-economic and Social Structural Conditions

The conceptual framework firstly indicates whether sex trafficking is primarily driven by criminal motivations and inducements (as frequently emphasised by Western Governments and officialdom e.g US TIP 2016, UNODC, 2006) or whether it is basically a consequence of socio-economic and structural conditions experienced in source countries (see, Akor, 2011; Okonofua et al, 2004; Oyekanmi and Okunola, 2017). Whilst criminality certainly had a role to play in the phenomenon, in this work, the basic forces underlining the extent and spread of the phenomenon appeared to be structural and critical social economic conditions at source countries. This also takes precedence against the dominant argument built around criminality and modern slavery as sometimes advanced by some Western political authorities, activists and researchers like Bales (2005), Venkatrama (2003) and others. On the other hand findings in this respect appear to corroborate the position of researchers like Kempadoo (2016); Malloch and Rigby (2016) and a few others who pointed to the significant impact of economic and structural conditions at source country. From what was explored, a number of socio-economic and structural challenges (i.e. poverty, unemployment, patriarchy etc) are making many seek alternative ways to survive even with knowledge of the inherent risk in such channels. Some of these issues are further discussed under the following thematic headings.

Economic Dislocations

The wide-spread prevalent poor economic condition (poverty) in the region (see, Hughes, et al 2005; Olayemi 1995), as seen, is a precursor of many basic precedent unfavourable conditions. The pattern of trafficking across the world, just as it is seen in the region under investigation, is one in which the less prosperous nations appear as sources while the more prosperous countries like Western European countries are destinations. And global patterns of sex trafficking are argued to often involve the recruitment of victims from desperate, impoverished locations (Lee, 2007). As common to my findings, apart from creating a lack of means, poverty alters the perception and decision-making ability of individuals in the region leading many to decisions that can further impoverish them.

Unemployment is a key push factor occasioning poverty and contributing to trafficking as was consistent with the field findings. Though, this aligns with scholars' perspectives (see, Okonofua et al, 2004). Policy makers in Nigeria and in many Western nations do not seem to appreciate the enormity of unemployment as a contributing factor, with Dokpesi (2015) arguing that its influence is particularly central to experiences in Nigeria. This links argument in earlier work in former USSR, with women in higher education trafficked because they faced an acute lack of opportunity relative to their skills and qualification.

Unemployment in Nigeria is linked both to a decline in rural employment and also to stunted opportunities for growing alternative industries. The dearth of infrastructures and lack of energy (electricity) to power large, small and medium scales factories in Nigeria, makes the unemployment situation in the south-south region severe (see, Dokpesi and Igbinomwanhia 2010). More importantly, rural-urban drift is unabatedly worsening the unemployment problem, reinforcing regional and national poverty in Nigeria. As suggested by my findings, many young people are refusing to take to farming leaving the rural area for the city hoping to get scarce white-collar jobs, hence the problem of trafficking. The shrinking of arable land, abandonment of farming by many and the increasing global-warming which has grossly affected farming activities generally is an issue for consideration (Akpatá, 2012).

On a larger scale, growing rural-urban migration does not only lead to worsening food insecurity and urban unemployment in the country, it creates surge in problems like armed robbery, local prostitution and international sex trafficking (HTP09/24-inhabitant, one of the field participants; also see, Oyekanmi and Okunola, 2017). This

evidences that the situation could be a vicious circle with economic and structural conditions constraining many to take to criminality in a few cases leading to vices including trafficking activities by emerging criminal groups who then exploit a much wider region demand for routes out of poverty.

However, apart from Bales (2005) assertions some other scholarly views appear to negate the suggested poverty factor justifying the dominant Western perspectives as contested in the conceptual frame work. Some of the victims as argued are not from a poor economic background with some choosing to migrate for the envisaged profit from international prostitution; and because of the exciting image of Western societies they have (see, Akor 2011; Ejimabo 2013; Hughes 2005). This implies that even if sex trafficking does connect with poverty, it should be viewed with caution as there could be other factors which weigh more in explaining the spread of the practice in the area.

Patriarchy, Gender Inequality, Social Exclusion and Gender Poverty

Western societies vocally denounce abhorrent practices relating to social exclusion, patriarchy and gender inequality and claim knowledge of these as common practices in Africa, but they appear to have a conceptual preference regarding sex trafficking that says little of this. Authorities in the source country (Nigeria) have also paid little or no attention to this factor when addressing sex trafficking, especially in south-south Nigeria. My findings indicate the issues of gender inequality and patriarchy leading to social exclusion and economic hardship amongst women of the region is a key factor in explaining out migration (which precedes sex trafficking) in the area. Patriarchal values, including polygamy and male child preference entrenched (among the Bini) in the region represent women as marketable commodities (also see, Olaniyi, 2011).

If women are empowered by the male dominated society they may not easily be led to meet sex traffickers (also see, Oshadare 2004). Much of the female population here live in poverty because of the marginalisation, limitations and cultural obstacles put on them (see, Aina, et al., 2008; Hughes 2005). Generally, the practice of gender inequality and social exclusion of women is reinforced by the hegemonic patriarchal national society. Women's empowerment initiatives are invariably superficial and often failed. Outside South-south Nigeria, patriarchy, and other gender based socio-cultural practices are argued as universal in explaining exploitative practices like

sex trafficking from regions across the majority world (Warden, 2013).

Meanwhile, though out-migration is not a sure panacea for women's empowerment, researchers point to some form of gains in the process (see, Pesser, 2005). Pesser mentioned cases in Latin America, where migrant women have been able to garner economic improvement which allowed them some control over household decision making and household expenditure (ibid). Similarly, in the case of south-south Nigeria as indicated by my findings fortunate returnee female traffickers and victims leverage on their remittances to assume some level of equality with the men especially within their family and immediate community.

A counter debate to the patriarchy factor, however, is that gender inequality is widespread globally, yet it does not lead to sex trafficking or related out-migration in many other regions of the world (see, Akor 2011). Yes, patriarchy may not necessarily lead to out migration in all cases, but following the feminisation of migration with women needed for all manner of jobs across the world (Castle et al 2014), those who are socially excluded or discriminated against socio-economically at home may be given the push to migrate to destinations were they feel things will look better for them, but in the process may become exploited or even become traffickers themselves.

Trafficking Business as Economic Options for Socially Excluded Women

There appears to be a correlation between patriarchy and the emergence of women traffickers in the region. Though the leading role of women in the business of sex trafficking particularly from Nigeria has previously been mentioned (see, Oyekanmi and Okunola 2017; Carling 2005; Prina, 2003), none connected it with existing patriarchy in the region. Nigerian women who arrived early as economic migrants in Europe (Carling, 2005), apparently seeking for ways to escape social exclusion and economic hardship back home may have given women a sort of head start and sustained the business. Many women who became traffickers recently in the area could be those seeking ways to beat institutionalised cultural barriers especially as it relates to material aspiration. This is the reason identified traffickers and returnees in the area are quick to acquire choice properties, expensive cars for themselves and families, and indulge in public show of wealth once they thrive in the business as my findings reflect.

That women have a role as perpetrators in the trafficking business does not however mean

cultural concept of male dominance in many source countries should be overlooked while trying to understand trafficking dynamics. Arguments indicate that, the concept of sex trafficking and sex represent a cultural phenomenon deep seated in the masculine and feminine images held firmly by society. Some perspectives arguably see the business as a lucrative market which focuses on marketing men's pleasure, or their image of pleasure through supplying physical intimacy with women. In agreement with this, blaming the men may be justified especially when they are the known end users of the product of sex work. It would however be unfair all the same, not to appreciate the clear leading roles of fellow women responsible for directing the business, particularly in the case of trafficking from south-south Nigeria to Europe as common to my finding.

Coercion by Syndicates versus Consent by Victims

There is also the contention in the conceptual frame work that migrants who are trafficked and exploited at destination were often coerced and forced into prostitution. But a counter argument which the frame work also presented is that, there is also the argument that many of them who are trafficked especially from West Africa (south-south Nigeria) grant their consent to syndicates to take them abroad. Though there are often arguments that nobody wishes to be sold into slavery but the evidences common to my findings indicate that many consented to being trafficked even when they do not know how severe their pains may be when they get to Europe. The finding is suggestive that because poverty dehumanizes and make you lose your sense of rationality you can be forced to grant consent to be enslaved. Further discussion under this line of contention in the conceptual frame work is seen in subsequent paragraphs.

Family Dynamics and Coercion of Victims

The practice of coercion from families on in-school and out-of-school young girls was identified in the area and this could also be considered as contributing factor to sex trafficking among the people. This indicates the common practice of coercion of innocent young girls to embark on trip to exploitation in the area. This also partly addresses the contention in the conceptual framework, whether victims are coerced or they consent to be trafficked for sexual exploitation. It demonstrates that coercion of potential victims is often occasioned through the collaboration of families of victims and the syndicates and not just the syndicates alone as often portrayed by many Western political elites. My findings confirm the overwhelming power of control wielded by parents

over their children and wards as a cultural characteristic of the area (especially in Edo state) (Oyekanmi and Okunola, 2017). Unlike in Western societies, families, especially parents, determine the decisions and choices of their children in Nigeria and in many African countries even when they are past 18 years of age. Many of the victims found to have been coerced into the trade by their parents could not resist their decision. They had no choice because turning down their parents' wishes whether good or bad means disobedience and violations which society severely frowns at. In many cases when the girl protests following madam to Europe, the parents resort to the use of voodoo and other forms of threat to coerce her.

The finding suggest that parental coercion of victims is much more common among large families. With parents unable to cater for many children they resort to having "sponsors" (madams) to smuggle their daughter to Europe for prostitution. Here, the perception and decision making of victims and families for example can be seen as an important variable in explaining prevalence of sex trafficking from the area as common to my finding. That is, the world view of the victims and their parents, the way they perceive the ideals of going abroad for sex work by a girl child in relation to trends in their environment is significant. Many of such large families coerce their girls to travel with madam with the conviction it is the best decision even when they do not sufficiently know the difference between migration and trafficking enough to make an informed choice.

Tied to the issue of family coercion of victims, is the impact of the realities of what could be termed fatalism and religious practices of local people within the wider sphere of trafficking activities in the region. This gives strength to the practice were the victims go through oath taking in voodoo shrines before embarking on the journey abroad (see, Harop, 2012; Ogunyemi, 2000; Okojie et al 2003; Siddarth 2016). Apart from helping parents to coerce their daughters to agree to travel with traffickers, in many cases, voodoo use is capable of also ensuring self-policing and self-coercion of the victims once they are taken to destination for sex work. They are often scared of repercussions, having sworn to an oath at the voodoo shrine, of disobeying the instructions of their traffickers as they fear for their life and for their family (Okojie et al 2003; Okonofua et al 2004). This makes the cartels thrive with little or no business risk or loss of profit.

Juju practice is encouraged by the fact that the society in the region (particularly in Edo) is built on a belief in the powers of fetish and ritual

practices which draws from their profession to animism (Ikeora, 2016; Oyekanmi and Okunola, 2017; Van der Watt and Kruger 2016). Animism is a common practice among the Bini people of Edo state and the Yoruba people of western Nigeria which is part of their age long African Traditional Religion (ATR) (Aghatise, 2015; Ikeora, 2016; Van der Watt and Kruger, 2016). Though these religious practices among a people have benefits, this situation, which seems to encourage practices like sex trafficking, could be seen as the odd side. The peculiarity of this finding regarding voodoo practice is seen in the fact that the area appears to be the only place renowned for sex trafficking around the world that is associated with such quasi-religious practice to coerce victims and secure their loyalty. With juju use, response efforts are often more challenging (Van der Watts and Kruger 2016) in the region. For example victims are unlikely to volunteer needed information that could help for rehabilitation and resettlement purposes due to perceived repercussions from oath taken in religious shrines. Despite recent issuance of curse by the Oba of Benin (the paramount monarch of the Edo people) to revoke all juju spells victims are put under by traffickers as a way of checking sex trafficking in the region (US TIP, 2016), the practice does not seem to have stopped.

What could be understood from this finding is that many victims who are trafficked from this region are coerced to consent to be trafficked. This makes the issue of consent to either be voluntary consent (which some of them may give), or forced consent in many cases. In linking this to the contention in the conceptual frame work regarding whether victims are trafficked with their consent or often coerced, it could be argued that in some cases those trafficked for sexual exploitation from the south-south Nigeria, consent to trafficking while in few cases they do not. Further thoughts here is that 'consent' itself is a rather simplistic term. Some victims consent but under family pressure and self-coercion propped up by obligations (and sometimes by voodoo practices as indicated earlier). So there are shades of consent. This also addresses the issue of coercion that often features prominently in the Western political elites' championed dominant perspectives.

Trafficking as an Active Migratory Choice for Out-of-School Young People

Many out-of-school young people see trafficking as an active migratory choice, as common to my findings. This precedes the granting of consent by some migrants who become victims of exploitation when trafficked. Policy makers hardly see this as an important contributing factor to trafficking in the region. Many who are trafficked left school

(with some merely completing their primary or secondary school education) and made to travel with madams to Europe by their parents. Many young girls are out of school in the area (HTP07-NGO1; Husssaini, 2017; Toyoaka, et al, 2014). By 2014 Nigeria had the highest rate of out-of-school children in Africa with the figure put at 9 million (Toyoaka, et al, 2014). With the proliferation of scouting traffickers in the region these out-of-school girls are easily targeted. This connects with the existing international evidence regarding the general risk of being out of school (see, Mccann and Kirk, 2018).

The increase in the number of out-of-school young girls in the region especially in Edo state may partly tie with the patriarchal practices and the culture of female marginalisation in the area (HTP07-NGO1, one of the participants; Olaniyi, 2011). This also links to the disinterests among families in the area in investing in their daughters' education when they can perceive no reward for doing so within the context of broader socio-economic exclusion for women as noted earlier. The high number of uneducated parents in the region can also promote this development (Okonofua, et al., 2004). Since the parents are often not educated enough, traffickers and smugglers find it easy to manipulate and convince them to consent to sending their daughter abroad. The case here is that consent sometimes comes before trafficking for exploitation even though such consent may have been forced by structural issues and not voluntary. Another argument emanating from this which will require further enquiry is whether those who travel with traffickers abroad with or without consent have prior knowledge of what awaits them at destination.

5. Summary/Way Forward

From the findings and discussion so far, examining the issue of whether travelling with traffickers is the choice of victims or not; could be located within the frame-work of agency versus structure. This could generally be situated in the contention between the classical and the sociological positivism schools (man as a rational self-seeking being acting out of free will (Baccaria (1764), versus man as a being constrained by external social structures (Beirne, 1987). Beirne (1987) argued in line with the sociological positivism perspective that, anti-social behaviour (as the case may be) could be viewed as a product of dysfunctions in social, economic and political conditions. Though human trafficking is often caste as the offender acting with free will and malice and the victim acting without free will, but as common to my findings, victims and to some extent, offenders, are basically not to be blamed. In South-

south Nigeria, victims and offenders alike act with limited rationality within the context of significant structural constraints.

The constraining situations within society (patriarchy, institutionalised poverty, and other existing conditions, as noted earlier) as common to my findings, are critical. Many writers like Warden (2013) take a pro-liberal position in the debate over this. In their views the victims do not share in the blame over their being trafficked. Victim blaming (UNODC, 2016) amounts to further victimising and traumatising her in a world that is seen to have been unfair to her prior, during and post trafficking. The argument often generally presented by writers like Warden and others is that structure rather than agency should be examined while contemplating blame over issues of sex trafficking.

Again, since the dominant Western and global authorities seem to misconstrue the real issues involved (as demonstrated by the findings above) regarding the contributing factors and dynamics of the trafficking business especially in most source countries like south-south Nigeria, more should be done to ensure thorough qualitative (attempting to understand victims pre, during and post trafficking conditions) investigation before concluding on conceptualisation of the phenomenon. This will allow proper understanding of the problem and appropriate and effective responses both by state and non-state actors.

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Correlates of Suicidal Behaviours among University Students in Nigeria

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Abstract. The study examined the correlates of suicide and suicidal behaviours among university students in Edo State. Four research questions and two null hypotheses tested at 0.05 level of significance guided the study. The descriptive explanatory mixed research design which respectively involves quantitative and qualitative phases was adopted for the study. The sample of 720 students were drawn from the population of 79,813 using the multi-stage sampling procedure. Three research instruments were used to obtain data used for the study. The self-designed questionnaire and interview schedule items were validated by three experts from Faculty of Education, University of Benin. The reliability of the instrument was established through a Cronbach's Alpha statistics. Thus, Cronbach's Alpha values of .81 and .68 were respectively obtained as the reliability values of the instrument (questionnaire). However, the checklist and the interview schedule theme and items were not subjected to reliability test. Data were analyzed using percentage, Chi-Square and Multiple Regression statistics. The findings revealed that substance abuse was the most prevalent suicidal behaviour among university students; there was a low level of suicide attempts among university students. However, there was a significant influence of family type, and permissive parenting style (the strongest predictor) on the causes of suicide and suicidal behaviour among university students in Edo State. It was concluded that suicide and suicidal behaviours among university students in Edo State is predicated on poor relationship with family members. It was therefore recommended among others that parent should be more responsible, bearing in mind that parenting is beyond providing food, money, shelter, clothing and other needed school materials as such parents should show more cares and apt attention to their children

Keyword: Family Types, Parenting Styles, Suicide, Suicidal Behaviours, University Students

1. Introduction

Every human being aspires to live a good, happy and enjoyable life. While some appear to be living an honest life, full of integrity, joy and happiness, others seek wealth, social status and fame, as they hope these aspects will help them to live the good life. However, societal conditions such as peer pressure, the general moral and psychological climate of a society could increase or decrease the propensity for individuals to react to problems and pains by committing suicide or at least exhibiting suicidal behaviours.

Suicidal behaviour is any deliberate action and inaction intended to end one's life in order to escape unbearable suffering or to help change adverse conditions of living. It is the intentional act of taking one's own life or the destruction of one's own interest or prospects. Suicidal behaviour demonstrates that something seem to be fundamentally wrong either with the individual or with the situation in which the individual exists or with both the individual and the situation.

Suicidal behaviour is any deliberate action with potentially life – threatening consequences such as taking a drug overdose, substance abuse, possession of lethal weapons. It often occurs in response to a situation that the person considers overwhelming, such as social isolation, death of a loved one, emotional trauma, serious physical illness, aging, unemployment or financial problems, guilt feelings or dependence on alcohol or other drugs, which could lead to suicide.

Every suicide is a tragedy as deaths by suicide seem to be an extremely complex issue that causes pain to hundreds of thousands of people every year around the world. Suicide is a complex behavioural

phenomenon that involves taking one's life by oneself. It is fundamentally a general social and public health concern worldwide. The social, economic and psychological effects of suicide are unbearable in most societies of the world. Families, organisations, educational institutions and the general society are often thrown into mourning when there is an incident of suicide – such depressive mood often impacts on productivity, creates fear and anxiety, reduces value for human life and causes social unrest among others.

For Nigerian students, the relatively high levels of stress that often accompany this developmental stage are further exacerbated by the rapid socio-political, economic and socio-cultural transitions underway in Nigeria. Thus societal pressures and influences, such as rapid socio-political economic and socio-cultural change, the desire to pass examinations at all cost through any means; the pressure from parents; peer pressure, etc seem to play a pivotal role in the individual's engagement in suicidal behaviour (Ebohon, 2023). It follows therefore that a poor or an underachieved academic performance may serve as a precursor to stress, subsequent depression, and suicidality. Students who have consistently exhibited a pattern of academic failure may simply engage in risk – taking behaviour such as criminal acts, risky sexual activity that may predispose them to suicidality. Such are likely to be characterized by high rate of loneliness, poor social support and lack of a close and confiding relationship with friends and family members.

The breakdown in traditional family structure appeared to remain one of the major factors for the increase in suicide and suicidal behaviours among university students. Interpersonal relationships between students, their family members (parents and siblings) and friends may be a major reason for student's suicidal behaviour, but can also serve as major stressors, especially if conflict occurs within these relationships. This is why Ebohon, Osagiobare and Musa (2017) posit that the family is an essential part of the students' support system. The family provides emotional support both in the family context, as well as the broader community. However, environmental stressors such as parental divorce, death of a parent, interpersonal conflict between parents and siblings, pre-existing family psychiatric conditions and suicidal behaviour in the family context may lead to an increased source of insecurity and a risk for suicidal behaviour.

The home is of great importance to the child and it is expected to inculcate the right attitudes and values in the child. A good home ought to provide love, support, encouragement and security for its members. Family background is the foundation for

children's development, as such, family background in terms of family type and parenting styles, as well as issues in the family and complexity could play important role in children's upbringing, social integration and consequently suicidal behaviour. The family is a social life community of relatives established by marital, blood and adoptive relationship. It is the most intimate group and has a profound effect on its members. Family characteristics vary across cultures and nation. Nigeria has a unique marriage system, and parenting style and these specific characteristics may affect family members. Indeed, parental involvement and individuals' experiences at home play tremendous roles in building the personality of the child and making the child what he is Omoregbe and Ebohon (2016). However, a considerable amount of research has been conducted on suicide in Nigeria but studies on the perceived influence of family types and parenting styles on suicide and suicidal behaviour among university students in Edo State has not been given attention. It is against this background that this study examined the correlates of suicide and suicidal behaviours among university students in Edo State, Nigeria.

1.1 Statement of the Problem

In recent times, there seem to be a high incidence of suicide attempt and suicidal behaviour among university students in Nigeria as Nigeria news media are often awash with cases of suicide and suicidal behaviours among university students. This perceived prevalence of university students' involvement in suicide and suicidal behaviour are indeed worrisome as the effect on families, friends and societies seems to be devastating and far-reaching. This is why school administrators, sociologists, psychologists and governments are worried about the ugly trend of university students' involvement in suicide and suicidal behaviour. Despite several efforts made by the Government, Universities authorities and the university guidance counselors, suicide cases and suicidal behaviours among university students especially undergraduates seems to be on the increase. The problem of the study therefore was to find out the correlates of suicide and suicidal behaviours among university students in Edo State, Nigeria.

1.2 Research Questions

The following research questions guided the study:

- What is the suicidal behaviour prevalent among university students in Edo State?
- What is the rate of suicidal attempts among university students in Edo State?

- Is there an influence of family type on suicidal behaviours among university?
- Does parenting styles predict suicidal behaviours among university students in Edo State?

1.3 Hypotheses

HO₁. There is no significant influence of family type on suicidal behaviours among university students

HO₂. Parenting styles will not significantly predict suicidal behaviours among university students

2. Research Methodology

Research Design: The descriptive explanatory mixed research design was employed in the study. The design was considered suitable for the study because the study was conducted in two phases; the quantitative and qualitative phases. In specific terms, the descriptive survey design was used in the quantitative phase, because it enabled the researchers to gather information about the variables under investigation. In the qualitative phase, a one on one interview, which was conversational in nature, with one respondent at a time, was used in the study. This afforded the researchers the opportunity to get in-depth details from the respondents and also get data that enriched the answers provided in the quantitative phase to the research questions raised.

Population of the Study: The population of the study comprises all the seventy nine thousand, eight hundred and thirteen (79,813) full-time undergraduates in public and privately owned universities in Edo State. The universities include: University of Benin, Benin City; Ambrose Alli University, Ekpoma; Edo State University, Uzairue; Igbinedion University, Okada; Benson Idahosa University, Benin City; Wellspring University, Benin City, and Samuel Adegboyega University, Ogwa.

Sample and Sampling Procedure: The sample for the study was seven hundred and twenty (720) out of the seventy nine thousand, eight hundred and thirteen (79,813) full-time undergraduate students from universities in Edo State.

The study employed a multi-stage sampling procedure:

Stage One: This stage consists of selection of universities. The universities in Edo State were stratified randomly into three strata (groups): Federal, State and Private. Thereafter, one university was randomly selected from each

stratum; that is one federal, one state and one private university.

Stage Two: This stage involved the selection of faculties from each of the university. Thus, the faculties that cut across the three universities were stratified randomly into three groups as follows:

Group 1: Humanities and the Social Sciences

Group 2: Pure Sciences

Group 3: Applied Sciences

Thereafter two faculties were randomly selected from each group which gives a total of six faculties in each university.

Stage Three: This stage comprises the selection of respondents. The respondents were stratified into four levels: 100 level; 200level; 300level and 400level and above. However, due to the relatively large population of students, the researcher adopts the simple sampling techniques in selecting ten (10) students each from 100level, 200level, 300level and 400level from each sampled faculty and university. Thus, a total of two hundred and forty (240) students were sampled from each university.

Therefore, a total of Seven Hundred and twenty (720) students from three universities formed the sample for the study which is made up of a total of two hundred and forty (240) students from each university (That is, 40 students x 6 faculties = 240 x 3 universities = 720).

Research Instruments: Three research instruments were used for the study. The first was a structured questionnaire designed by the researchers titled: Correlates of Suicide and Suicidal Behaviour Questionnaire (CSSBQ). The second instrument was a checklist titled: Documented Evidence of Suicide and Suicidal Attempts Checklist (DESSAC). The third instrument was a structured interview constructed for suicide survivors/or those who have attempted suicide.

The questionnaire (SBQ) was made up of four sections (A, B and C). Section A was used to collect information on the demography of the respondents; Section B comprised a 4-point Likert scale to each of eight (8) behavioural statements regarding suicide and suicidal behaviours. The categories of responses were: Most often (MOF), Often (OFT), Sometimes (SOT), and Never (NEV), with weights 4, 3, 2 and 1 respectively; while Section C items were structured on a modified four point Likert scale of Strongly Agree = 4, Agree = 3, Disagree = 2, Strongly Disagree =1 which further helped to elicit information on the perceived influence of parenting styles on the prevalence of

suicide and suicidal behaviours among university students.

The checklist was used mainly to access the prevalence/rate of suicide and suicidal attempts by students in each sampled university from the 2011/2012 to 2020/2021 academic sessions. Thus, it was used to collect data on documentary evidence from the medical records of the medical units, students' affairs department, and the security departments of the various universities used for the study. The essence of using three units/departments independently from each university to collect such information was to ensure high level of accuracy. However, the average was used for the analysis.

The interview schedule theme and items were constructed for suicide survivors/or those who have attempted suicide. This section aimed to complement quantitative self - report data with in – depth interview concerning individual's experience of self-harm and suicidality.

Validity of the Instruments: The face and content validity of the instruments (questionnaire and interview schedule items) were validated by three experts, one each in department of Educational Foundations, Department of Sociology and Anthropology and Department of Educational Evaluation and Counseling Psychology Faculty of Education, University of Benin. Their inputs and suggestions were incorporated before the final drafts of the instruments were produced.

Reliability of the Instruments: The reliability of the instrument (questionnaire) was established through a Cronbach's Alpha statistics using thirty

(30) students from a faculty and department that were not part of the sampled respondents. Cronbach's Alpha was considered most appropriate because it helped to establish the co-efficient of homogeneity of the instrument. Thus, for suicide and suicidal behaviour scale, and parenting style scale had a Cronbach's Alpha values of .81 and .68 respectively obtained as the reliability values of the instrument. However, the checklist and the interview schedule theme and items were not subjected to reliability test.

Method of Data Collection: The research instruments were administered by the researchers in two phases, which were quantitative phase and qualitative phase respectively. At the qualitative phase, some of the respondents from the sample drawn were thereafter interviewed with the aid of an interview guide. The interview was carried out with the aid of a mobile recorder. After each interview, participant responses were transcribed, and major themes were identified based on the content of the discussions held by each participant during the interview in the original study after the content was coded. Themes were manually generated from data obtained from the interview questions on participants who are suicide victims, attempters or survivors.

Method of Data Analysis: The responses from the documentary evidences that were collected were analyzed using frequency tables and percentages, while the hypotheses were tested with Chi-square statistic and Multiple Regression statistics. All statistical decisions were taken at 0.05 level of significance.

3. Presentation of Results

Research Question 1: What is the suicidal behaviour prevalent among university students in Edo State?

Table 1: Rate of suicidal behaviour among university students in Edo State

S/N	Items	MOF	OFT	SOT	NEV
1	I have seriously contemplated killing myself when I was distressed	48 (6.7%)	102(14.2%)	163(22.6%)	407(56.5%)
2	I have attempted killing myself when I felt life was hopeless	80(8.3%)	143(19.9%)	165(22.9%)	352(48.9%)
3	I once tried to kill myself when I failed my examination	54(7.5%)	113(15.7%)	72(10.0%)	481(66.8%)
4	I tried putting an end to my life when I met a major disappointment	96(13.3%)	71(9.9%)	114(15.8%)	439(61.0%)
5	I thought of killing myself as one of the ways of solving my problems	90(12.5%)	137(19.0%)	82(11.4%)	411(57.1%)
6	I considered hanging myself whenever I was overwhelmed by some situations	60(8.3%)	185(25.7%)	60(8.3%)	415(57.6%)
7	I have been involved in reckless driving deliberately under alcohol influence	111(15.4%)	71(9.9%)	102(14.2%)	436(60.6%)
8	I abuse substance (drugs) some time	433(60.1%)	64(8.9%)	175(24.3%)	48(6.7%)

Source: Field work, 2022

Table 1 reveals the prevalence of suicidal behaviour among university students in Edo State. It shows that 56.5% of the respondents indicated that they never seriously contemplated killing themselves when they were stressed. 48.9% of the respondents stated that they never attempted killing themselves when they felt life was

hopeless and 66.8% also stated that they never tried to kill themselves when they failed their examination. In the same vein, a majority of the respondents (61.0%) also indicated that they never attempted putting an end to their lives when they experienced some major disappointment. However 57.1%, contemplated suicide as one of the ways of solving their problems, while 57.6%, considered hanging themselves whenever they experienced overwhelming situations. Also, 60.6% and 60.1% of the respondents have been involved in reckless driving deliberately and abused substance (drugs) most times respectively. Thus it can be deduced that a majority of the respondents indicated that they never engage in suicidal behaviours.

A participant interviewed in the study stated that unending quarrels in the family accentuated by personal issues made him decide to end it all by taking his life, while the other participant stated that the main trigger of suicide thought is toxic environment especially when people around you do not see someone as a human being, that is, he or she is not valued as a being. He went on to emphasize that neglect and rejections are products of toxic environment which leads to suicide thoughts.

Research Question 3: What is the rate of suicidal attempts among university students in Edo State?

Table 2: Rate of suicidal attempts among university students in Edo State

Population of the study	No of suicide Attempts	Rate
79, 813	12	0.02%

It can be seen from the table that the prevalence rate of suicidal attempts among University students in Edo State is 0.02% from 2009/2010 session to 2018/2019 session.

Hypothesis 1: There is no significant influence of family type on suicidal behaviours among university students in Edo State.

Table 3: Influence of family type on suicidal behaviours among university students

Family type		Suicidal behaviours		Df	χ^2	Sig.	Remark
		High	Low				
Mono		194	290	2	29.22	0.00	Ho Rejected
	Poly	97	92				
	single-parent	37	10				
Total		328	392				

Table 3 shows the influence of family type on suicidal behaviour. It can be seen that the chi-square value is 29.22, degree of freedom is 2, and p-value is 0.00 which is less than the *set alpha* level of 0.05. Hence, the null hypothesis which states that there is no significant influence of family type on suicidal behaviour is rejected. This shows that there is significant influence of family type on suicidal behaviour. 194 out of the 484 students who are from monogamous families have high suicidal behaviour, 97 out of the 189 students who are from polygamous families have high suicidal behaviour while 37 out of the 47 students from single-parent families had high suicidal behaviour.

Hypothesis 2: Parenting styles will not significantly predict suicidal behaviours among university student in Edo State

Table 4a: Model Summary of prediction of the various parenting styles on university students' suicidal behaviour in Edo State

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig. F change
1	.399 ^a	.159	.154	5.22603	0.000

Table 4a shows the model summary on the prediction of the various parental styles (authoritative, authoritarian, permissive and neglect) on suicidal behaviours. It can be seen that the r-value is 0.39, r^2 is 0.159 (15.9%) and level of significance is less than the *set alpha* level of 0.05. The r-value shows that parental styles (authoritative, authoritarian, permissive and neglectful) significantly relate to suicidal behaviours, while the r^2 value shows that parental styles (authoritative, authoritarian, permissive and neglectful) explain 15.9% of the variance of suicidal behaviours.

Table 4b: Multiple regression on the prediction of the various parenting styles on university students' suicidal behaviour in Edo State

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3697.418	4	924.354	33.845	.000 ^b
	Residual	19527.681	715	27.311		
	Total	23225.099	719			

a. Dependent Variable: Suicidal Behaviour

b. Predictors: (Constant), neglectful, authoritative, authoritarian, permissive

It can be seen from table 4b (ANOVA table) that the F-value is 33.84, degree of freedoms are 4 and 715, while the level of significance is 0.00 which is less than the *set alpha* level of 0.05. It can be seen that all the parental styles (authoritative, authoritarian, permissive and neglectful) significantly predict suicidal behaviours in the study.

Table 4c: Coefficients/ magnitude of prediction of the various parenting styles on university students' suicidal behaviour

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.778	1.132		11.292	.000
	Authoritative	-.374	.087	-.170	-4.304	.000
	Authoritarian	-.378	.084	-.175	-4.480	.000
	permissive	.630	.083	.298	7.592	.000
	Neglectful	.354	.077	.170	4.592	.000

a. Dependent Variable: suicidal behaviour

Table 4c shows the magnitude of prediction of each independent variable on the dependent variable. It can be seen from the table that the standardized Beta value for authoritative parenting style is -0.170 ($p < 0.05$), this shows that authoritative parenting style had a significant negative prediction of suicidal behaviour. Thus as authoritative parenting increases, it decreases suicidal behaviour. For the authoritarian parenting style, the Beta value is -0.175 ($p < 0.05$), this shows that authoritarian parenting style had a significant negative prediction of suicidal behaviour. Thus as authoritarian parenting increases, it decreases suicidal behaviour. Meanwhile a beta value of 0.298 ($p < 0.05$) for permissive parenting style reveals permissive parenting style had a significant positive prediction of suicidal behaviour. Thus as permissive parenting increases, it increases suicidal behaviour. In same vein, the beta value of 0.170 ($p < 0.05$) for neglectful parenting style reveals neglectful parenting style had a significant positive prediction of suicidal behaviour. Thus, as neglectful parenting increases, it increases suicidal behaviour. It can therefore be deduced that permissive parenting style is the strongest predictor of suicidal behaviour in the study.

4. Discussion of Results

The findings of research question one indicate that a majority of the respondents never engage in most of the suicidal behaviours. However, 433 respondents representing 60.1% indicated that they abuse substance (drugs) most time. This finding agrees with some earlier studies of Mba (2010), Evans, Hawton, Rodham and Deeks (2005) and Mocellin (2002) who stated that self-destructive behaviours such as alcoholism, substance abuse, sex abuse, cultism, possession of lethal weapons have been identified as suicidal behaviours found among university students. Substance abuse which may involve over-dose of drugs, swallowing of poisons, pesticides use and the use of other chemicals to end one's life is a major form of suicidal behaviour found among university students in this study. This could be explained by the fact that there is easy access to these chemicals or substances. This finding is also in agreement with other studies by Bae, Ye, Chan, Rivers and Singh (2005) and Shaffer (2001) who opined and demonstrated that suicidal behaviours are more likely to occur among adolescents who abuse alcohol and substances. Thus numerous studies report a significant correlation between substance use and suicidal behaviours in adolescents and youths.

Mathematically, the findings with respect to the rate of suicide attempts among university students in Edo State revealed a low rate with 0.02% of the 720 sample of undergraduates from the 2011/2012 session to 2020/2021 session. However, medically and sociologically, the 0.02% rate of suicide attempts revealed in this study is high as nobody has the right to take his or her life. The findings of this study disagree with the earlier studies of the World Health Organisation (2014), Ogunseye (2013), Kawashina, Ita, Harishuge, Saito and Okubo (2012), Douglas (2010), and Fergusson, Woodward and Horwood (2000), who reported that there is increase and high rate of suicidal ideation, suicide planning and suicide attempts by young adults aged 18-29 years in their respective studies. The findings of this study however agree with the views of Singh and Behmani (2018), who suggested that the number of attempted suicide, many of which go unreported, is likely to be much higher.

However, the lower rates of suicide attempts among university students reported in this study could be attributed to the availability of a good number of counseling services on campus; a more supportive peer and mentor environment that is found in the general university community; campus prohibitions on possession of firearms; effective campus monitoring of alcohol use and substance abuse; a clearer sense of purpose among university students and the relative freedom which students enjoy on campus as opposed to the daily hassles of living that occur in nonacademic settings.

The first hypothesis sought to find out if family background (family types) has any significant influence on Students' suicidal behaviour. The finding shows that there is a significant influence of family type on suicidal behaviour. It was revealed that monogamous family type has a high influence on suicidal behaviours among university students. This finding negates earlier studies of Bifulco, *et al* (2014) which revealed that deliberate self-harm correlates significantly with single mother upbringing and family discord. Also this finding is not in agreement with the views of Consoli, Reyre, Speranza, Hassler, Falissarel, Touchette, Coxa, Noro, & Reva-Lavy (2013) and Sheftall, Mathias, Furr & Dougherty (2013) who posit that suicidal behaviours are more prevalent in single parent families than monogamous families but most prevalent in polygamous families as there is more conflict in family relationship in the latter. The reasons given by these researchers are that this type of family (single-parents) context promotes feelings of loneliness and abandonment in adolescents, increasing mood disturbances and have suicidal behaviours. However, the present study negates all these assertions as the findings revealed that monogamous families have the

highest form of influence on suicidal behaviours among university students in Edo State.

The findings of this study could be explained by the fact that there could be poor family communication and low parental monitoring in the monogamous families in this study. Hence from such homes many end up helpless, hopeless and lonely, all of which constitute suicidal behaviours.

The last hypothesis sought to find out which parenting style would most likely predict suicidal behaviour among university students. The findings of the study revealed that authoritative parenting style, authoritarian parenting style, permissive parenting style and neglectful parenting style correlate students' suicidal behaviour. However, permissive (*laissez – faire*) parenting style was the strongest predictor of suicidal behaviour in the study. The findings of this study confirmed the findings of Milevsky, Schlechter, Nelter, & Kechn (2007) who found that permissive parenting contributes to depression among students because when parents are too lenient and allowed or tolerate whatever the children wish to do, the children have no focus and might do something dangerously inappropriate such as involving in suicidal behaviours.

Furthermore, the finding also agrees with views of Noor (2014), Joshi, Sharma, & Mehra (2009) and Baumrind (1996) who respectively maintained that permissive parenting style can cause problematic behaviours among children as well as contributing to depression and antisocial behaviours among children. However, the findings of this study negate earlier studies of Susheela (2018), Patock-Peckham *et al* (2009) and Hoeve, Blokland, Dubas, Loeber, Gerris, & Laan (2008) who had linked authoritarian parenting style to serious persistent delinquency such as murder, rape, robbery and selling of hard drugs, which are social and deviant behaviours.

Lastly, this finding is not surprising as permissive parents show less care and attention to their children, have no discipline, are too *laissez- faire* and allow their children to do whatever the children want.

5. Conclusion

Based on the findings of the study, it was concluded that family types significantly influences suicidal behaviour among university students and that permissive parenting style strongly predict suicidal behaviour among university students in Edo State. It follows therefore that family types and parenting styles are correlates of suicide and suicidal behaviours among university students in Nigeria.

6. Recommendations

Based on the findings and conclusion, the following recommendations were made:

- The Government and relevant authorities should make relevant policies to control substance abuse among youths and university students in Nigeria.
- The low level of suicide attempts among university students in Edo State should further be reduced, if possible prevented by all stakeholders (parents, students, guardians, counselors, administrators) in the educational system.
- Parents should be more responsible, bearing in mind that parenting is much more than just providing food, money, shelter, clothing and other needed school materials, as such; parents should show more cares and attention to their children.

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Seasonal Cycles in Environmental Quality of Peri-Urban Areas and their Variability in Nigeria: Some Preliminary Findings

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Abstract. This paper aims to use residents' perceptual data to investigate the seasonality of environmental quality in three peri-urban settlements of Lagos state, Nigeria. This is expected to assist policymakers in how environmental education will focus on similar climatic attributes. The data collection for the study was through personal observation and questionnaire administration. The authors visited the different settlements in the four identified seasons to observe. Using a systematic sampling technique, a questionnaire was administered to respondents drawn from one of every twenty (5 percent) buildings in the peri-urban settlements. A respondent (preferably a household head) was surveyed from a floor of a selected residential building. Three hundred ninety-seven copies of the questionnaire were completed and returned for analysis. Information provided by the respondents was analysed using both descriptive and inferential statistics. The findings revealed significant differences in residents' perception of air quality, street quality, electrical supply, water supply, waste collection, health services, and drainage systems in peri-urban settlements. The results showed that environmental quality in the dry seasons differs considerably from the quality identified in the rainy seasons in Ibafo and Mowe, while it was the same during the rainy and dry seasons in Isheri. It was established that residents derived little or no satisfaction from EQI, which they consider indispensable during the identified seasons. This study would reveal to policymakers the direction of policy initiatives on environmental education. It would also assist in planning the monthly environmental sanitation exercise in the different seasons of the year. The study's findings could guide the improvement of the ecological quality of peri-urban settlements of developing countries with similar socio-economic and climatic attributes.

Keywords: Environmental Quality, Environmental Quality Indicators, Seasonal Cycles, Peri-urban settlements

1. Introduction and Context

There is growing consensus that climate change effects have varying degrees of impact globally but adversely affect people living in developing countries the most because the majority depends directly on the environment for their livelihoods (Hillie and Hlophe, 2007; Mertz *et al.*, 2009). In other words, there is a causal association between human activities or sources of livelihood and climate change (Houghton *et al.* 2001). Nevertheless, climate change remains a complex and uncertain phenomenon, making it difficult for people to relate to their daily activities. This implies that it is salient, in perceived or experienced terms, for a smaller proportion of people. By implication, a lack of awareness of the effects of climate change might create a false impression that human activities destroying the quality of our environment are safe. Thus, people are uncertain about the links between escalating ecological disasters and climate change. As a result, it could be anticipated that changes in the climate of a place can precipitate negative or positive environmental quality (EQ).

In the opinion of Rapoport (1997), EQ, by definition, has two significant meanings. The first deals with the physical environment, while the second deals with the perceived environment. The immediate meaning of EQ is the material aspects of the physical environment, like air and water pollution, depletion of resources, domestic and industrial pollution, consequences of overpopulation, and noise, among others, which have specific effects on people (Rapoport, 1990). In contrast, the second and more sophisticated meaning is the qualities, material and immaterial,

of the natural and man-made built environment, which support the social and cultural structures and institutions of a specific group of people and, hence, give them satisfaction or dissatisfaction, with the physical settings provided (Khattab, 1993). In other words, it is an indicator used to measure the degree to which the environment is appropriate for humans to make a living (Kaili, 2003).

EQ can be assessed at objective and subjective levels (Gifford, 2002). The objective involves physical hard measures (through technological instruments, objectively quantifiable indicators, or evaluations based on a specific professional background). In contrast, the subjective relies on individual perspectives or perceptions. Of particular concern to this study is the subjective approach to measuring EQ. People's perceptions are central to their beliefs and values (Tsiagbey, Danso, and Bradford, 2006). In other words, the people's support, views, and involvement are essential in measuring EQ because better information on how people perceive and react to climate change may lead to more enlightened decisions and public uproar, leading to public unrest. Tradition is a prominent factor influencing perception in sub-Saharan Africa (Ranger, 1993). This is because tradition is the local norm, practiced from time immemorial and passed across generations to direct people's way of life. This varies across cities and influences many aspects of their lifestyle, which also influences perceptions of climate change (Fabiya, 2013; Afon *et al.*, 2016) and produces various opinions on the quality of the environment. In addition, Gooch (1996) suggests that information may influence perceptions, yet personal experience modifies such perceptions. Similarly, an individual's socio-economic attributes and familiarity with the environment affect environmental quality perception over time.

Studies have shown that a series of instruments have been developed to measure indicators of environmental quality. These include Perceived Environmental Quality Indicators (PEQI) by (Craik and Zube, 1976; Carp and Carp, 1982), Perceived Residential Quality Indicators (PRQIs) by (Amerigo and Aragonés, 1997), Perceived Residential Environment Quality Indicators (PREQIs) by (Bonaiuto, Aiello, Perugini, Bonnes, and Ercolani, 1999) and Environmental Quality Indicators (EQI) by (Afon 1998, 2006). Although these studies have enhanced our understanding of EQ worldwide, many more unanswered questions remain regarding the recent changes in global climate. In other words, very little is known about seasonal variations of EQ. Since seasonal variation in EQ is less prominent in the literature, it would benefit this study to investigate. Besides, Nigeria's

location in the tropical zone means that the seasonal patterns are significantly different from those of other continents, with the coldest days falling in July and August and the warmest occurring in December and January. With the attendant population spill-over from cities in Nigeria, one is left to hypothesize that seasonal variations are bound to happen in the environmental quality of the interface between the urban and rural areas.

Therefore, this study is set to investigate if there are seasonal fluctuations in the environmental quality of peri-urban areas in Nigeria, with the examples of three settlements (Isheri, Ibafo, and Mowe) situated in the corridor of the largest metropolitan city (Lagos) in Sub-Saharan Africa. From discussions and debates on peri-urban, it is evident that the concept has many shades. In the traditional sense, the peri-urban area is neither urban nor purely rural (OECD, 1979); it is a diverse area under the urban influence but with a rural morphology (Caruso *et al.*, 2001). Similarly, the parameters for describing the peri-urban areas fall into different categories. It is possible to distinguish physical, social, and economic aspects of variables characterizing peri-urban areas (Budiyantini & Pratiwi, 2016). Irrespective of the shades or descriptions adopted in explaining the peri-urban, one particular and obvious issue is that it is fast housing teaming households' population.

Development within the outskirts of cities is fast, making debates around the concept of peri-urban more endearing to diverse scholars locally and globally. The study area is fast becoming home to many households in the city, and it is incumbent upon policymakers and professionals in the built environment to pay significant attention to the structure of peri-urban area growth and development before it becomes more hydra-headed. This study answers the following questions: What are the environmental indicators used by residents in determining the quality of their environment? What is the relative level of importance attached and the satisfaction derived from the environmental quality indicators? Are there any possible inter-city variations in the seasonality of environmental quality? Based on these research questions, this study contributes to the existing body of knowledge by providing empirical facts to correlate weather conditions and environmental quality from Nigeria's perspective. This study also contributes to the literature by comparing environmental quality with weather conditions. This study's uniqueness is in using residents' perceptual data to investigate the seasonality of environmental quality.

Furthermore, a prior investigation into environmental quality has assumed homogeneity of

seasonality across a city. Thus, to our knowledge, we are unaware of any research examining the intercity variation of the seasonality of environmental quality in Nigeria and similar climatic belts. This is, perhaps, the first study in this regard. We believe a better understanding of how environmental quality varies with the season can lead to more efficient policy implementations and how such policies affect residents' happiness.

2. Materials and Methods

2.1 The Study Area

The study focuses on three peri-urban settlements (Isheri, Ibafo, and Mowe) along the Lagos-Ibadan Expressway in Ogun State, Nigeria. Nigeria is in the tropical zone and enjoys a genuinely tropical humid climate, which is seasonally damp and very humid. The West African monsoon system dominates it and has only two [seasons](#): wet and dry. The wet season starts from April through October, and the dry season from November through March. The wet season is heavily influenced by an Air mass (Tropical Maritime (MT) Air mass) originating from the Atlantic Ocean.

In contrast, the dry season is usually accompanied by a (harmattan) dust-laden air mass (Tropical Continental (CT) Air mass) from the Sahara Desert. The prevalence of these alternating winds over the country is linked to the Inter-Tropical Convergence Zone (ITCZ) north and south of the equator. The point at which these two air masses meet is termed [Inter-tropical Discontinuity \(ITD\)](#). However, there are wide variations in the climate in the country because of the presence of significant contrasts in topography and the existence of water bodies. Generally, ambient temperatures are lower in the wet season than in the dry season and vary from coast to inland areas. The wettest month in Nigeria is June in the southern, and the most saturated area is the east coast, parts of which receive over 4000 mm rainfall annually. Regions along the coast in Southern Nigeria receive about 1800 mm of precipitation annually, which decreases to about 500 to 1000 mm in Northern Nigeria (Nigerian Meteorological Agency, 2016).

Isheri, Ibafo, and Mowe are slightly situated in the tropical swamp forest of fresh water and mangrove swamp forests. The double rainfall pattern influences these two sub-vegetation types. The annual rainfall generally ranges between 1400 mm and 1800mm, with a short break in August (NIMET, nd). On average, the hottest month is March, with a mean temperature of 29°C (84°F), while July is the coldest month. These peri-urban settlements evolved due to the high rate of urbanisation of the parent city - Lagos Megacity (Lawanson *et al.*, 2012). Isheri is in the Ifo Local

Government Area (LGA) of Ogun State, while Ibafo and Mowe are in Obafemi Owode LGAs. Isheri is situated on Latitude 6° 33' North and Longitude 8° 58' East and is estimated to cover an area of 27.93 sq/km (Lawanson *et al.*, 2012). Accordingly, as Ibafo is located on Latitude 6° 75' North and Longitude 3° 37' East and has a built-up area of 15.75sq/km, Mowe lies on Latitude 6° 44' North and Longitude 3° 25' East and is estimated to cover 22.61 square kilometres. A recent update of land use and land cover change reveals that Isheri, Ibafo, and Mowe cover sq/km ().

Regarding physical development, Isheri is predominantly residential, with newly constructed buildings, tarred roads, and adequate water and electricity supply. Although, there are few areas with residential buildings characterised by leaky roofs and poor ventilation. Like in other peri-urban settlements in Nigeria, there is an epileptic electricity supply and inadequate potable water provision in Ibafo and Mowe. In some places, there are no drains; in some, the gutters provided are filled with waste (solid and water). Available open spaces in Ibafo and Mowe have been turned into the recipient of human faeces products; environmental conditions in many areas were stench as wastewater pit is a luxury. The roads are not tarred, and the residents dump refuse in the open spaces around their houses. Most residents in Ibafo and Mowe commute daily to Lagos, while others engage in primary and traditional occupations such as farming and petty trading.

2.2 Research method

Isheri, Ibafo, and Mowe were purposively selected for this study from other settlements in the peri-urban area along the Lagos-Ibadan Expressway. Data for this study were obtained through questionnaire during different seasons of the year, namely, the long rainy season (beginning of the rainy season and rain maximum), the short dry season (break: a short period of ceasing in the rain), the short rainy season (ending of the raining season), and the long dry season (*see the section on climate condition of the study area*). The multistage sampling technique was used for selecting the respondents. Information from Google Earth Image (2015) estimated 2140, 2347, and 3453 buildings in Isheri, Ibafo, and Mowe, respectively. One resident in every twenty (5%) building was surveyed using a systematic sampling technique. 173, 117, and 107 buildings were selected in Isheri, Ibafo and Mowe. Information obtained included residents' socio-economic characteristics, importance, and the satisfaction derived from environmental quality indicators (EQIs) in different seasons. Respondents were asked to score on a Likert scale of 1 to 5 the level of importance attached and the satisfaction derived from each identified EQI variable, using 1-

unimportance/dissatisfied, 2-very unimportance/dissatisfied, 3-neutral, 4-importance/satisfied and 5-very importance/satisfied. The analyses of the ratings indicated by the residents from the Likert's scales adopted evolved into an index called "the Mean" (M).

To arrive at the mean, the following steps were followed:

A 5, 4, 3, 2, and 1 weight value was attached to each rating.

Summation of weight value (SWV) adds the product of the importance attached to a rating and the respective number of respondents to the rating, dividing the SWV by the number of respondents that rated indicators

This SWV is expressed mathematically as

$$SWV = \sum_{i=1}^5 X_i Y_i$$

(1)

Where:

SWV = summation of weight value,

X_i = number of respondents to rating i ;

Y_i = the weight assigned a value ($i = 1, 2, 3, 4, 5$).

SWV was then divided by the number of respondents to arrive at each EQI. The index for each identified EQI thus takes a value of between 5 and 1. The nearer the value to 5, the higher the importance and satisfaction derived from such EQI under consideration.

$$M = \frac{SWV}{\sum_{i=1}^5 i = X_i}$$

.....(2)

After each respondent expressed the level of their perception about the environmental quality and climate change, the researchers, through interpreters that had a good understanding of both the English Language and the local dialect spoken by the resident, made efforts to explain what environmental quality and seasonal variation meant to every respondent in the appropriate mother's tongue. This assisted the people to respond appropriately to questions in each of the selected peri-urban settlements. Information elicited was first entered into a coding spreadsheet on SPSS 21 software, then analysed using descriptive and

inferential statistics such as percentage, mean scores, chi-square, and analysis of variance. Elicited data were also subjected to Cronbach's alpha reliability - to test for the accuracy and precision of measurement procedure and to see how well the variable items are positively correlated. The results were greater than 0.70 of the Sekaran (2003) recommended guideline, which suggested a measure of reliability of 0.70 or higher in the early stage of the research predictor test. The internal consistency reliability coefficients employed for the study are 0.78 and 0.81 for the importance attached to and the satisfaction derived in Isheri, 0.84 and 0.73 for Ibafo, and 0.80 and 0.71 for Mowe. These were above the established 0.7 level, which is acceptable for analysis. It is pertinent to state that data used in this paper were collected as part of a larger study to measure residents' perception of environmental quality in peri-urban settlements of Lagos State in Ogun State, Nigeria.

3. Results and discussion

3.1 Socio-economic characteristics of respondents

Four important socio-economic attributes: age, income, level of education, and length of residing in the peri-urban settlements, were considered. These attributes were deemed necessary because Sampei and Aoyagi-Usui (2009) and Fabiyi (2013) posited that response to environmental issues could be best explained based on the socio-economic attributes of the study population. The ages of respondents were categorised into three groups as presented in Table I: the youth (19-30 years), the young adult (31-55 years), and the adults (above 56 years). These followed the classification of Faniran et al. (2017). The minimum age of respondents in the peri-urban settlements was 20 years, while the maximum was 78 years. The mean age of residents showed that the mean age was reducing as the distance increased from Lagos to Ibadan. The mean age was 42, 38, and 36 years in Isheri, Ibafo, and Mowe, respectively, with standard deviations of 9.10, 10.67 and 12.05. Differences in the age of respondents across the peri-urban settlements were statistically significant at a 95 percent (0.05) confidence level. The result of ANOVA ($F=7.946$ and $p=0.000$) confirmed this. This finding suggests that there is the possibility that residents' perceptions of environmental quality will vary in the peri-urban settlements.

Table I. Respondents' Socio-Economic Characteristics by Location

Residents' characteristics	Isheri (%)	Ibafo (%)	Mowe (%)	Peri-Urban (%)
Age (years)				

19-30 (Youth)	57 (32.9)	45 (38.5)	15 (14.0)	117 (29.5)
31-55 (young adult)	111 (64.2)	62 (53.0)	83 (77.6)	256 (64.5)
56-65 (adults)	5 (2.9)	10 (8.6)	9 (8.4)	24 (6.0)
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)
Income (₦000.00)				
below ₦18000 (poverty Line)	23 (13.3)	26 (22.2)	15 (14.0)	64 (16.2)
₦18000-₦60000 (Low earners)	60 (34.7)	45 (38.5)	21 (19.6)	126 (31.7)
₦61000-₦150000 (Middle earners)	64 (37.0)	28 (23.9)	34 (31.8)	126 (31.7)
above ₦150000 (High earners)	26 (15.0)	18 (15.4)	37 (34.6)	81 (20.4)
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)
Education Qualification				
Primary	4 (2.3)	-	2 (1.7)	6 (1.5)
Secondary	43 (24.9)	36 (33.6)	35 (29.9)	114 (28.7)
Tertiary	121 (69.9)	67 (62.6)	79 (67.5)	267 (67.3)
No Formal	5 (2.9)	4 (3.7)	1 (0.9)	10 (2.5)
Total	173 (100.0)	107 (100.0)	117 (100.0)	397 (100.0)
Length of Residence (years)				
less than 10 (short)	17 (9.8)	14 (12.0)	15 (14.0)	46 (11.6)
10-30 (average)	130 (75.2)	89 (76.0)	72 (67.3)	291 (73.3)
above 30(long)	26 (15.0)	14 (12.0)	20 (18.7)	60 (15.1)
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)

Note: ₦ represents Naira (Nigeria currency)

Four income groups using the Lagos State Civil Service income grade level were identified for easy analysis. The first group comprised residents earning below the national minimum wage (₦18,000). The low-income groups were residents in the income group of grade levels 01 to 06. The middle-income earners were those in grades 07 to 12, while the high-income earners were residents in the income group of 13 to 17. The numerical monthly income of the groups was below ₦18000, ₦18000-₦60000, ₦61000-₦150000, and above ₦150000, respectively. Similar classifications were employed by Dada (2018). The study confirmed that while high-income earners were predominant in Isheri, Ibafo, and Mowe were dominated by middle and low-income earners. It was also evident that the proportions of residents below the poverty line were predominant in Mowe. Table I shows that the mean monthly income decreased as distance increased from Lagos to Ibadan. The mean income for Isheri, Ibafo, and Mowe was ₦94,374.00, ₦82,582.00, and ₦68,355.00. The result of one-way ANOVA computed ($F=1.450$; $p>0.05$) at a 0.05 confidence level showed no significant difference in the respondents' incomes across the peri-urban settlements. By inference, residents of Isheri are more likely to be willing to support programs that enhance the quality of their environment and the tendency to have better environmental practices.

In the same vein, the residents' level of education showed that the proportion of respondents without formal education qualifications in the peri-urban settlements decreased as distance increased from Lagos to Ibadan. However, residents with tertiary educational qualifications dominated the peri-urban settlements, with 69.9 percent of respondents in Isheri and 62.6 and 67.5 percent, respectively, in Ibafo and Mowe. Information on residents' literacy level in the peri-urban settlements agreed with the views of Weaver (2002) that individuals with high

educational status are more likely than individuals with low levels of education to be sympathetic to environmental problems. Information obtained on respondents' length of residence in the peri-urban settlements is presented in Table I. For ease of analysis, residents were grouped into three: short (less than 10 years), average (10-30 years), and long (above 30 years) stay. The results showed that the proportion of respondents who resided in the peri-urban settlements for 10-30 years (average) was dominant, with 75.1 percent in Isheri, 76.1 percent in Ibafo, and 67.3 percent in Mowe. There is no doubt that the respondents can provide accurate information on how changes in seasons have affected the quality of their environment. More so, Raudsepp (2001) and Shen and Saijo (2008) pointed out that residents' experience of an environment is a function of their length of residence.

3.2 Residents' Perception of Environmental Quality

The findings revealed significant differences in residents' perceptions of air quality and street quality in the peri-urban settlements. The percentage of residents who noticed the bad air quality was more significant within Ibafo and Mowe. In contrast, the quality of the streets was significantly perceived as bad in the three settlements. According to Table II, there was no significant difference between the settlements because they all perceived the quality of the recreational areas as bad, totaling 74.8%. Concerning the quality perception of public services evaluated, there was a significant difference in the residents' perception of the peri-urban settlements: electrical supply, water supply, waste collection, health services, and drainage system. Furthermore, more residents reported terrible electrical supply, water, waste collection,

drainage systems, and health services. According to Table II, safety service was perceived as having a fair quality by most of the residents of the peri-urban settlements.

Residents' perceptions vary based on their daily life experiences, often disassociated from their values. For instance, the results presented in Table II concerning air quality showed it varied in the peri-urban settlements. Ibafo and Mowe reported an air quality worse than that of Isheri. This may be based on their observations and knowledge about potential pollution sources such as industry chimneys or famous cattle markets and abattoirs, unpaved streets, and great vehicle flow. In these scenarios, the air quality is most likely affected, in part, by the road quality because an excellent dispersion of particulate material occurs in unpaved roads.

Similarly, a much more significant proportion of the streets within Ibafo and Mowe are unpaved. In addition to the daily coexistence with nature, another possible determinant for this perception is due to the observation of direct discarding of wastes and household trash in the rivers, supporting the perception about the importance of good quality and balance of ecological resources indispensable to their survival, to well-being and human health. The residents perceived the quality of waste collection services and drainage systems as bad. This was because vehicles hired to collect waste were usually open, and the contents were not regularly covered. Thus, waste materials dropped along the road and drainage system. Similarly, rubbish is generally dumped into drainage whenever it rains.

Table II. Perception of the Quality of Environmental Indicators by Location

Location/Environmental Indicators	Isheri N (%)	Ibafo N (%)	Mowe N (%)	Peri-Urban (%)	N	p-value
Air Quality						
Good	36 (20.8)	30 (25.6)	23 (21.5)	89 (21.5)		
Fair	69 (39.9)	34 (29.1)	34 (31.8)	156 (31.8)		p < 0.05
Bad	68 (39.3)	53 (45.3)	50 (46.7)	152 (46.7)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		
Streets quality						
Good	5 (2.9)	11 (9.4)	23 (21.5)	39 (9.8)		
Fair	80 (46.2)	42 (35.9)	20 (18.7)	142 (35.8)		p < 0.05
Bad	88 (50.9)	64 (54.7)	64 (59.8)	216 (54.4)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		
Recreational areas quality						
Good	0 (0.0)	7 (6.0)	5 (4.7)	12 (3.0)		
Fair	60 (34.7)	10 (8.6)	18 (16.8)	88 (22.2)		p = 0.47
Bad	113 (65.3)	100 (85.4)	84 (78.5)	297 (74.8)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		
Electrical supply service quality						
Good	13 (7.5)	27 (23.1)	4 (3.7)	44 (11.1)		
Fair	70 (40.5)	28 (23.9)	51 (47.7)	149 (37.5)		p < 0.05
Bad	90 (52.0)	62 (53.0)	52 (48.6)	204 (51.4)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		
Water supply service quality						
Good	23 (13.3)	11 (9.4)	30 (28.1)	64 (16.1)		
Regular	63 (36.4)	35 (29.9)	44 (41.1)	142 (35.8)		p < 0.05
Bad	87 (50.3)	71 (60.7)	33 (30.8)	191 (48.1)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		
Waste collection service quality						
Good	10 (5.8)	14 (11.9)	3 (2.8)	27 (6.8)		
Fair	46 (26.6)	32 (27.4)	44 (41.1)	122 (30.7)		p < 0.05
Bad	117 (67.6)	71 (60.7)	60 (56.1)	248 (62.5)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		
Drainage system quality						
Good	93 (53.8)	4 (3.4)	23 (21.5)	120 (30.3)		
Fair	13 (7.5)	61 (52.1)	23 (21.5)	97 (24.4)		p < 0.05
Bad	67 (38.7)	52 (44.4)	61 (57.0)	180 (45.3)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		
Health services quality						
Good	10 (5.8)	3 (2.6)	31 (29.0)	44 (11.1)		
Fair	77 (44.5)	41 (35.0)	50 (46.7)	168 (42.3)		p < 0.05
Bad	86 (49.7)	73 (62.4)	26 (24.3)	185 (46.6)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		
Safety service quality						
Good	2 (1.2)	1 (0.8)	1 (0.9)	4 (1.0)		
Fair	145 (83.8)	45 (38.5)	51 (47.7)	241 (60.7)		p = 0.30
Bad	26 (15.0)	71 (60.7)	55 (51.4)	152 (38.3)		
Total	173 (100.0)	117 (100.0)	107 (100.0)	397 (100.0)		

The perception that the recreational areas have bad quality suggests that the absence of sports space and physical activities can contribute to residents'

physical and psychological well-being and peri-urban entertainment and learning spaces. Concerning the water supply service quality, it can

be inferred that the factors that influenced a better perception of the lousy service quality relate to the importance attached and the satisfaction derived from the water supplied and the interruption of the supply system. Similarly, half of the residents evaluated the electrical supply service as inadequate. Concerning the quality of health services, a significantly more significant percentage assessed the quality as bad. It implies that the negative healthcare service perception may interfere with the general perception of the environmental quality in peri-urban settlements irrespective of the year's season. The safety services assessment also indicates residents' concern about violence questions, burglary, car theft, and traffic accidents. This concern about the fair quality of safety service is probably more populated by religious organisations that attract worshippers worldwide. The presence of police units and traffic wardens is way less than what is required to maintain safety.

In literature, indicators exist to measure the quality of the environment. Two issues are involved: the level of importance attached to these indicators and the level of satisfaction derived from the indicators. Afon's (2006) Actual Aspiration and Residents' Satisfaction would be employed to ascertain the importance and pleasure derived from the identified thirty-six indicators. The EQI was measured through a personally devised index termed Facility Importance Index (FII) and Residents Satisfaction Index (RSI) for ease of analysis. As shown in Table III, the aggregated levels of importance attached to EQI decreased as we moved further away from the parent city, Lagos. Table II shows Isheri, Ibafo, and Mowe's mean index was 4.57, 4.45, and 4.20, respectively.

Similarly, the mean index for satisfaction derived from the EQI in Isheri, Ibafo, and Mowe were 3.42, 2.99, and 3.07, respectively. To appreciate the importance of the degree of satisfaction expressed by residents. The 36 variables were classified into four main groups using multi-criteria analysis. This was adopted from Afon (2006). The four main groups, as presented in Table IV were (a) indicators with positive deviation about the mean of FII but with negative deviation about the mean of RSI (b) indicators with negative deviation about the mean of FII but with positive deviation about the mean of RSI (c) indicators with positive deviation about the

mean of FII and RSI; and (d) indicators with negative deviation about the mean of FII and RSI.

Group A: These were indicators considered to be very basic to human existence; they were of high importance to residents, but the satisfaction derived from them was very low. These variables were electricity, security, available road network, good road conditions, and traffic density. Others include the cost of living, availability of drainage, cost of food and rent, environmental sanitation, aesthetics, and public water supply. It can be deduced that residents' low satisfaction level with very important facilities would strongly influence their perception of the peri-urban environment.

Group B: The second group of indicators was those not considered to be of high priority in meeting the needs of residents, but respondents derived a very high level of satisfaction with them. The indicators in this category were privacy in-home, absence of air pollution, economic opportunity, well water supply, availability of shops, privacy in the neighbourhood, and lack of noise pollution. Others were friendly people, social interaction among neighbours, road safety, and availability of open space. This implies that these indicators would strongly influence respondents' perception of the environment despite not being a priority.

Group C comprises indicators that respondents consider important in satisfying their needs. These indicators were distance to work, the amount paid for waste disposal, housing condition, availability of boreholes, transport network, and nearness to primary school. Other indicators were the cost of going to and fro work, building density, proximity to the health centre, market availability, and nearness to secondary school. These are highly prioritized facilities and significantly influence the environment's perception. The absence of these facilities can force the respondent to employ self-help.

Group D: Respondents attached little or no importance to indicators in this group, and their satisfaction was also low. This was so as respondents improvised substitutes for themselves. Among the indicators were waste disposals. The residents dump indiscriminately on open spaces and drainages. At the same time, the residents utilise available open space instead of recreational space whenever there is a need for relaxation.

Table III: Importance Attached and Satisfaction Derived from Environmental Quality Indicators

Facility	Isheri		Ibafo		Mowe		Peri-urban	
	FII	RSI	FII	RSI	FII	RSI	FII	RSI

Accessibility to economic opportunities	4.65	3.77	4.09	4.07	4.30	3.31	4.30	3.69
Accessibility to recreational space	3.81	3.28	3.93	3.15	3.89	2.39	3.89	2.72
Accessibility to the transport network	4.68	3.74	4.92	3.75	4.35	3.70	4.69	3.69
Aesthetic quality of the environment	4.76	3.41	4.60	2.54	4.26	2.63	4.51	2.64
Amount paid for waste disposal	4.61	3.39	4.12	3.39	4.03	2.31	4.10	3.05
Availability of market	4.74	4.02	3.96	4.00	4.46	3.69	4.43	3.82
Availability of open space/Green area	3.65	3.64	3.57	3.43	3.72	2.54	3.66	3.07
Availability of shops	4.75	4.00	3.92	3.93	4.27	3.97	4.25	3.89
Available Drainage	4.75	2.62	4.65	1.84	4.54	2.09	4.64	2.22
Available road network	4.75	3.03	4.92	2.86	4.55	3.37	4.76	2.76
Borehole	4.85	3.41	4.82	2.90	4.44	3.89	4.71	3.32
Building density	4.62	3.75	4.43	2.73	4.49	3.75	4.46	3.31
Cost of food	4.46	3.28	4.86	2.29	4.38	3.10	4.61	2.63
Cost of going to and fro work	4.60	4.50	4.71	4.05	4.07	3.82	4.49	3.90
Cost of living	4.71	3.18	4.70	1.91	4.34	2.86	4.69	2.54
Cost of Rent	4.72	2.67	4.83	1.69	3.97	2.81	4.54	2.23
Crime rate (security)	4.79	3.67	4.77	3.08	4.79	2.62	4.81	2.81
Degree of air pollution	4.67	4.44	4.34	4.00	4.03	3.07	4.34	3.70
Degree of noise pollution	4.61	4.36	4.21	3.18	3.83	3.22	4.18	3.65
Distance to work	4.82	4.77	4.90	4.00	4.70	3.90	4.77	3.97
Electricity supply	4.84	4.41	4.95	1.42	4.75	2.06	4.86	2.39
Environmental Sanitation	4.65	2.80	4.60	2.04	4.32	2.22	4.53	2.31
Housing condition	4.77	3.74	4.72	2.92	2.14	3.65	4.73	3.62
Living among friendly people	4.47	4.38	4.20	4.00	3.56	3.32	4.08	3.75
Nearness to health facilities	4.74	2.77	4.51	3.23	4.15	3.66	4.46	3.10
Nearness to primary school	4.71	2.48	4.35	3.56	4.31	3.65	4.53	3.22
Nearness to secondary school	4.78	2.69	4.31	3.19	4.30	3.62	4.43	2.86
Neighbourhood social interaction	4.30	3.79	4.32	3.48	3.30	3.65	4.02	3.65
Privacy in your home	4.59	3.87	4.23	3.43	4.34	3.68	4.34	3.66
Privacy in your neighbourhood	4.47	3.47	3.98	3.69	4.44	3.69	4.24	3.68
Public tap water supply	4.36	1.22	4.96	1.09	4.27	1.35	4.50	1.35
Road condition	4.77	1.82	4.87	1.74	4.52	2.64	4.74	2.09
Road safety/pedestrian safety	4.00	4.17	4.86	3.28	4.60	3.05	3.76	3.65
Traffic density	4.88	1.78	4.82	1.80	4.42	2.23	4.72	2.06
Waste disposal facility	4.61	3.50	4.36	2.21	4.28	2.31	4.40	2.62
Well water	4.08	3.16	3.62	3.90	4.18	2.72	4.24	3.37
Mean Aggregate	4.57	3.42	4.45	2.99	4.20	3.07	4.42	3.08

Table IV: Deviation of the means of FII and RSI in the Peri-urban Settlements

Group	Environmental attributes	Deviation about FII	Deviation about RSI
A	Electricity	0.44	-0.71
	Security	0.39	-0.03
	Available road network	0.34	-0.07
	Road condition	0.32	-1.10
	Traffic density	0.30	-1.21
	Cost of living	0.27	-0.60
	Drainage	0.22	-1.00
	Cost of food	0.19	-0.38
	Cost of rent	0.12	-0.85
	Environmental sanitation	0.11	-0.83
	Aesthetics	0.09	-0.33
	Public water supply	0.08	-1.93
	B	Privacy in home	-0.08
Air pollution		-0.08	0.71
Economic opportunity		-0.12	0.63
Well water supply		-0.16	0.22
Availability of Shops		-0.17	0.83
Privacy in neighbourhood		-0.18	0.50
Noise pollution		-0.24	0.38
Living among friendly people		-0.34	0.77
Social interaction among Neighbours		-0.40	0.48
Road safety		-0.66	0.32
Open space	-0.76	0.09	
C	Distance to work	0.35	1.05
	Amount paid for waste disposal	0.32	0.07
	House condition	0.31	0.25
	Borehole	0.29	0.20
	Transport network	0.27	0.61
	Nearness to primary school	0.11	0.16
	Cost of going to and fro work	0.07	0.97
	Building density	0.04	0.17
	Nearness to health	0.04	0.12
	Available market	0.01	0.78
	Nearness to secondary school	0.01	0.05

D	Availability of waste disposal	-0.02	-0.54
	Availability of recreational space	-0.53	-0.17

3.3 Seasonal Cycles in Environmental Quality and their Variability

Across the peri-urban settlements, most (78.2%) residents were highly concerned changes in weather elements would negatively affect the quality of their environment, even though several did not believe (43.6%). In comparison, some felt (29.7%) and smaller percent were uncertain (4.9%) of climate variability. Besides, 16.9% were concerned about the impact of climate variability on the environment, composed of those who believed (8.7%), those who did not think (6.3%), and indifferent (1.9%). Very few (2.2%) had average and low concerns, respectively. In addition, 44.6% of them claimed weather variability was responsible for destroying buildings and roads via irrepressible flooding and wind storms. Considering that water is a public good and an inalienable human right, the findings established that 31.4% of the residents had been experiencing a scarcity of potable water. After all, wells were drying because the amount of precipitation was declining. This is expected to cause uneasiness among residents who claimed not to believe in it or were not sure of changes in weather elements. In other words, environmental education may well boost awareness of climate change since residents' observations of the visible effects are already causing discomfort to both believers and non-believers of its reality.

Table V: Seasonality of Environmental Quality

Location/Seasonality	Isheri		Ibafo		Mowe		Peri-Urban	
	FII	RSI	FII	RSI	FII	RSI	FII	RSI
Long Rainy Season	4.77	2.80	4.74	3.25	4.38	3.22	4.45	3.66
Short Rainy Season	4.35	3.74	4.31	2.93	3.84	3.90	4.35	3.68
Short Dry Season	4.43	4.38	3.97	2.69	4.20	2.22	4.20	2.35
Long Dry Season	4.71	2.77	4.77	3.08	4.36	2.94	4.48	2.61
Seasonal Variation Statistics	F = 1.02; p=.23		F = 16.02; p=.00		F = 11.01; p=.00		F = 5.05; p=.11	

Concerning whether climate variability influences residents' perception of the quality of their environment as presented in Table V. Finding showed that the importance attached to EQI had their highest indices during the prolonged rain and dry season, respectively. For instance, it was 4.77 and 4.71 in Isheri, Ibafo recorded 4.74 and 4.77, and Mowe had 4.38 and 3.36 in the respective prolonged rain and dry seasons. Yet, the satisfaction derived during this season of the year was relatively lower than their importance. In these scenarios, the EQI is considered indispensable during these seasons of the year, but residents' derived little satisfaction would strongly influence their perception of the peri-urban environment during the seasons of the year. However, the dissatisfaction recorded may not be directly linked to climate variability by the residents.

Furthermore, the results showed significant differences in the perceived environmental quality in Ibafo (F = 16.02; p=.00) and Mowe (F = 11.01; p=.00) were also statistically significant during the different seasons of the year. This indicates that environmental quality in the dry seasons differs considerably from the environmental quality identified in the rainy seasons in the year. However, residents of Isheri believed that the environmental quality perceived during the rainy seasons is the same as that of the dry seasons (F = 3.02; p=.23). Many factors may account for this observed trend. The most obvious is that Isheri enjoys a spill-over effect of the quality of services and facilities available in the parent city than Ibafo and Mowe combined.

4. Conclusions

In this study, we have presented the findings of an investigation on whether climate variability influences residents' perception of the quality of their environment. The study established that despite the variation that existed in residents' age, income, education status, and length of residence in the peri-urban area, the perception of residents in Isheri, Ibafo, and Mowe was influenced more by their daily life experiences or interaction with their immediate environment regardless of the season of the year. Similarly, it was established that EQI varies from one settlement to another and was inadequate to meet the needs of the residents in the different seasons of the year. The variance in quality had nothing to do with changes in socio-economic attributes or seasonality. The study also showed that the EQI to meet what people regarded as necessary was not available to a reasonable level of residents' satisfaction, irrespective of the year's season. However, this study did not account for other factors (such as socio-economic drivers, climate change adaptations, government policies, etc.) that may influence residents' perception of the quality of their environment. Hence, further study may be required.

It is imperative to institute environmental education to improve the environmental quality of peri-urban settlements of developing countries with similar socio-economic and climatic attributes. Residents must be taught different environmental practices to achieve an aesthetically pleasing environment

irrespective of the year's season. They must be taught not to vandalize and maintain environmental facilities and the need to pay electric and water bills. This education must be brought to the grassroots level, understanding the variation in age, education status, and residents' income. More importantly, it is a paradigm shift from top-down to bottom-up approaches. A bottom-up approach is such that when planning or the provision of facilities occurs, planning will be done with and for the people so that all residents are carried along. An advantage is that it gives a sense of fulfillment/achievement when residents know they were part of a process that brought solutions to the communities. The government must see the peri-urban area as a solution to new city planning rather than a problem for urban areas. If these recommendations are adopted, it is hoped that the findings will be sufficient to provide a temporal background for future environmental quality research in Nigeria and nations in the same climatic belt.

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Effects of Farmers-Herders Conflicts on Food Security in Agatu Local Government Area of Benue State, Nigeria.

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Abstract. The paper examined farmers-herders' conflict and its effects on food security in Agatu Local Government Area of Benue State. The study adopts the Frustration-Aggression Theory which posits that aggression is an outcome of frustrating a person's efforts towards a certain goal. Frustration caused by interference in goal-directed activity produces a 'readiness' for aggression which if 'triggered' can result in aggressive response. The data collected was through structured questionnaire and analyzed with the use of descriptive statistics. The results revealed that conflict has reduced the rate of food production which has led to loss of lives and property, displacement, poverty, and unemployment with its socio-economic consequences on sustainable development in Nigeria. Therefore, the study recommends that representatives of the host communities and the herdsmen should organize a public forum and part take in decision making process where issues affecting both parties are presented, and the procedure to restoring peace to most of the affected communities will be properly tackled. The process should involve all stakeholders (herdsmen and farmers) in the dispute resolution mechanism. The ranching method for cattle rearing should be properly and unanimously adopted at rearing location across the state with the herdsmen given the needed training for effective and efficient management of the ranching.

Keywords: Farmers, Herders, Conflict, Food Security

1. Introduction

Security threats in Nigeria has political, economic and environmental dimensions. Each dimensions have critically affected the stability of the nation which can be traced to many factors in which the Fulani-herdsmen appears to be a major factor. Most worrisome is the raping, killing and kidnapping of farmers by the herdsmen. Hardly a day passes-by

without news found in our national dailies on how these herdsmen attack communities and houses with sophisticated guns. According to Okereke (2012) and Bello (2013), the conflicts in most part of Nigeria especially between herdsmen and farmers are largely uncalled for as farmers can no longer farm peacefully because of Fulani herdsmen. Studies conducted by Okereke (2012) and Kasarachi (2016) have shown that serious conflict erupt between Fulani herdsmen and farmers leading to loss of lives, valuable properties and destruction of vast expanse of arable agricultural farmlands thereby posing serious threat to food security since farmers for fear of attack could no longer go to farm and harvest their farm produce. The latest attacks by Fulani herdsmen are on the upsurge, with the latest attacks in February 2018 happening in Benue State, Taraba State, Nasarawa State and few cases of attack in other states. In recent times, the killings recorded by Fulani herdsmen and farmers clash has rampaged most communities displacing them of their farmlands and loss of their major source of livelihood. This is becoming unbearable with the Fulani herdsmen always having their ways leaving the farmers at their mercy. Herdsmen attribute the roots of the crisis to religious differences resulting in the killing of their cows while the farmers see the herdsmen as a threat to their crops and agricultural produce since the herdsmen allow their cows to feed on the farmer crops.

This recent wave of violence in Nigeria as observed by Kasarachi (2016) has disrupted socio-economic, religious and educational activities, political instability and threatened the national unity in Nigeria. These extra judiciary killings have forced thousands of people to abandon their homes and farmlands for safety. The rate of insecurity occasioned by Farmers-Herders crisis in the north-central, middle-belt and southern parts of Nigeria has reduced the rate of food production in the country, thereby making farmers not to produce food in surplus as a result of fear of being killed in their

various farmlands. As such, it reduces the chances of food availability in the country (Osumah, 2018). Herder Farmer crises have not only directly impacted on the lives or livelihoods of those involved, but have also disrupted and threatened the sustainability of agricultural and pastoral production and invariably the sustainability of livelihoods of rural communities (Moritz, 2010). Again, the crisis has reinforced circles of extreme poverty and hunger, destroys social status, food security and affects mostly the most marginalized groups which include women and children (Ikezue & Ezeah, 2017). The livelihood structure, food security and wellbeing of farmers are threatened and compromised as it further contributes to poverty, food and nutrition insecurity and poor health of farming in communities, with further escalation of conflicts. The instability caused by the incessant conflict between farmers and herdsmen, will likely lead to food shortages for the communities that depend on subsistence farming. Ismaila & Umar (2015) observes that the farmers-herdsmen crises have caused a sharp and substantial increase in prices for agricultural crop such as cowpeas, maize, millet, rice and sorghum. The rise in prices is mainly due to a decrease in agricultural output, uncertainties in markets and an increase in fuel and transportation. This therefore becomes a widespread and formidable challenge to food security in Nigeria as urgent and sincere steps are needed to be effectively taken by the Nigerian government to end these crises (Anter, 2015).

Benue State have been greatly affected by conflict between farmers and herders and these conflicts always result into large scale destruction of lives and properties. The herders have acquired sophisticated arms as a means of defending themselves against cattle rustlers and armed bandits, and also used these weapons to attack communities that attacked their cattle when they encroached on their farmlands. This has led to reprisal attacks and counter attacks with monumental losses on both sides. Adisa, & Adekunle, (2010) asserts that addressing this issue requires a clear diagnosis of the root causes, evolution, impacts and implications as there are trading blames between the farmers and herders. The farmers accused the herders of allowing their cattle to destroy their farmlands without payment of compensation for the losses and damages done to their crops, while the herders accused farmers of cultivating on their stock routes and grazing reserves meant for them. The lives of farmers and herdsmen, women and children have been lost while others displaced from being landowners to tenants in IDPs camps. Again, as a result of destruction of farm produce by the herds of cattle, the local farmers are

exposed to poverty and unemployment since their major occupation is on farming, and their farm produce destroyed (Adisa, 2012). The farmers sojourn into cities to engage in one job opportunity or the other. The opposite is the case as they need to survive, and in the course of survival, they involve themselves in any sort of crime as a result of psychological frustration. This depicts a scenario of a popular quote where a hungry man is an angry man (Osumah, 2018). It is against this background that this paper assesses the effects of farmers-herders conflict on food security in Agatu Local Government Area of Benue State, Nigeria.

2. Conceptual Framework

2.1 Concept of Farmers

Farmers are persons who engage in agriculture, raising living organisms for food or raw materials. The term applies to people who do some combination of raising field crops, orchards, vineyards, poultry, or other livestock. Farmer is a person whose main occupation or livelihood is the cultivation of land and planting of crops for both domestic and commercial purposes (Ajibefun, 2017). Farmers also raise living organisms for food, commerce or raw materials. The term farmer in this work is directly associated to people who do some combination of raising poultry, livestock and above all crops. A farmer may not necessarily have his own farm but may have the strength to carry his labor round as a commodity looking for a market, to enable him get some money and meet the basic needs of his family. Though in most developed societies, farmers usually have their own farms using modern machines for cultivation or using employees of the farm who are called farm laborers or workers (Agbedo, 2016). Based on this broad definition, farmers are both herdsmen who herd or keep livestock like cattle, goats and sheep, and crop farmers.

2.2 Concept of Herders

Herders are nomads whose primary occupation is raising livestock like cattle and sheep basically for commercial purposes. They move from one place to another in search of green grasses and water for their animals without a fixed pattern of movement (Okoro, 2018). The herders are usually Fulani who originated from the Senegambia before spreading other states that cut across west Africa and the Sahel as well as western Sudan and Central African Republic (McGregor, 2014). The people are found in large number in Nigeria with some found in cities, while many still live as semi-nomadic herders. These group

who own and rear herds of animals like cattle for commercial purposes are called Herdsmen, and their primary occupation is raising of livestock (Iro 2010). They usually move their herds from one place to another in search of pasture and fresh water. It is predominantly the occupation of the Fulani ethnic group in Nigeria who are often armed and visibly move about with weapons (like daggers, machetes, arrows etc.) to protect their livestock. The more disturbing issue about the Herdsmen is that they also block the highways with their cattle, rob and kidnap people, keep them captives in the bush and demand for ransom. The Herdsmen have also been involved in the rape of old and young women and burning of communities (Vanguard, 2018). Due to their violent nature and associated killings, the group was recently described as the world's fourth deadliest militant group (Mikailu, 2016).

2.3 Concept of Conflict

Conflict is a violent stage that manifest in the form of aggression, struggle or war. It is an inevitable fact of life as long as people live together with different views, idea and thoughts which are opposed to one another. Action Aid (1994) see conflict as a condition that lacks cooperation between social entities or clashes between people who have incompatible ideas or thoughts. Karl Max (1910) assert that conflict leads to ever changing relations within the existing social structure, but with a total structure undergoing change through conflict. Conflict is a clash between individuals arising out of a difference in thoughts process, attitudes, understanding, interests, requirements and sometimes perceptions which result in heated argument, physical abuses and definitely loss of lives, peace and harmony.

2.4 Concept of Food Security

Food Security as a broad concept that cuts across many dimensions. It means access to sufficient food for healthy living. Food Security is the condition in which all have access to adequate food to live healthy and productive (World Bank, 2007). For Pottier (1999), food security involves interconnected domains with questions of agriculture, society, environment, employment and income, marketing, health and nutrition, and public policy. Eme, Onyishi & Uche (2014) defines food security as a situation when people at all times have physical, social and economic access to sufficient food to meet their dietary needs for a productive and healthy life. World Bank (2007) defines food security as a threefold concept such as food availability, affordability and accessibility. Food availability for households means ensuring sufficient food for the households through

production. Food affordability means a situation in which individuals can purchase food at a reduced price, while food accessibility is a situation where households have access to available food. The above definitions, no doubt, point to at least two parts of this complex concept: access to available food and adequate nutrient intake for sustainable health (Ojo, 2012).

3. Empirical Review

3.1 Farmers-Herders Conflict in Nigeria

Farmers-Herders conflict is as old as human existence. The biblical account of God's creation witnessed the beginning of farmers-headers conflict. The bible records that Abel was a shepherd and Cain was a farmer, and out of jealousy, Cain killed Abel in the field. Okoro (2018) averred that farmers-herders' conflicts are conflicts occurring between peasant farmers or subsistence cultivators and nomadic or transhumant live-stock keepers. Hoffman (2014) states that there exist differences between 'herder-herder' conflicts and 'farmer-herder' conflicts. He maintained that herder-herder conflicts are usually conflicts between nomadic or transhumant livestock keepers that arise between receiving groups over their territory's resources and incoming groups searching for water and pastures, and cattle raiding. Herder-herder conflict is a conflict that results from theft of cattle or other animals among the Fulani herdsmen. It is herdsmen rustling cattle of other herdsmen, or when un-experienced herders entrust their animals in the care of experienced herders under agreements, and when such agreements are breached conflict occasions within. The violent cattle raids among pastoralists in East Africa are examples of herder-herder conflicts. Farmer-herder conflicts comprise of different types of conflicts including ethnic conflicts, interest conflicts, resource disputes, political action, evictions, killings, cattle raiding and cattle rustling. The Fulani ethnic group comprise of mostly shepherds and cattle herders. They are rural pastoralists who migrate from one area to another and are mostly Muslims who speaks Fulfulde language (Gordon, 2000).

The Fulani group has a long history of migrating, and they have built relationships with various farming populations in Nigeria (Moritz, 2016). Fulani are known for herding cattle, goats and sheep across the vast dry grasslands of their environment. But today, available grazing lands are decreasing, and livestock pathways are blocked in many areas, only a small portion of the grazing reserves were acquired, and are poorly managed. Majority of the farmer-herder

conflicts occurred between herders and farmers. This crisis can be understood as a problem of access to land for economic survival, which as a result has caused economic, political and environmental tensions in the country, especially in the Middle Belt and South of Nigeria since the return of democracy in 1999 (Udosen, 2021). The clashes are occasioned by the destruction of farmlands by the herds of cattle belonging to the herdsmen. Naturally, herdsmen are migrants who leave their traditional abode in search of greener pasture for their flocks or livestock (Gordon, 2000). The migration is caused generally by the absence of good and veritable land for their livestock to feed on. The rate of desertification and deforestation in the Sahara Desert is at an alarming rate as Nigeria is part of the countries in Sahel region that experiences drought, desertification and deforestation (Blench, 2004; Abass, 2012; Okolie, & Atelhe, 2013).

Farmers-Herders conflicts happen to be one of the major challenges that have threatened the security and unity of the country in such a way that in recent times, Nigeria had recorded a significant increase in the number of cases associated with natural resource conflicts (Tanko, 2022). The clashes between farmers and pastoralists have become worrisome mainly in the wetland areas of the middle belt, west and central parts of the northern Nigeria. The farmer-herders conflict has caused major drawbacks in the growth of peace and security in communal coexistence between host communities and the herdsmen (Tonah, 2006). The farmers-herders conflict is a security issue that is complicated by various factors, one of which is the incessant increase in population such that as population increases, natural resources such as land, grasses, water, etc. that are essential for the survival of local communities are overburdened and highly competed for the livelihood of humans and animals. These competitions often lead to various conflict especially between farmers and herders whose culture, livelihood and sustenance is centered on the availability of these resources. Thus, natural resource conflicts are pervasive in Africa, West African sub-region especially Nigeria where this group of people are commonly found (Gbanite, 2001). However, farmer-herders' conflicts are often considered local, endemic, low-intensity conflicts and not wars; they have been largely ignored in the literature on violent conflicts in Africa and elsewhere (Lind & Sturman, 2002). Richards (2005) asserts that, ignoring these clashes is unwise because local conflicts may escalate into real wars that may lead to ethnic violence along the occupational boundary of farming and herding. Farmer-herders conflict disrupts not only lives and livelihoods of those involved; they also disrupt and

threaten the sustainability of agricultural and pastoral production.

Furthermore, conflict is an inevitable feature of every human society and conflict over resources is not unnatural in societies where natural resources determine the means of livelihood and survival. The evolution of the human society itself attests to the fact that every individual and group in the society has experienced one form of conflict or the other, especially over resources which serves as the central part of their survival and social relations are not devoid of conflicts which usually lead to changes in social relations, adjustment and adaptation (Gefu & Kolawole, 2002). These conflicts are not only induced by scarcity of environmental resources, but are escalated by the feelings of neglect, marginalization and outright deprivation of the utilization of these resources. Also, conflict over resources has been found to arise as a result of scarcity, mismanagement, uneven allocation of resources and environmental related issues. Natural resources have been postulated to be a major driver of conflict, security risk, violence and civil wars in the 21st century and the attention of the world has shifted to the lethal roles that environmental resources play in conflict situation (Moritz, 2016). The reason for this postulation is the pivotal roles environmental resources play in the local and national economy of any state, irrespective of its level of modernity. The herdsmen have posed a major threat to food security in Nigeria through their violent harassment of farmers, especially in Benue State. They have engaged in so much violence and unrest that the Institute for Economics and Peace have classified them as a terrorist group. Not only do these herdsmen invade and destroy farms and farm produce, they intentionally allow their cows to graze on crops that farmers have worked hard to cultivate. This resource-driven conflict between farmers and herders have resulted in decreased access to land for food production. Farmers have become the target for kidnapping by gunmen, bandits and armed herdsmen across various geopolitical zones in the country (Egbuta, 2018).

The glaring insecurity issues in the country have led to a sharp rise in food prices owing to the substantial reduction in food production. Since July 2020, basic food items like beans, rice, millets, maize tomatoes etc. have witness a significant increase in prices thus, putting a lot of people at the risk of starvation. Also, there has been an upsurge in Nigeria's food import bill, as production levels no longer meets the country's ever-increasing demand for food. In light of these pressures on the production of food, investors

and entrepreneurs are discouraged from venturing into agriculture especially in areas bedeviled with these insecurity issues (Udosen, 2021). This had led to damage of crops, attacks on cattle, destruction of properties, killings of live and cattle rustling in Benue State. It is reported that climatic change, population growth, environmental degradation, government policies and insurgency activities are some of the major triggers of conflict and violence between farmers and herders (Suleiman, 2015). However, little or inadequate information have been documented, in respect to effects of farmer-herder conflicts on food security of rural households especially in Agatu Local Government Area of Benue State. As a result of the increasing trend of the conflicts in the State, it poses a key challenge and as such calls for an in-depth analysis of its effects on the food security of this rural households. It has not been sufficiently documented what the specific or inter-play of factors influencing farmer-herder conflicts in the study area (are/is). Furthermore, it is not well known what mitigation strategies are employed in the management of farmer-herder conflicts in the study area, neither is the effectiveness or constraints of these management strategies (Adebayo & Olaniyi, 2008).

Benue state is the nation's acclaimed food basket because of its rich agricultural production which includes Maize, Sesame, Cocoyam, Yam, Rice, Beans, Cassava, Sweet-potato, Millet etc. Most of the Benue population is predominantly farmers and hunters as well and that makes life interesting in the area. Unfortunately, the frequent clashes between herders and farmers in the predominant farming areas of the state have resulted in the destruction of lives and farmlands (Emmanuel, Yahaya & Mohammed 2019). In tandem to the forgoing, the then Governor reported that more than 1,878 people were killed between 2014 and 2016 and that attacks by herders coming from more northerly states, and possibly also from Cameroon and Niger, had cost the state N95 billion between 2012 and 2014. Conversely, this implies that over 1,800 killed in herdsmen, farmer's clashes in Benue in three years (International Crises Group, 2017). This resulted to a decline in the number of farmers in the study area and the displacement of sedentary farmers has drastically affected the availability of agricultural product in the markets which also resulted to hike in prices of such products and make life difficult for an average citizen in Benue State (Duru, 2016).

4. Causes of Farmers-Herders Conflicts in Nigeria

There are a number of factors that causes conflicts between herders and farmers in Benue State. These conflicts have been traceable to the policy gap and underdevelopment of grazing lands, land ownership system and utilization, increase in production due to increase in population, climate change, induced competition for resources, poverty, insurgency, armed robbery, corruption, economic sabotage and environmental degradation (Fasona, Adebayo & Olufemi, 2016). Ofuoku & Isife, (2009); Adoji, (2013) corroboratively assert that the main cause of farmers-herders' crisis has been the change in climate occasioned by the absence of adequate rainfall, poor grazing land for their animals and lack of coping mechanisms by the herdsmen, others include:

Land Conflicts: Conflicts between farmers and herders can be understood as a problem of access to land. The beginning of the 21st century witnessed an expansion of agriculturist population and cultivated land at the expense of lands in the Middle Belt. In politically unstable region, it has never been possible to ascertain a legal title to land for every farmer and herder. As a result, transhumance routes of herders were no longer available especially in the context of global warming as this has caused a continuous movement of herdsmen southwards in search of land or pasture for their animals. This has pitched them against farmers, leading to crisis and destruction. Farming along the Benue River accounts for over 20,000 tons of grain annually, and this same area is also a fertile ground for herdsmen to feed their cattle. Thus, farmlands within the river bank areas are the mostly affected by the movement of the herders resulting in a number of clashes (Egbuta, 2018).

Climatic Crisis: Deteriorating environmental conditions, desertification and soil degradation have led herders from Northern Nigeria to change their transhumance routes. Access to pasture land and watering points in the Middle Belt became essential for herdsmen travelling from the Northern part of the country. Egbuta (2018) asserts that climate is a critical factor in the activities of herdsmen and farmers. He further states that changing climatic condition also referred to as global warming is no doubt taking toll on the survival of herdsmen and farmers business. The herdsmen change of transhumance routes to the south in search of available space has pitched them against farmers and the host communities. This global phenomenon is affecting many parts of the world with attendant consequences, including the Farmer-herder crisis.

Population Growth: Population growth has worsened this conflict. It has pitted many southern

communities and farmers against the Fulani. One of the causes of conflict is the growing population of Nigeria's cattle population to 25 million cattle in Nigeria, and the number of cattle is expected to increase to 60 million by 2050 (Fabiya & Otunuga, 2016). A large amount of food and water is required to satisfy massive numbers of animals when they travel on farms' lands. Fabiya & Otunuga (2016) asserts that farmers accused the herdsmen of failing to control their cattle and allowing them to damage crops while the herdsmen also accused farmers of stealing their cattle and sheep.

Resource Factor: Competition over scarce resource would increase the likelihood of the conflict (Pruitt & Kim, 2014). The cattle herders' search for land and resources became one of the major causes of fighting. Desert and droughts have swallowed 70% of grassland and droughts appear more frequently. Disagreements over the use and allocation of food and resources such as grazing areas between herders and local farmers are intense because of the interest of both parties (Ismaila & Umar, 2015). Additionally, they have been several arrest of suspected herdsmen who carried dangerous weapons, and farmers accused them of damaging their crops and failing to control their animals. However, the herdsmen believed that weapons were needed to defend themselves from attacks from farming communities who tried to steal their cattle.

Security Factor: The conflict between herdsmen and farmers is becoming a regional security threat. As a result, the local authority is weakened in the enforcement of the agreement between the groups. Ningxin (2018) reports that thieves stole approximately 60,000 cattle in recent years, and many herdsmen have to arm themselves with weapons to protect their cattle and homes to ensure security. The government prioritizes the conflict as a threat to national security. The then president took some swift actions and tried to control the conflict, but did not successfully battled the menace to a standstill. The conflict became a threat to Nigeria's national security because violent actions have caused deteriorating living conditions, and it will ultimately lead to more conflicts and breakdown of order in the region (Adama, Atelhe, & Emmanuel, 2017).

5. Theoretical Framework

5.1 Frustration-Aggression Theory

This theory was postulated by Dollard & Miller (1939), and later refined by Berkowitz (1969). The theory states that aggression is an outcome of

frustrating a person's efforts towards a certain goal (Myers, 2007). The theory further posits that frustration caused by interference in goal-directed activity produces a 'readiness' for aggression which if 'triggered' can result in aggressive response. Rationis (2014) who asserts that the trigger could be an insignificant element of behavior such as a casual joke, gesture or mild criticism which would normally be overlooked, but to the frustrated individual who wait for an opportunity to show his frustration, may provoke aggressive response or reprisal. In application to this study, the goal or aim of every farmer during planting season is to have a bountiful harvest, then sell the farm produce and make profits. On the other hand, the herdsmen would always want to have well fed and healthy cattle and be able to make profits as well. When any of these expectations are not realizable, either by the herd (cattle) eating up and destroying the farmers' crops or that the farmer encroached on grazing reserves or use water reserved for cattle to irrigate their farms, aggression would be triggered. Either of the parties that feel frustrated to achieving their economic goals may decide to reprise as to show displeasure and as a result conflict will occur. Furthermore, a clear readiness for aggression could be linked to the Fulani's justification on why they attacked Agatu communities of Benue State and massacred hundreds of persons. This scenario depicts three years of frustration against the Agatus and perhaps repeated unsuccessful plots for attack, until the farmers' reaction on crops destruction by the herds triggered the aggression from the herdsmen.

6. Research Methodology

Agatu is one of the Local Government Areas in Benue State created in October 1996 with its headquarters in Obagaji. The population of Agatu Local Government Area is estimated at 195,466 inhabitants with the areas comprises of towns and villages such as Agbachi, Akolo, Akpeko, Egwuma, Ebete and Obagaji (NPC projection, 2016). Most of people are subsistence farmers growing rice, maize, guinea corn, yams, millets etc. *The research design used for this study is a survey design method with a structured questionnaire used as instruments for data collection from the respondents, while the secondary data was sourced from journals, textbooks, newspapers and online-peer reviewed. The questionnaires were administered to one-hundred and fifty (150) respondents drawn from six (6) communities in Agatu Local Government Area with twenty-five (25) questionnaires each administered to each of the community, but only one-hundred and twenty (120) questionnaires were filled and returned. Also, in-depth interviews were conducted with the*

community chiefs to elicit information where the questionnaires could not explore in details. The results were analyzed and presented in tables using descriptive statistics such as percentages and

frequency counts on a likert-scale of strongly agreed, agreed, strongly disagreed and disagreed with the use of a Statistical Package for Social Sciences (SPSS) version 20.

7. Analysis and Discussion of Findings

Respondent views on the Causes of Farmers-Herders’ Conflict in Agatu Local Government Area of Benue State.

S/N	Causes of Farmers-herders Conflict	Strongly Agreed		Agreed		Strongly Disagreed		Disagreed		Total	
		Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
1	Land ownership system	49	40.8	37	30.8	19	15.8	15	12.5	120	100
2	Climate change	63	52.5	43	35.8	5	4.16	9	7.5	120	100
3	Increase in population	54	45	39	32.5	17	14.2	10	8.3	120	100
4	Competition for resources	31	25.8	68	56.7	9	7.5	12	10	120	100
5	Environmental degradation	43	35.8	59	49.2	7	5.8	11	9.2	120	100
6	Security Factor	35	29.2	61	50.8	17	14.2	7	5.8	120	100

Source: Field Survey, 2022.

The table above shows that 86 (71.6%) of the respondents asserts that the cause of farmers-herders’ conflict was due to land ownership system, a situation where the herdsmen could not have access to pasture lands for grazing of their cattle, and in the process, they end up destroying farmers’ crops leading to conflicts. Also, 106 (88.3%) of the respondents were of the view that the cause of farmers-herders’ conflict in Agatu Local Government Area of Benue State was as a result of climatic change. The deteriorating environmental conditions, desertification and soil degradation have led herders to change their routes in order to gain access to pasture land and water became essential for the herdsmen. This climatic change is critical for herdsmen to change their routes in search of available space as a result, pitched farmers and the host communities. The study also found out that increased in population was due to increase in production as seen from the analysis that 93 (77.5%) of the respondents affirmed that as population growth increases, the cattle population also increases as well and a large amount of food and water is required to satisfy massive numbers of animals when they travel on farms’ lands which has resulted in farmers accusing herdsmen of failing to control their cattle and allowing them to damage crops while the herdsmen also accused farmers of stealing their cattle and sheep. More so, 99 (82.5%) of the respondents were of the opinion that competition for available resources was the cause of farmers-herders’ conflict in Agatu Local Government Area of Benue State. The herders’ search for land and resources became one of the major causes of dispute. The disagreements over the use and allocation of food and resources such as grazing areas between herders and local farmers become intense because of the interest of both parties. Environmental degradation is also a cause of farmers-herders’ conflict as these respondents constitute 102 (85%) of the total respondents. Soil degradation have led herders change their transhumance routes to have access to pasture land and water that are essential for grazing from other parts of the country. While 96 constituting (80%) of the total respondents affirmed that lack of security constitute conflict among farmers-herders as many herdsmen have to arm themselves with weapons to protect their cattle to ensure security.

Respondent views on the Effects of Farmers-Herders’ Conflict in Agatu Local Government Area of Benue State.

S/N	Effects of Farmers-Herders’ Conflict	Strongly Agreed		Agreed		Strongly Disagreed		Disagreed		Total	
		Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
1	Reduction in Population	54	45	41	34.2	10	8.3	15	12.5	120	100
2	Increase in Prices of Goods	73	60.8	25	20.8	8	6.7	14	11.7	120	100
3	Destruction of Farm Land	45	37.5	52	43.3	13	10.8	10	8.3	120	100
4	Food Insufficiency	11	9.2	86	71.7	7	5.8	16	13.3	120	100

Source: Field Survey, 2022.

The table above shows that 95 (79.2%) of the respondents affirmed that the farmers-herders’ conflict had led to the reduction in population as many of the inhabitant in the affected communities had lost their lives while others are refugees in other neighboring communities. Also, there has been an increase in prices of goods and services in the country as this is seen from data collected from

respondents that 98 (81.7%) of the responses were in affirmative order as this increases in prices has affected the livelihood and income of the populace. More so, 97 (80.8%) of the respondent asserts that many of the farmers in the communities have lost their farmlands to herdsmen and this had affected the people’s agricultural production because they no longer go to their farmlands to plant crops for herders

to destroy. This have affected food sufficiency in the country and 97 (80.8%) of the respondents were in affirmation that farmers-herders' conflict had affected food stuffs. The study conducted by Okereke (2012) and Kasarachi (2016) have shown that, serious conflict erupts between herdsmen and farmers leading to loss of lives, valuable properties and destruction of vast expanse of arable agricultural farmlands thereby posing serious threat to food security since farmers for fear of attack could no longer go to farm and harvest their farm produce. This wave of violence as observed by Kasarachi (2016) has disrupted socio-economic, religious and educational activities, political instability and threatened the national unity in Nigeria. These extra judiciary killings have forced thousands of people to abandon their homes and farmlands for safety. The rate of insecurity occasioned by Farmers-Herders crisis in Agatu Local Government Area of Benue State has reduce the rate of food production in the country, thereby making farmers not to produce food in surplus as a result of fear of being killed in their various farmlands. As such, it reduces the chances of food availability in the country (Osumah, 2018), and have reinforced circles of extreme poverty and hunger, destroys social status, food security and affects mostly the most marginalized groups which include women and children (Ikezue & Ezeah, 2017). The livelihood structure, food security and wellbeing of farmers are threatened and compromised as it further contributes to poverty, food and nutrition insecurity and poor health of farming in communities, with further escalation of conflicts.

8. Conclusion and Recommendations

Farmers-Herders conflict in Agatu Local Government Area of Benue State, Nigeria is majorly caused by herders' destruction of crops on farmland by the cattle belonging to the herdsmen in the host communities. However, the paper critically examined how farmers-herders' conflict has led to loss of lives and property of farmers and herdsmen, displacement, poverty, unemployment and food insecurity, with its socio-economic consequences on sustainable development in Nigeria. Based on the study, the following recommendations were made: that the representatives of the host communities and the herdsmen should organize a public forum and part take in decision making where issues are presented, and the procedure to restoring peace to most of the affected communities. The process should involve all stakeholders (herdsmen and farmers) in the dispute resolution mechanism. Also, ranching method of cattle rearing should be properly and unanimously adopted at rearing location across the state with the

herdsmen given the needed training for effective and efficient management of the ranching. There should be a proper re-orientation for the essence of social interaction irrespective of the religious and ethnic background to the people and the Government should be fair in its resolution and implementation of decisions. More so, there should be sincerity in tackling farmers-herders' crisis to a standstill, with good political will by politicians, in order to prevent further occurrences of such conflicts not only in the affected areas. In addition, the farming/herding profession should be formalized with structures that can protect the farmers, herdsmen and their properties. Services that promote financial inclusion such as banking, life and health insurance should be introduced into the farming communities.

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Contributive Effect of Land Management Indicators to Farmers Farmland Conservation in Oyo State, Nigeria

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Abstract. Major problem facing tropical agriculture is the inherent low fertility status of most of the soils because of the predominant low-activity. The study explained the contributive effect of sustainable land management indicators to land use on farmers' productivity in Oyo State Nigeria. A two-stage sampling technique was employed in selecting 330 farmers from the four agricultural zones in Oyo State. Structured questionnaire was used to obtain primary data. The data collected were analysed using descriptive and Fuzzy logic analysis (Fuzzy set theory). The result revealed that the result of Fuzzy Logic which was used to compute the composite indicators of unsustainable land use (IULU) showed that the total IULU of 0.26 obtained indicated that farmers' land management practices in the study area are generally sustainable. Residue cover, land fallowing, compaction and rooting, salinity and crop rotations among others have the highest relative contributions of 3.2%, 3.2%, 3.2%, 3.2% and 3.2% respectively to land farmers land conservation, while other indicators contribute lower percentage to land

conservation been unsustainable in the study with relative contributions of 2.1%, 2.3%, 2.3%, 2.0, 2.5% and 2.4% respectively also majority of the farmer (60%) are sustainable and contributed larger percentage (96.4%) to sustainability and had between 0.1-0.2 with minimum of 0.00004 and maximum of 0.95650 sustainable land index in the study. The study recommended among others that cultural practices for erosion prevention should be encouraged by planting of cover crops and planting of trees and other agronomic best practices which enhance soil conservation and improve more on their level of sustainable land use indicators.

Keywords: Sustainable, Land, Conservation, Indicators, Aggregation, Fuzzy, Nigeria

1. Introduction

According to Fabiyi (1990) land was defined as an important factor of production in agricultural sector on the whole. Land serve as a social security function

to most Nigerians because after all else have failed they could still return to their villages to stake a claim on a portion of the family land and raise crops on this for subsistence. However, the land is faced with many environmental problems especially the ones resulting from human activities; for instance, land destruction through agricultural practices unsuitable to the climate, slope and soil, extinction of animals and plant species through hunting, fishing and disturbance of habitats, prevention of forest regeneration through unplanned deforestation practices and through periodic burning, spoliation of scenic and other aesthetic values through open pit mining, road construction and other farmland management practices. Nigerian farmers embarked upon various farming activities at farm level in order to keep up their farmland for long time use. Such farming activities include fertilizer application, addition of organic manure, mulching, land fallowing, pesticide, herbicides, vigour of crop growth and are known as farm indicator. Indicators at different levels of the system related to environmental impacts include those measuring farmer production practices (requiring means-based indicators such as water use or nitrogen use) and emissions and wastes released into the environment

(requiring effect-based indicators) (Aimee *et al.*, 2009). A simple understanding of an indicator is as a proxy or measure of something in which one has an interest, but which is difficult to monitor exactly (Dan *et al.*, 2001). However, Gameda, *et al.*, (2002) used frame work of sustainable land management (FESLM) (Table 1) as identified by farmers through questionnaire responses and in-depth interviews to examined sustainable land management indicators at farm level; this was also adopted by this study as it was used in Oyewo *et al.*, 2020 in their study on sustainable land management.

Marginal lands such as slopes and gravelly soils which under normal circumstances should be left under cover are now being exposed through farming activities. In the humid and sub-humid tropics, the traditional farming system, which is shifting cultivation, was adequate many years back as far as soil conservation is concerned. As a result of low population, small pieces of land were required for farming to obtain equilibrium of food production (Is-haq, 2008). Presently, the population is increasing and this necessitates sustainable land management practices in order to enhance crop yield.

Table 1: Framework for Evaluation of Sustainable Land Management Indicators in Oyo State

Maintenance of production (productivity)	Reduction of production risk (security)	Protects potentials of natural resources (protection)	Economically viable (viability)	Socially acceptable (acceptability)
Application of fertilizer Addition of organic manure Vigour of crop growth	Drainage infiltration of water Water holding capacity Aggregation of soil Irrigation water level Irrigation water quality Salinity	Trends of vegetative covers Plant residue cover Wind or water erosion Planting of cover crops Mulching of soil Fallowing of land Earthworm soil life Tilth/ workability Compaction and rooting Crusting/emergency Organic matter Contents	Land use intensity Labour use intensity Crop yield Profit per hectares Labour productivity Seed use intensity	Type of seeds Use of pesticides Use of herbicides Use of chemical poison in rivers Industrial discharges

Management issue cannot be taken for granted, given that these resources constitute the productive base for the Nigerian agriculture, upon which the livelihoods of many rural and urban household depend (Oyekale, 2012). The understanding of the quality use and management interaction of land as well as socio-economic factors and farmers' attitudes towards land management is also a key indicator of the sustainability of the resource. Moreover, poor incentives for natural resource conservation, together with among other socio-economic problems, have subjected the soils nutrients to serious exploitation and depletion. However, studies which had been conducted by various authors such as Rahji (2005), Adeola (2010), Raufu and Adetunji (2012), Ikechukwu *et al.*, (2013), Oladeebo *et al.*,

(2013), Adedokun and Ogunyemi (2013), Amao *et al.*, (2013) Ademola and Olujide (2014) and Akinola *et al.*, (2015) on land management, soil conservation, adoption, degradation, awareness and sustainable agricultural practices had not examined the issue of farm level indicators indices, hence necessitating this study.

1.1 Objectives

The study explained the contributive effect of sustainable land management indicators to land use on farmers productivity in Oyo State Nigeria, which the following objectives which are to: construct index of sustainable land use indicators, assess the contributions of sustainable land management indicators to land use and identified individual farmers contributions to sustainable land management in the study area.

2. Methodology

2.1 The Study Area

This study was carried out in Oyo State, Nigeria. The State is located in the Southwestern part of the country. Oyo State consists of thirty three (33) Local Government Areas grouped under four (4) agricultural zones. The zones are: Ibadan-Ibarapa, Oyo, Saki and Ogbomoso Zones. Oyo State covers a total land area of about 27,249,000 square kilometers with a total population of about 5.6million (National Population Commission, 2006). It is situated between Latitude 7° N and 19°N and Longitude 2.5°E and 5°E of the meridian and it is bounded in the south by Ogun State, in the north by Kwara State, in the west it is partly bounded by Ogun State and partly by the Republic of Benin, while in the East by Osun State. (www.oyostate.gov.ng, <http://oduainvestment.com.ng/portfolio-item/oyo-state/> 2014). Retrieved on February 16, 2023.

2.2 Sampling Frame

A two-stage sampling technique was employed in selecting 330 farmers from the four agricultural zones in Oyo State. Structured questionnaire was used to obtain primary data. The data collected were analysed with the use of Fuzzy logic analysis.

Table 2: Sampling Frame and Size for the Study

Agricultural zones	Population of respondents	Sample size used
Ibadan-Ibarapa	138	80
Oyo	156	90
Saki	119	70
Ogbomoso	167	90
4	580	330

Source: Author computation, 2018

2.3 Data Collection

The study used data mainly from primary source. The data (primary source) were obtained from the farmers’ during the 2018 agricultural season with the use of structured questionnaire and interview schedule. These were administered and interpreted by the researcher and trained enumerators to the local language which the farmers understood.

2.4 Data Analysis

Fuzzy Sets Theory (FST) was used to compute the composite indicators of sustainable land management from selected farm level indicators, and individual farmers sustainable land use indices while descriptive statistics was used analyse the relative contributions of sustainable land use Indices (SLUI) among the farmers (table 3)

Table 3: Analysis of Objectives

Objectives	Meaning	Data required	Sources of data	Method of data analysis
To construct index of sustainable land use indicators (IULU)	To study the farm level indicators that are responsible for land being sustainable	Factors such as, vigour of crop growth, erosion runoff, pesticides, crop yield.	Primary	Fuzzy Logic
Analyse the relative contributions of sustainable land use Indices (SLUI) among the farmers.	To describe the decomposed indicators of land sustainability and their implications.	Mulching of crop, cover crop, land fallowing, herbicides use, pesticides.	Primary	Descriptive statistics
Analyse the individual farmers' contributions of (SLMI) to sustainable land use.	To examine the individual farmers level of sustainable land use.	Factors such as, vigour of crop growth, erosion runoff, pesticides, crop yield.	Primary	Fuzzy Logic

2.5 Model Specification

2.5.1 Fuzzy Logic Analysis

Using fuzzy set theory, a set of composite farm level indicators was constructed in order to analyze different dimensions of sustainable land management using (FESLM) in Table 3.3. Each indicator was calculated as one-dimensional sustainability ratio, thus allowing a comparison among indicators on the dimensions of sustainable land management. According to Oyekale (2012) farm level indicators of sustainable land use often take the form of simple 'yes/no' dichotomies. In this case X_{ij} is 0 or 1. However, some indicators may involve more than two ordered categories (for example, discrete categorical variables and continuous categorical variables), reflecting different degree of deprivation. Consider the general case of $c = 1$ to C ordered categories of some deprivation indicator, with $c = 1$ representing the most deprived and $c = C$ the least deprived situation. Let c_i be the category to which individual i belongs. Cerioli and Zani (1990), assuming that the rank of the categories represents an equally-spaced metric variable, assigned to the individual a deprivation score as:

$$X_{ij} = (C - c_i) / (C - 1) \dots \dots \dots (1)$$

where $1 < c_i < C$, by summarizing the key notions about sustainable land management based on the theory of fuzzy sets and in particular on the work of Dagum and Costa (2004).

Sustainable land management in the given space (a_i) Therefore, X_{ij} needs not to be compulsorily 0 or 1, but $0 \leq X_{ij} \leq 1$ when there are many categories of the j th indicator and the household possesses the attribute with intensity.

The sustainable land management index of a household, $U_\beta(a_i)$, is defined as the weighted average of X_{ij} ,

$$U_\beta(a_i) = \sum_{j=1}^m X_{ij} w_j / \sum_{j=1}^m w_j \dots \dots \dots (2)$$

The function of the i -th farmer ($i = 1, \dots, n$) belonging to the fuzzy subset β in relation to the j -th attribute ($j = 1, \dots, m$) is defined as follows

$$X_{ij} = U_\beta(X_{1j}(a_i)), 0 \leq 1 \dots \dots \dots (3)$$

In this case:

$X_{ij} = 1$, if the i -th farmer does not have the j -th attribute;

$X_{ij} = 0$, if the i -th farmer possesses the j -th attribute;

$0 < X_{ij} < 1$, if the i -th farmer has the j -th attribute with an intensity between (0, 1).

$U_\beta(a_i)$ = equation $U_\beta(a_i)$ measures the ratio of the sustainable land management of the i -th farmer, where w_j is the weight attached to the j -th attribute and where;

$$0 \leq U_\beta(a_i) \leq 1$$

The behaviour of the function of belonging (to a fuzzy subset) is the following;

$U_\beta(a_i) = 0$, if a_i possesses the m attributes;

$U_\beta(a_i) = 1$, if a_i is totally deprived of the m attributes;

$0 < U_\beta(a_i) < 1$. If a_i is partially or totally deprived of some attributes, but not completely deprived of all attributes.

Weight w_j represents the intensity of deprivation linked to attribute X_j . It is an inverse function of the degree of deprivation of this attribute for the farmer population. The smaller the number of households with attribute X_j is, the bigger the weight w_j will be. Cerioli and Zani (1990) defined a weight that verifies this property, namely;

$$W_j = \log \left[\frac{\sum_{j=1}^n g(a_i)}{\sum_{j=1}^n x_n g(a_i)} \right] \dots \dots \dots (4)$$

Where $g(a_i)$ refers to the frequency (weight) with which respondent a_i of the population was observed; $g(a_i) \sum_{j=1}^n x_n g(a_i)$ is the relative frequency with which sample a_i of the population observed, $g(a_i)$ is equal to n times the relative frequency of farmers in the total population.

Therefore, $\sum_{j=1}^n x_n g(a_i) = n$, However, if farmers of the farmer possess an attribute, it has to be removed because it has no relevance to the sustainable land use.

In equation (5), the denominator of the logarithm is always positive. If the value $X_{ij} = 0$, was part of the possible sets, that would mean that there would be no deprivation in X_j . The fuzzy index of sustainability of

set A is a weighted mean of $\mu_B(a_i)$ given by equation (4)

In addition to determining the multidimensional sustainable land management for i-th farmer and that for the overall population, the use of the theory of fuzzy sets makes it possible to calculate a uni-dimensional index for each one of the j attributes considered.

$$U\beta(X_j) = \frac{\sum_{j=1}^n x_n g(a_i)}{\sum_{j=1}^n g(a_i)} \quad j = 1, 2, \dots, m \quad (5)$$

$U\beta(X_j)$ defines the degree of deprivation of the jth attribute for the population of the respondent. The overall fuzzy index of sustainable land management can also be defined as a weighted average of uni-dimensional indices for each attribute;

$$U\beta = \frac{\sum_{j=1}^n x_n g(a_i)}{\sum_{j=1}^n g(a_i)} = \frac{\sum_{i=1}^m \mu_\beta(X_i) W_i}{\sum_{i=1}^m w_i} = 1, 2, \dots, m \quad (6)$$

3. Results and Discussion

3.1 Contributive effects of Land Indicators Aggregation to Farmers Land use

From the result in Table 4 using the fuzzy logic model as specified in equation (1) to (6) of the fuzzy set theory, the contribution of SLM indicators to sustainable land use were identified.

Application of fuzzy set theory was due to its attempts to standardize all the variables that have different predictor, variables with different units of measurement and allows the decomposition of the sustainability land use indices based on the contributions of each indicator or attributes, it also determining the multidimensional sustainable land management for each farmer and that for the overall population, the use of this theory of fuzzy sets makes it possible to calculate a uni-dimensional index for each one of the attributes considered.

It was therefore revealed that land fallowing contributes absolute value of 0.009 and relatively 3.20% to sustainability because same pieces of farm land were used periodically for agricultural activities which may cause soil nutrients depletion and degradation (Oyekale, 2012). Compaction and rooting has absolute contribution of 0.009 with 3.20% relative contribution to sustainability because this may affects the sustaining power of the crop root to penetrate soil due to the hardness of the nature of the soil. Residue cover has absolute contribution of 0.009 with relative contribution of 3.20% to sustainability, this shows that surface residue though present, were not properly covering the soil which could give room for wind or water erosion with absolute contribution of 0.009 and relatively

Table 4: Contributive effects of SL Indicators to Farmers Land Use

contributes 3.20% to sustainability, to wash or blow away the top soil and affect the soil water holding capacity thereby exposing the top soil surface to depletion which may in turn have a negative effect on small scale cassava farmers' production and sustainability, plot level of fertilizer application had absolute contribution of 0.007 with 2.7% relative contribution, this shows that fertilizer was applied in the right quantity and up to specification, this is in line with Rahman, (2013). This could be due to the number of year of farming experience and majority of them who had one form of formal education which however, could enhance productivity, sustaining agricultural production and maintenance of soil nutrients lost.

Stem use intensity, profit per hectare, labour use intensity, vigour of crop growth, this enhance the maintenance of soil covers because the crops were found to be healthy and had uniform growth which could be due to the use of improved stem cuttings and increases crop stocking density and hereby increased farmers profit per hectare, land use intensity, proper use of chemical poison, proper management of industrial discharge from water been polluted and avoid environmental pollution which may be hazardous to animals even the farmers themselves and enhance increased labour productivity among others contribute absolutely 0.006, 0.006, 0.007, 0.007, 0.007 and 0.007 with relative contribution of 2.1%, 2.0%, 2.3%, 2.3%, 2.3% and 2.3% respectively to sustainable land management in the study. This implies that these indicators among others may influence sustainability and crop output positively; an increase, better management and adoption of these indicators could bring an increase in crop production, prevent soil erosion and land degradation, maintenance of production, reduction of production risk, protects potentials of natural resources as well as environmental pollution in the study area.

The result further revealed that the computed average of sustainable land indices (SLI) of 0.26 obtained indicated that farmers' land management practices in the study area are generally sustainable because the farther away the index value from 1 and the closer the index value is to 0 the better the sustainability. This is in line with Kayode *et al.*, (2017), Oyewo *et al.*, 2020 and conforms to the findings of Oyekale (2012). However, the SLI value which is 26% indicated that the aggregated indicator contributed 74 % to land conservation and sustainability in the study area.

+ SLM Indicators	*Absolute contribution	**Relative contribution (%)
Vigour of crop growth	0.0064	2.317233483
Trend of vegetative covers	0.0087	3.172457796
Residue cover	0.0088	3.204165584
Crop yield	0.0082	2.980865299
Labour productivity	0.0072	2.626626269
Profit per hectare	0.0056	2.026445528
Organic matter contents	0.0078	2.840350661
Drainage/infiltration of water	0.0087	3.162153270
Water holding capacity	0.0088	3.189395739
Aggregation of soil	0.0087	3.154559936
Earthworm/ soil life	0.0083	3.024332006
Compaction and rooting	0.0088	3.202386116
Crusting/emergency	0.0088	3.184818606
Tilth/ workability	0.0086	3.118113701
Wind or water erosion	0.0087	3.150813599
Salinity	0.0088	3.209217214
Plot level application fertilizer	0.0074	2.695404096
Addition of organic manure	0.0075	2.706514029
Mulching of crops	0.0088	3.183196149
Minimum tillage	0.0088	3.189936159
Cover crops	0.0087	3.175581225
Rotation of crops	0.0088	3.207030646
Land fallowing	0.0088	3.190824110
Irrigation Water level	0.0082	2.981777222
Irrigation Water quality	0.0087	3.171362817
Use of Pesticide	0.0088	3.190824110
Use of Herbicide	0.0076	2.758734516
Use of chemical poison	0.0067	2.447056059
Industrial discharges	0.0069	2.495042768
Land use intensity	0.0069	2.518237365
Labour use intensity	0.0065	2.358827751
Type of stem cuttings	0.0077	2.800804515
Stem use intensity	0.0059	2.125136962
Total Computed (SLUI)	0.2637	100

Author computation 2016

Note: (*): Absolute contribution and (**): Relative contribution

(*): This is the raw index score of the fuzzified indicators analysed by fuzzy logic.

(**): This is the value of the fuzzified index score in percentage.

(+): as defined in the data collection instrument

3.2 Individual Famers’ Contributions to Land Use Sustainability in the Study Area

From Table 5, the individual famers contributions to land sustainability using fuzzy logic model in equation (1) to (6) and Table 1 using the framework for evaluating sustainable land management (FESLM) were analysed by the application of fuzzy set theory due to its attempts to standardize all the variables that have different predictor and different units of measurement and allows the decomposition of the sustainability land use indices based on the contributions of each indicator or attributes, it also determining the multidimensional sustainable land management for each farmer which ranges between 1 and 0, it was therefore revealed that farmers showed varied level of contributions sustainability ranging from the lowest 0.00004 to the highest 0.95650 with mean of 0.264 and frequency of occurrence of the decomposed predicted SLMI in decile range showed that 5.2% had less than 0.1, majority (60%) of the famers had SLMI of between 0.1-0.2, 31.2% had SLMI of between 0.3-0.4, 3.0% had between 0.5-0.6 while 0.6% had between 0.9-1.0 sustainable land management index with Minimum index of 0.00004 and Maximum index of 0.95650 and overall mean index of the farmers was 0.264 (26.4%) indicating that the farmers are sustainable at 73.6% level. However, according to fuzzy set theory used, the closer the decomposed value is to zero the better the individual farmers’ contributions to sustainability in the study area.

Majority (96.4%) of the famers adopt sustainable land management practices with the proper combination and use of the farm level management indicators which enhanced farmers’ productivity, soil conservation and reduce land degradation in the study area. This therefore shows that there is a wider distribution to sustainability among the farmers and there is a considerable room for effecting improvements in the SLM and conservation practices as reflected in Table 5

Table 5: Range and Distribution of Individual Farmer’s Sustainable Land Use Indices

+ Sustainable land use Index	Frequency	Percentage
0.0-0.1	17	5.2
0.1-0.2	198	60.0
0.3-0.4	103	31.2
0.5-0.6	10	3.0
0.7-0.8	0	0.0
0.9-1.0	2	0.6
Total	330	100
Maximum SLUI	0.95650	
Minimum SLUI	0.00004	
Total Mean SLUI	0.26372	

Source: Author computation 2016

Note: (+) Fuzzified values generated from the decomposed multidimensional sustainable land management indicators for each farmer which ranges between 0 and 1

4. Conclusion

It considered different production objectives in farmers land use system using fuzzy sets theory. This allows integration of different properties of a particular land into a composite index that captures the extent of degradation to the farm land and therefore concluded that:

- Majority (96.4%) of the famers adopt sustainable land management practices with the proper combination and use of the farm level management indicators which enhanced farmers’ productivity, soil conservation and reduce land degradation in the study area
- Majority (60%) of the famers had SLI of between 0.1-0.2 sustainable land management index with minimum index of 0.00004 and maximum index of 0.95650 and overall mean index of the farmers was 26.4% indicating that farmers aggregated indicator contributed 74 % to land conservation and sustainable at 73.6% level.

5. Recommendations

Based on the result and findings of the study the following are therefore recommended that:

- Farmers should be encouraged on the intensive use of environmentally friendly hybrids cassava stems and fertilizer

application for increase production and better land sustainability in the study area.

- Cultural practices for erosion prevention should be encouraged by planting of cover crops and planting of trees and other agronomic best practices in the study area
- There is room for farmer’s improvement on their level of contribution to sustainability with 26% better adoption of better land and soil conservation practices.

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Investigation of Chemical Composition and Proximate Properties of Bush Mango (*Irvingia wombulu*) Production Management and Ethno-medicinal Benefits of Rural Dwellers

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Abstract. The chemical analyses of bush mango (*Irvingia wombulu*) was conducted in order to identify the bioactive content, proximate composition as well as to establish the vitamin composition in bush mango production. The extraction processes were carried out with the aid of different solvents and techniques. The analyses was conducted with aqueous extract of the milled seed of *Irvingia wombulu* which found the bioactive components present in form of tannins, saponin, flavonoids, steroid, proteins, anthraquinones, protein, reducing sugar, cardiac glycoside, terpenoid, phenolic compounds and alkaloids. Flavonoid, cardiac glycoside and alkaloids were moderately present (+) while tannin, saponins, steroids, protein and reducing sugar were heavily present(++). Further, the results from the analyses displayed the proximate composition in *Irvingia wombulu* leaves, peels, seeds and seed coats samples. The moisture contents in seeds, leaves, peels and seed coats of *Irvingia wombulu* were $1.4\pm 0.41\%$, $22.2\pm 0.11\%$, $38.7\pm 0.01\%$, and $57.6\pm 0.90\%$ respectively. The test found that the mineral contents of *Irvingia wombulu* in the seed coats had the highest concentration of iron (0.395 ± 0.00 mg/kg) and 0.040 ± 0.02 mg/kg was found in the seed. The trend in the level of concentration of sodium in *I. wombulu* revealed that leaves has more sodium than seeds and seeds more than seed coats, peels is the least. For calcium, the analyses revealed that the level of concentration in the seed coats had higher mineral content of 4.992 ± 0.01 mg/kg as compared to the lower level of concentration in the seeds at 3.278 ± 0.01 mg/kg. The analyses further showed vitamin B2 composition known riboflavin as

one of the 8 -B vitamins. The value of vitamin B2 was high in *Irvingia wombulu* at 0.17mg/100g with vitamin B6 content having 0.14gm/100g. The production of these chemical components would contribute to health benefits of the rural dwellers. The high bioactive content potential and the presence of proximates, mineral content, vitamins produced at different levels in bush mango (*Irvingia wombulu*) should be utilized to develop drugs and supplements for its ethno-medicinal benefits and to generate internal revenue for the FRIN biomedical department.

Keywords: Bioactive Components, Metabolites, Phytonutrients, Vitamins, Milled Kernel, Production

1. Introduction

Irvingia wombulu (AubryLecomte ex. O'Rorke) Baill. commonly known as 'African mango' or 'bush mango' is a tree of 15–40 m, with a bole slightly buttressed. *Irvingia wombulu* has many biological potentials and some antioxidants properties when properly used (Ejiofor, 2004). *Irvingia wombulu* (Bush mango) fruit is a largely ellipsoid drupe, yellowish and having very juicy fibrous pulp when ripe. The plant is a wild forest tree with dark green foliage and yellow fragrant flowers and occurs in the wild lowland forest; two to three trees occur together and in some areas, it is reported to be widespread. *Irvingia wombulu* is largely distributed in Africa. The average length, width and thickness of the nut are (43.3×30.62×22.11) mm respectively (Abreu *et al.*, 2008). The seeds are sold round the year in all markets where food stuffs are sold in Nigeria. The

fruit comprises a fleshy part and the nut, which consists of a hard shell and the kernel/seed. Its seeds have an outer brown tester (hull) and two white cotyledons (Ekpe *et al.*, 2007). It is an edible African indigenous fruit tree that produces edible fruits and seeds (Atangana *et al.*, 2002).

The lipids component of *Irvingia gabonensis* seeds have been traditionally extracted with organic solvents and more recently an enzymatic method for extracting the lipid components was developed. On the other hand, the polymeric component of the seed has been extracted from aqueous dispersion using petroleum ether or diethyl ether. The extraction, screening and identification of the medicinally active substances found in plants is referred to as phytochemical screening (Keay *et al.*, 2013). Bush mango fruit is a full source of protein, ascorbic acid, potassium, carbohydrate, dietary fibre, iron, vitamin C, water, energy, sodium, amino acids, calcium, phosphorus and magnesium (Anhwange *et al.*, 2004).

Irvingia wombulu contains lipids and polymer extractives that can be a good source of excipient for oral pharmaceutical formulations. The seeds of bush mango constitute an important part of the rural diet in Nigeria. The sun-dried seeds are ground into flour and used as soup thickeners (Ekpe *et al.*, 2007). The white cotyledons are roasted and eaten in the Bwemba community of Uganda; roasted seeds confer flavour and aroma on foods especially vegetables (Alonge and Idung, 2015). It is understood that there might be about 4,000 phytochemicals confined in the fruit can be used in preventing, minimizing and also remedy for medical conditions such as metabolic syndrome, strokes, or cancer. From previous results obtained by scientific researchers have establish that the use of phytochemical supplements supports longterm healthy living as well as consuming the actual fruits, grains and vegetables from which they were taken (Farasat *et al.*, 2014).

In addition to its nutritional and economic benefits, *I. wombulu* is highly valued for its health and medicinal benefits (Ndoye *et al.*, 1997) and agricultural potentials. Past studies have shown that seed extract of *I. wombulu* caused a significant reduction in body weight among obese people in Cameroon (Onakpoya *et al.*, 2013). Similarly, earlier studies have shown that consumption of fruits and vegetables reduce the risk of diseases such as cancer, cardiovascular disease, cataracts, and brain and immune dysfunction (Boakye *et al.*, 2015). This positive influence of fruits in human health is attributed to natural antioxidant phytochemicals inherent in them (Venket Rao *et al.*, 2013). Interestingly, Matsinkou *et al.* (2012) showed

that *I. wombulu* seeds possess antioxidant phytochemicals. Phytochemicals such as alkaloids, saponins and tannins have been shown to be very important in agriculture; known to protect plants against microorganisms, and also possess allelopathic properties (Matsinkou *et al.*, 2012; Boakye *et al.*, 2015).

1.1 Problem Statement

Bush mango (*Irvingia wombulu*) is a fruit found in many homes in Nigeria for domestic consumption and the processed kernel is locally called "Ogbono". *Irvingia wombulu* is a common fruit in most families in Nigeria and its processed kernel has become everyday recipe for soup preparation. The rate at which ogbono is consumed beats imagination and many consumers from interactions had submitted that it has health benefits. Notwithstanding the majority of consumers are not aware of its benefits but believe that it is palatable and has organoleptic acceptance for consumption. However, the submissions have not been validated scientifically because most domestic end users could not pin-point the main benefits derived from the consumption of the fruit in terms of its nutrients and minerals composition. This dearth of studies on the nutritional, medicinal and agricultural potentials of the mesocarp may have been fueled by the general attitude of rural people. Although local people who harvest the fruits sometimes eat the fresh fruits (Atangana *et al.*, 2002), however, the common practice among the majority is to split the fruit for its kernel while the fleshy mesocarp is thrown away and left to rot (Ayuk *et al.*, 1999). Therefore, this study was necessitated and poised to investigate the chemical composition and proximate analyses of the bush mango (*Irvingia wombulu*). The specific objectives were to investigate the bio-active content of bush mango (*Irvingia wombulu*), determine the proximate composition of bush mango (*Irvingia wombulu*) and investigate the vitamin composition in bush mango (*Irvingia wombulu*) production management and ethno-medicinal benefits of rural dwellers .

2. Materials and Methods

2.1 Study Area

The investigation was carried out at the Federal College of Forestry Ibadan. Ibadan is located in the South-western Nigeria. It lies within the latitude 7°19'08" and 7°29'25" north of the equator and longitude 3°47'50" and 4°0'20". The city covers a total land area of 3,080 square kilometres (1,190 square miles). It is the third most populous city in

Nigeria after Lagos and Kano respectively. The total population of the city as estimated in the year 2021 was over 6 million people. The study area is located in the rainforest vegetation of South West Nigeria with a mean rainfall of about 1300/1500mm and average relative humidity of about 80-85% (FRIN, 2013).

2.2 Collection of Sample

Fresh *Irvingia wombulu* seed (Ogbono) were bought from the market in Ibadan, Oyo State. The leaves were also collected from the botanical garden at the Forestry Research Institute of Nigeria, Ibadan. The leaves and the fresh seeds were immediately taken to the biotechnology laboratory of the National Horticultural Research Institute for proper authentication and identification by the Principal Scientist in Organic Chemistry who conducted the comparative analyses with the voucher specimen present in Herbarium of the Institute.

2.3 Preparation for Extract A

Substantial quantity of fresh *Irvingia wombulu* seed was collected, thoroughly washed with clean water separately accordingly, based on how they were collected. They were oven dried until a constant weight was achieved then was spread out on laboratory bench for inspection. They were then grounded using electric blender to fine powder and passed through a 24 mesh sieve. 100g of the sample was weighed using a rough mechanical beam balance and allowed to air dry 24 hours at room temperature.

2.4 Extraction of Plant Material

The powdered sample (100g) of *Irvingia wombulu* was successfully extracted with 500ml of distilled water, using magnetic stirrer and stirred for 3 hours. Then it was filtered using Whatmann filter paper. Again, the residue was dissolved with 100ml of distilled water and stirred for 2 hours. The solvent containing the extract is dried under reduced pressure. The supernatant was boiled up to minimum volume. The extract obtained was kept in sterile sample tube and store.

2.5 Methods of chemical Screening

The freshly and dried prepared crude extract was quantitatively tested for the presence of biochemical constituent, phytonutrient screening and antioxidant properties of aqueous of dried and fresh *Irvingia wombulu*. The chemical screening of the extract of the seed of *Irvingia wombulu* showed the presence of

numerous secondary metabolites of which flavonoid, cardiac glycoside and alkaloids are moderately present while tannis, saponins, steroids, protein and reducing sugar were heavily present, the phytochemical screening of seeds of *Irvingia wombulu*, which revealed the presence of alkaloids, flavonoids, tannins, terpenoids and anthraquinones in the extract.

2.6 Test for Tannins

To 1 ml of the extract, equal volume of bromine water was added. The formation of a greenish to red precipitate was taken as the presence of tannins.

2.7 Test for Saponins

1 ml of the extract was boiled with 5 mls of distilled water for 5 minutes and decanted while hot. 4 mls of distilled water was added to 1 ml of the filtrate before it was shaken vigorously for observation of stable froth on standing.

2.8 Test for Flavonoids

0.5 g of the extract was added, in a test tube and 10 mls of distilled water, 5 mls of dilute ammonia solution were added to a portion of the aqueous filtrate of the extract followed by addition of 1 ml concentrated H_2SO_4 . Indication of yellow color shows the presence of flavonoid in each extract.

2.9 Test for Alkaloids

1 ml each of the extract was shaken with 5 mls of 2% HCl on a steam bath and then filtered. To 1 ml of the filtrate, Wagner's reagent (iodine in potassium – iodide solution) was added and reddish brown precipitates was observed for positive result.

2.10 Test for Steroids

Half (0.5 g) gram of the extract was dissolved in 10 mls anhydrous chloroform and filtered. The filtrate was divided into two equal portions for the following tests. The first portion of the solution above was mixed with one mL of acetic anhydride followed by the addition of 1 ml of concentrated sulphuric acid down the side of the test tube to form a layer underneath. The test tube was observed for green colouration as indicative of steroids.

2.11 Test for Terpernoids

1 gram of seed sample was shaken in a test tube with 10 mls of methanol, and then filtered. 5 mls extract

was then mixed with 2 mls of chloroform and 3 mls of sulphuric acid was added. Formation of reddish brown color indicates the presence of terpenoids in the selected plants.

2.12 Cardiac Glycosides

One mL of the seed extract was dissolved in 2 mls of chloroform in a test tube. 1 ml concentrated H₂SO₄ was carefully added to the test tubes through the side and was observed for a red or reddish brown colouration at the interphase, which indicates positive result.

2.13 Test for Phlobatannins

1 percent aqueous hydrochloric acid was added to the seed extract in a test tube (about 2 mls), and then boiled with the help of Hot plate stirrer. Formation of red coloured precipitate confirmed a positive result.

Test for Phenolic Compounds

To 2 mls of the seed extract, 1% FeCl₃ was added and observation was made for blue, violet, purple, green or red-brown colour.

2.14 Test for Protein

Five drops of 1% hydrated copper sulphate was added to 2 ml the seed extract in a test tubes. Two mL of 40% NaOH was also added, and the test tube was shaken vigorously to mix the content and presence of purple colouration indicated the presence of proteins.

2.15 Test for Reducing Sugars

1 ml of ethanol was mixed with 2 mls each of the plant extract, after which 1 ml each of Fehling solution A and B were added to the test tubes. The test tubes were heated to boiling while observation was made for presence of reddish brown colouration which indicates positive results.

2.16 Test for Anthroquinones

1 gram of the seed extract was placed in a dry test tube and 20 mls of chloroform was added. This was heated in steam bath for 5 min. The extract was filtered while hot and allowed to cool. To the filtrate was added with an equal volume of 10% ammonia solution. This was shaken and the upper aqueous layer was observed for bright pink colouration, which for the presence of anthraquinones. This was repeated with all the plant samples.

2.17 Preparation of Aqueous Extract

10 gram of the milled seeds was extracted by maceration in 50 mls of water for 3 days with frequent agitation at a speed of 280 rpm at 28°C in dark. Between extractions, the sample was centrifuged for 10 min with 2000 rpm. The combined supernatants were collected, filtered through Whatman No. 1 filter paper and concentrated in vacuum. It was kept in a vacuum desiccator for complete removal of solvent. The yield extract was thus used for some of chemical screening, GCMS analysis and assessment of antioxidant activity.

2.18 Aqueous Extract of Seed of *Irvingia wombulu*

Aqueous extract of seed of *Irvingia wombulu* showed the presence of the various chemicals; saponin, flavonoids, steroid, protiens, anthraquinones, tannins, protein, reducing sugar, cardiac glycoside, terpenoid, phenolic compounds and alkaloids. The presence of flavonoid, cardiac glycoside and alkaloids are moderately present while tannis, saponins, steroids, protein and reducing sugar were heavily present. These bioactive components are naturally occurring in *Irvingia wombulu* and known to possess interesting biological activities.

2.19 Proximate Analysis

Samples were analyzed for percentage moisture, ash, crude lipid, crude protein, carbohydrates and crude fiber using AOAC 2016 methods. Moisture was determined by drying to constant weight while protein was determined using Kjeldahl method. Ash content was determined with Loss-on-Ignition method.

3. Results and Discussion

Table 1 reveals that the concentrations of the various bioactive components of milled bush mango (*Irvingia wombulu*) production. The implication of the signs revealed the various concentration levels of the bioactive ingredients present through chemical analyses of the *Irvingia wombulu* for ethno-medicinal benefits in the study area. The sign (++) shows high concentration; and (+) moderate concentration of bioactive ingredients while (-) shows absence of active ingredients for the ethno-medicinal parameters of *Irvingia wombulu* analysed.

Tannins: The milled seed of bush mango (*Irvingia* species) had high concentration of (++) of tannins which implies a very strong bio-active component of the phytonutrient available in *I. wombulu*.

Saponins: The milled seed of the *Irvingia* species had high concentration of (++) of saponins which indicates a very strong bio-active component of the phytonutrient available in *I. wombulu*.

Flavonoids(antioxidant): The milled seed of the *Irvingia* species had moderate concentration of (+) of flavonoids which implies average bio-active component of the phytonutrient available in *I. wombulu*.

Alkaloids: The milled seed of the *Irvingia* species had moderate concentration of (+) of alkaloids which implies average bio-active component of the phytonutrient available in *I. wombulu*.

Steroids: The milled seed of the *Irvingia* species had high concentration of (++) of steroids which implies very strong bio-active component of the phytonutrient available in *I. wombulu*.

Terpernoids: The milled seed of the *Irvingia* species had no concentration of (-) of terpernoids which implies absence of bio-active component of the phytonutrient available in *I. wombulu*.

Cariac glycosides: The milled seed of the *Irvingia* species had moderate concentration of (+) of cariac glycosides which implies average bio-active

component of the phytonutrient available in *I. wombulu*.

Phlobatannins: The milled seed of the *Irvingia* species had moderate concentration of (+) of phlobatannins which implies average bio-active component of the phytonutrient available in *I. wombulu*.

Phenolic compounds: The milled seed of the *Irvingia* species had no concentration of (-) of phenolic which implies absence of bio-active component of the phytonutrient available in *I. wombulu*.

Proteins: The milled seed of the *Irvingia* species had high concentration of (++) of protein which implies very strong bio-active component of the phytonutrient available in *I. wombulu*.

Reducing sugar: The milled seed of the *Irvingia* species had moderate concentration of (+) of reducing sugar which implies average bio-active component of the phytonutrient available in *I. wombulu*.

Anthroquinones: The milled seed of the *Irvingia* species had no concentration of (-) of anthroquinones which implies absence of bio-active component of the phytonutrient available in *I. wombulu*.

Table 1: Qualitative Phytonutrients Screening of Bioactive Components in *Irvingia wombulu*

Parameters	Milled Bush Mango (<i>Irvingia wombulu</i>)
Tannins	++
Saponins	++
Flavonoids	+
Alkaloids	+
Steroids	++
Terpernoids	-
Cariac glycosides	+
Phlobatannins	+
Phenolic compounds	-
Proteins	++
Reducing sugars	+
Anthroquinones	-

Note: ++: Phytonutrients present in high concentration; +: phytonutrients present in moderate concentration; -: phytonutrients absence

Field Survey, 2023

Table 1.2 shows the *I. wombulu* leaves, seeds, peels and seed coats. The results revealed the presence of alkaloids, tannins, flavonoids, terpenoids, steroids, saponins and glycosides in all the specimens of *Irvingia wombulu* in varying quantities. These compounds are known to be biologically active and therefore aid in the antimicrobial activities. Chemicals like alkaloids, flavonoids, terpenoids, steroids, saponins are present in both extracts

(aqueous and methanolic) of the *Irvingia wombulu* analyzed. There are flavonoid units with several degrees of condensation. The flavonoid pigments are water soluble. According to Etukudo *et al.* (2015) bush mangoes possess antioxidants which helps to reduce menopausal symptoms, osteoporosis, increased blood flow and oxygenation of the cells and tissue. Flavonoids provide beneficial effects on capillaries and absorb oxygen radicals that cause skin

oxidation through their antioxidant properties. Flavonoids in general help to reverse age related declines in cognitive function (brain function) by increasing the number of connections among neurons which could help prevent and treat a variety of neurogenerative disorder (Williams & Spencer, 2012).

Furthermore, the experiment from the aqueous extract of the milled seed of *Irvingia wombulu* revealed the presence of the various chemicals; tannins, saponin, flavonoids, steroid, proteins, anthraquinones, protein, reducing sugar, cardiac glycoside, terpenoid, phenolic compounds and alkaloids. The presence of flavonoid, cardiac glycoside and alkaloids are moderately present while tannins, saponins, steroids, protein and reducing sugar were heavily present. These bioactive components are naturally occurring in *Irvingia wombulu* and known to possess interesting biological activities. Many research material posited a diet rich in fruit and vegetables with an important role in decimating diseases occurrences. Thus some of these preventive actions have been related to the presence of bioactive substances such as polyphenols. Flavonoids are characterized by a common benzopyrene ring structure (Havsteen, 2002). The bio-importance of flavonoids, apart from its antioxidant properties are free radicals, defense against allergies, hepatoxins, platelet aggregation, inflammation, microbes, ulcers, viruses and tumors. Flavonoids are of great interest in the reduction of cancer by interfering with the enzymes that produce estrogen (Williams *et al.*, 2005). The chemical screening of the extract of the milled seed of *Irvingia wombulu* showed the presence of numerous secondary metabolites of which flavonoid, cardiac glycoside and alkaloids are moderately present while tannins, saponins, steroids, protein and reducing sugar were present in high concentration as shown in Table 1.2. In addition, the result corroborates the findings of Srivastava *et al.*

(2011), on the phytochemical screening of milled seeds of *Irvingia gabonensis*, which revealed the presence of alkaloids, flavonoids, tannins, terpenoids and anthraquinones in the extract. Tiwari *et al.* (2009) reported that the availability of tannins, saponins, steroids, alkaloids and flavonoids are present more in seed oil and it has an effective antioxidant and radical scavenging activity. Several studies have reported a close relationship between total phenolic content and high antioxidant activity (Havsteen, 2002). However, some researchers also examined the seed plants and the relationship between antioxidant activity and polyphenol content. Polyphenol compounds are reported to be a good source of natural antioxidants (Abreu *et al.*, 2008). This revealed that plant phenols represent one of the major bioactive compounds acting as primary antioxidants or free radical terminators. Therefore, it was important to determine the total amount of bioactive compounds in *Irvingia wombulu* extracts (Altemimi *et al.*, 2017).

More so, the natural antioxidants mainly come from plants in the form of phenolic compounds such as flavonoid, phenolic acids, tocopherols etc. (Altemimi *et al.*, 2017). Flavonoids are hydroxylated phenolic substances known to be synthesized by plants in response to microbial infection and they have been found to be antimicrobial substances against wide array of microorganisms in vitro and they are also very effective antioxidant showing strong anticancer activities (Lawal *et al.*, 2007). The phenolic compounds are one of the largest and most ubiquitous groups of plant metabolites (Mamari, 2021). Also, Mamari, (2021) elucidated that the antioxidant properties of medicinal plants are rich in phenolic compounds. Therefore, the results of the bioactive components in *Irvingia wombulu* indicate that it has a varied antioxidant concentration from high to moderate beneficial ethno-medicinally and adequate for human consumption.

Table 1.2: Results for Phytochemical Screening of *Irvingia wombulu* Aqueous Extract (AE) and Methanolic Extract (ME)

Parameters	Tests	Leaves		Seeds		Peels		Seed coats	
		AE	ME	AE	ME	AE	ME	AE	ME
Alkaloids	Wagner's test	+	+	+	+	+	+	+	+
	Meyer's test	++	+	+	+	+	+	+	+
Flavonoids	Ferric chloride test	++	+	+	+	+	+	+	+
	10%Lead acetate test	+	+	+	-	++	+	+	+
Tannins	5%Lead acetate test	+	+	+	+	-	+	-	-
	HCl tes	+	+	-	-	-	+	-	-
Cardiac glycosides	Keller Killiani	++	-	-	+	+	+	+	++
Terpenoids	Salkowski	+	+	+	+	+	-	+	+
Saponins	Water	+	-	+	+	++	++	++	+
	Olive oil	+	+	+	+	++	++	++	+
Steroids	Salkowski					++	-	+	+

Note: - chemical not detected, + moderate intensity of precipitate/colour indicating presence of chemical and ++ high intensity of precipitate/colour indicating presence of chemicals in *Irvingia wombulu*

Table 2 shows the proximate composition in *Irvingia wombulu* leaves, peels, seeds and seed coats samples. The moisture contents in seeds, leaves, peels and seed coats of *Irvingia wombulu* were 1.4±0.41%, 22.2±0.11%, 38.7±0.01%, and 57.6±0.90% respectively. *Irvingia wombulu* has a higher moisture content. High moisture content in fruits is an index of its water activity which is a measure of stability and susceptibility to microbial contamination (Brooker *et al.* 2000). The ash contents in peels and seed coats of *I. wombulu* were 0.75±0.11% and 6.8±0.12% respectively. The leaves and seed coats had the same ash contents of 2.4±0.12%. Ash content of *Irvingia wombulu* in this study was higher compared to the submission of Ekundayo *et al.* (2003) where ash content ranged from 3.30% to 2.43% and that of Adeyeye *et al.* (2013) with ash content of 2.4% and 2.5% in *I. wombulu* and also related to the work of Efosa *et al.* (2017). The ash content in fruit is the inorganic residue left after the removal of moisture and organic matter. It provides the measure of the total amount of minerals within the fruit. The proximate analyses from this study revealed higher ash contents in the peels and seed coats of *I. wombulu*. The bush mangoes showed higher value of crude fat. This indicates high presence of dietary fat which is a major source of energy. However, the daily recommended value of not more than 30 calories should not be exceeded to avoid obesity, diabetes and heart diseases. Crude fiber contains indigestible cellulose which helps to absorb water, provide roughage and better functioning of the alimentary system. Protein contents contribute positively to the requirement for biomolecules needed for repair and maintenance of the body tissues as well as synthesis of vital hormones for the body (Soetan *et al.*, 2010; Gatar *et al.*, 2011). The seed of *I. wombulu* had the highest carbohydrates content. Therefore, when it is consumed, a lot of energy is acquired.

Table 2: Proximate Composition of Bush Mangoes (*Irvingia wombulu*)

Percentage (%)	Leaves	Peels	Seed	Seed coat
Moisture	22.2±0.11	38.7±0.0	1.4±0.11	57.6±0.10
Ash	2.4±0.12	0.75±0.11	6.8±0.12	2.4±0.12
Crude lipid	2.1±0.01	1.6±0.12	7.9±0.01	1.59±0.12
Crude fibre	11.8±0.02	19±0.21	21.6±0.45	16.7±0.12
Crude protein	98±0.11	7.7±0.12	5.6±0.20	6.65±0.11

Field Survey, 2023

The results in Table 3 shows the mineral contents of *Irvingia wombulu* leaves, peels, seeds and seed coats. The highest concentration of iron in *I. wombulu* was found in seed coats (0.395±0.00 mg/kg) and 0.040±0.02mg/kg was found in the seed. Thus *I. wombulu* has a higher concentration of iron in the seed than in the peels and the leaves. This indicates the reason for consumption preference of its fruits than other parts. The concentration of sodium in *Irvingia wombulu* reveals variability from one part to another. The trend in the level of concentration of sodium in *I. wombulu* reveals that leaves has more sodium than seeds and seeds more than seed coats, peels is the least. For calcium, the analyses reveals that the level of concentration in the seed coats has higher mineral content of 4.992±0.01 mg/kg as compared to the lower level of concentration in the seeds at 3.278±0.01 mg/kg in *I. wombulu*. Past studies revealed that iron had highest concentration in the seed coats (0.395±0.00 mg/kg) while the lowest was found in the seeds (0.040±0.00 mg/kg). The same trend was observed in *I. wombolu* seed coats (0.565±0.01 mg/kg) and seeds (0.304±0.00 m/kg). *I. wombolu* had a higher concentration of iron. The level of iron in this study contradicts the submission

of Ujowundu *et al.* (2010) that found low iron (Fe) in the seeds of *Dacryodes edulis* but corroborates Ibrahim *et al.* (2017). Therefore, bush mango could be recommended for eating due to its high iron content. Furthermore, *I. wombolu* contained higher concentration of sodium. The trend in the level of concentration of sodium in *I. wombolu* was higher in peels more than seed coats, seed coats more than leaves, and leaves more than seeds. For calcium, the level of concentration was higher in the seed coats (4.912±0.01 mg/kg) and lower in the seeds (3.278±0.01 mg/kg), while the highest concentration was in the seeds (6.373±0.01 mg/kg) and the lowest concentration was in the seed coats (3.772±0.02 mg/kg). The level of calcium in the study agreed with the findings of Ujowundu *et al.* (2010). For most of the minerals determined, *I. wombolu* had the lower concentrations in this study than what was obtained in the past. The result of the mineral concentration in this study was lower when compared with the findings of Adeyeye which had sodium (26.2 mg/kg), calcium (35.1mg/kg) and zinc (6.20 mg/kg). This outcome might be as a result of post harvest handling of bush mangoes.

Table 3: Mineral composition of Bush mangoes (*Irvingia wombolu*)

Mineral composition (mg/kg)	Leaves	Peels	Seed	Seed coat
Iron	0.280±0.02	0.237±0.01	0.040±0.02	0.395±0.00
Magnesium	41.138±0.00	4.911±0.01	27.944±0.02	4.176±0.01
Zinc	3.829±0.02	2.984±0.01	2.937±0.02	3.466±0.01
Sodium	8.977±0.02	5.263±0.01	7.297±0.02	5.372±0.02
Calcium	4.222±0.02	3.928±0.01	3.278±0.01	4.992±0.01

Field Survey, 2023

The results in Table 4 reveal the vitamins composition in *Irvingia wombolu* cotyledon. The vitamin B2 known riboflavin is one of the 8 -B vitamins. All the B vitamins help the body to convert carbohydrate into glucose, which invariably helps in producing energy needed by human body. Also, it is often referred to as B-complex vitamins which help the body to metabolize fats and protein. They are necessary for a healthy liver, skin, hair eye and proper functioning of the nervous system. Riboflavin works as an antioxidant, fights damage particles in the body known as free radical. It is also needed to help the body change vitamin B6 and folate into forms it can be used. In addition, it is important red blood cell production. The value of vitamin B2 is high in *Irvingia wombolu* (0.17mg/100g). Past studies suggested that riboflavin might help prevent cataracts damage to the lens of the eye, B2 along with other nutrients is important for normal vision. It is important for cardiovascular, digestive, immune, muscular, and nervous system function. Furthermore, the analyses reveals the vitamin B6 content in *Irvingia wombolu* (0.14gm/100g). The B6 vitamin is needed for proper developing and function and to make the hormones serotonin and norepinephrine, which affect mood of men. It is also important in helping regulate your internal clock values and the indigestible cellulose that may absorb water and provide roughage for better functioning of the alimentary system as well as combine with intestinal cholesterol for excretion in the faeces as reported by Adeseko *et al.* (2022). It has been reported that intake of dietary fibre can lower cholesterol level, risk of coronary heart disease, hypertension, diabetes and breast cancer (Adegoke *et al.*, 2006).

Table 4: Vitamins composition of Dry Ogbono (*Irvingia wombolu*)

Parameter content	<i>Irvingia wombolu</i>		
	Sample	Sample	Mean±SD
B-calrotene (ppm)	11.3	6.7	8.98±3.22
Vitamin B2(mg/100g)	0.17	0.1	0.16±0.02
Vitamin B6(mg/100g)	0.18	0.1	0.14±0.06

Field Survey, 2023

4. Conclusion

In summary, this study revealed the bioactive components of *Irvingia wombolu* production which are the antioxidants through the chemical screening and these bioactive components are metabolites such as tannins, saponin, flavonoids, steroid, protiens, anthraquinones, protein, reducing sugar, cardiac glycoside, terpenopid, phenolic compounds and alkaloids. The presence of flavonoid, cardiac glycoside and alkaloids are moderately present while tannis, saponins, steroids, protein and reducing sugar were heavily present. The results obtained revealed that *Irvingia wombolu* contain high to moderate bioactive components. Furthermore, the analyses revealed that the proximate compositions of *Irvingia wombolu* leaves, peels, seeds and seed coats samples contain varied moisture contents, ash, crude lipid, crude fibre and crude protein, and this translate to high concentration of dietary composition which is a

major source of energy, effective functionality of human bowel system, and repair and maintenance of the body tissues as well as synthesis of vital hormones for the body. The results of the analyses and calculations showed that *I. wombolu* were good sources of fat, protein, fibre and carbohydrate, essential minerals, and moderate source of vitamins. The study showed that the samples contained nutritionally valuable mineral and useful quantities of vitamins. Finally, the analyses of *Irvingia wombolu* showed higher antioxidant activity that qualify the fruit in helping lowering the risk of oxidative stress related diseases like cardiovascular illness, stroke, aging and so on.

5. Recommendations

Based on the findings, this research study recommends that bush mango (*Irvingia wombolu*) should be consumed widely by many especially

people that are obese. The biomedical department of Forestry Research Institute of Nigeria (FRIN) should transform the *Irvingia wombulu* fruits into more refined products as drugs and supplements for widespread distribution and use nationally and internationally to generate internal revenue for the FRIN biomedical department. Also, efforts should be geared towards wide production and conservation of existing *Irvingia wombulu*, and patents for pills produced from *I. wombulu*. Finally, more concerted efforts should be put forward through serious awareness and advocacy in reassurance of its utilization and domestication among the various stakeholders and the end users.

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