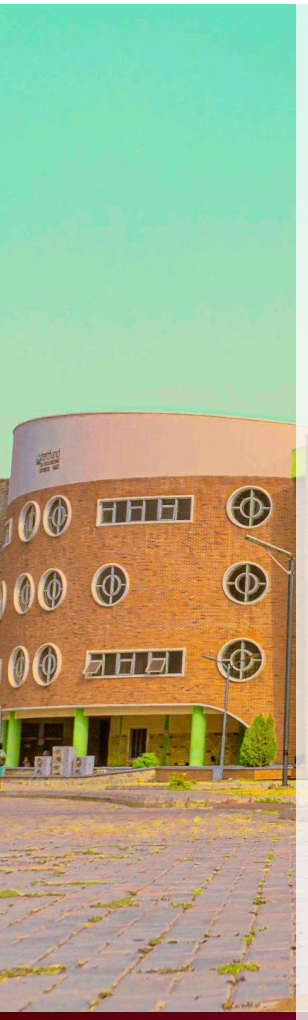
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ICOMSS 2024

Theme
SUSTAINABLE DEVELOPMENT
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Exploring the Global Perspectives

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NOVEMBER 18 – 20, 2024

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KWARA STATE UNIVERSITY, MALETE

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Foreword



Distinguished Guests, Honored Delegates, and Esteemed Colleagues, It is with profound pleasure and a deep sense of responsibility that I welcome you to the 1st International Conference of Management and Social Sciences (ICOMSS 2024), themed *"Sustainable Development Beyond Borders: Exploring Global Perspectives."*

This conference marks a milestone in our shared journey to examine and address the most pressing global issues that transcend national and regional boundaries.

Our theme, focusing on sustainability in an interconnected world, invites each of us to think beyond conventional limits, to embrace diverse perspectives, and to engage in meaningful dialogue on how we can collectively shape a future that is both prosperous and sustainable. Through this gathering, we will explore a wide range of topics, from trade integration, poverty, structural transformation, international relations and environmental diplomacy, politics of climate change, social innovation and environmental stewardship, development financing to technology and eco-tourism, examining them through the lens of sustainable development.

The organizing committee has worked tirelessly to bring together a distinguished roster of keynote speakers, panelists, and researchers who will share cutting-edge insights and forward-thinking solutions. We are especially grateful for the support and commitment of our partners, sponsors, and volunteers, whose contributions have made this gathering possible. Their dedication has allowed us to create a platform for collaboration, learning, and inspiration.

I encourage each participant to make the most of this opportunity to engage, network, and collaborate. Let us use this forum to deepen our understanding, broaden our perspectives, and forge partnerships that will extend well beyond this conference. Together, we can inspire positive change that reaches across borders and into the future.

Thank you for being part of ICOMSS 2024. May this conference ignite ideas, inspire actions, and strengthen our shared commitment to sustainable development for all.
Warm regards,

Lukman Adebayo-Oke Abdulrauf, **PhD., ACA, ACS, ACTI**
Chairman, Local Organizing Committee. ICOMSS 2024

Disclaimer

All manuscripts included in this Conference Proceedings for ICOMSS 2024 underwent thorough evaluation and peer review. However, the views and interpretations presented are solely those of the authors and are intended to provide insights into their areas of study. Authors bear full responsibility for the accuracy and validity of their content. The organizing committee of ICOMSS 2024 has accepted these abstracts in good faith but does not assume liability for any decisions made based on the information provided herein.

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Manuscripts

ACCOUNTING

SUSTAINABLE ENVIRONMENTAL DISCLOSURE AND FINANCIAL REPORTING QUALITY OF LISTED MANUFACTURING COMPANIES IN NIGERIA

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Abstract
In today's ecological, social economic issue, and economic framework, environmental concerns have taken center stage. Sustainable environmental disclosure has grown significantly in response to these worldwide difficulties, including water pollution, greenhouse gas emissions, gas flaring, and other detrimental environmental effects. On this note, the study examined influence energy consumption and water usage on financial reporting quality of listed manufacturing oil and gas companies in Nigeria. This study adopts an ex-post facto research design, population of this study covers the 9 listed oil and gas companies in Nigeria as displayed on the Nigeria Exchange Group (NGX) as at 5th June, 2024. Data were obtained from annual report, on these companies for the period of ten years, the result of this were subjected to regression analysis. The result of findings indicated the t-statistic (2.997) and corresponding significance level shown that there are relationship between energy consumption, water usage and financial reporting quality of listed oil companies in Nigeria. On this note, this study recommends that oil companies should prioritizing investments in renewable energy sources, including solar and wind power, can help the oil and gas industries lessen their dependency on fossil fuels and cut down on energy usage. This can be done by establishing a goal to receive at least 50% of their energy from renewable sources in the following five years. To reduce their water footprint, companies can adopt water conservation strategies, such as using water-efficient technologies and using less water throughout their operations.
Keyword: **Sustainable Disclosure; energy consumption; water usage and Financial Reporting quality**

1. Introduction

In the world today, stakeholders such as investors, creditors, regulators, government authorities, and other users of financial information are worried due to deprived in financial reporting which was as a result of lack of certain qualities that enhance transparency and accountability. However, the objective of financial reporting is to offer the stakeholder high quality of financial information about companies economic decisions. Essentially, these reports are vital to the users of financial statement for the purpose of planning and established the fruitful decision. Contrarily, the recent studies have shown that most companies annual report are dearth of some certain qualities which have consequently that reflect negatively affect other interest of stakeholders. Thus, financial reporting qualities are persistence becoming issues across developed and developing countries.

For instance, investors and other users of financial statement when investing in a company, tend to place their trust in companies that are large and have a good reputation, even as a standard for measuring a company's good or bad performance particular through the qualities of their financial statement. However, the reality is sometimes different; it only sometimes reflects what investors want, and reputation and a big name are not always a guarantee that the company does not manipulate the profits presented in the financial reports. Thus, financial statement is expected to prevent stakeholders from fraud, manipulation of profit and other fraudulent act, therefore, financial statement must be open minded by providing information that are relevance, reliable, accountability, comparability and economic realities. In order to make a valid decision, the information in the financial statements must be presented in an appropriately, relevant, understandable, comparable, timely and verifiable manner. Therefore, the quality of financial reporting is very useful in making decisions regarding the allocation of resources in organizations (Yusran, 2023).

Sequel to this issue and future implication, this poor reporting quality was as a result of high level of emission, air pollution and other environment hazardous that are negatively affecting investors interest, customers, employee and other environmental hazardous. For instance, Audit Agency of the Republic of Indonesia opined that the results of an audit of 542 local government financial statements in Indonesia in 2020 showed that an unqualified opinion for 486 financial statements (89.67%), a qualified opinion for 49 financial statements (9.04%), an adverse opinion for 2 financial statements (0.37%) and a disclaimer of opinion for 5 financial statements (0.92%). The causal factors for not obtaining this best opinion generally occur because the official is in charge was negligent and not careful in presenting financial reports, gas flaring, greenhouse warming effects, water pollution and other negative environmental impacts were not reported, also, weak in supervising and controlling environmental issues, weaknesses in the system applications used, and do not fully understand the environmental and socio economy issue (Bodin, 2017).

These issues are still worsening in the Nigeria context, Nigeria stands as the largest oil and gas producer in Africa, with its economy and budget heavily reliant on revenues from the petroleum industry since the 1960s (Oguntoye & Oguntoye 2021). The sector contributes approximately 9% to the nation's GDP, which serves as proof to the significant role this sector plays in the Nigeria economic. Despite it important and significant impact, the failure of companies to disclose accurate environmental reports often stems from a desire to present inflated financial statements that portray a more favorable financial performance to investors. This issue is worrisome in the Nigeria Oil and Gas companies, for instance, Talbot and Boiral (2018) noted that energy consumption in the oil and gas sector presents a substantial environmental

challenge due to its high intensity and associated carbon footprint which are nor reflecting in their financial statement report.

To resolve these salient issues, the established GRI index of 2000 which was modified in 2011 and mandated to all listed Nigeria companies to published along with their annual report the environmental implications such as carbon emission, water and other socio economic issues. Despite this pronouncement, the research has shown that rate of unaccountability and lack of reporting qualities are still saddened which have resulted into investors, regulators, socio economic groups, environmental advocators and other stakeholders' loss confidence in the companies' financial reporting.

Despite persuading by the government regulators, environmental advocators, investors and environmental advocators it is noted in the literature that financial reporting is still lacking some financial reporting qualities such poor relevance of information, zero faithful representation and unaccountability of companies resources. However, studies such as Aruna and Amahalu (2020); Alhassan and Anwaruislam (2020); Iliemena and Ijeoma (2020) have all investigated on different determinants of financial reporting quality, especially the used of firm size, firms specific characteristics and corporate governance but the findings of their results are questionable and variables are restricted thus, it become for further studies.

As a result of the shortcomings from the previous studies and persistence of poor financial reporting qualities therefore, the study finding it worthy by investigate energy consumption and water usage as determinants financial reporting quality among listed manufacturing oil and gas companies in Nigeria.

2. Literature Review

Conceptual Review

Nejat et al, (2015) defined energy consumption as the amount of energy used by individuals, organizations, or entire countries over a specific period. It is a critical metric in assessing the sustainability, efficiency, and environmental impact of various activities. Energy consumption is the total amount of energy required for a given process and is measured in kilowatt hours (kWh) (Giacone & Mancò 2012). This includes the use of electricity, gas, diesel, oil, and biomass. However, Shove and Walker, (2014) defined energy consumption as the amount of energy used by individuals, households, businesses, or industries to power various activities. It includes the use of electricity, fuel, and other sources of energy to operate appliances, machinery, vehicles, and more. Energy consumption is an important factor to consider in terms of sustainability and environmental impact.

In the light of water usage, According to Danoucaras et al (2014) defined water usage as tools for environmental accounting which refers to the quantification and analysis of the amount of water consumed, withdrawn, or discharged by an entity within the context of its environmental impact. This aspect of environmental accounting focuses on tracking and reporting water-related activities to assess the organization's resource efficiency, environmental sustainability, and potential impacts on water resources. Water usage in environmental accounting is a crucial aspect of sustainable business practices, helping organizations assess their impact on water resources and work towards responsible and efficient water management (Imtiaz, et al 2019). This approach supports informed decision-making, fosters environmental stewardship, and contributes to long-term sustainability goals. Nejat et al, (2015) also viewed water usage as the amount of water consumed by individuals, households, businesses, and industries. Understanding and managing water usage are essential for preserving water resources, ensuring access to clean water, and minimizing the environmental impact of human activities. Therefore, monitoring and managing water usage is important for preserving this valuable resource and

minimizing environmental impact. By tracking water usage, areas can be identified where conservation measures can be implemented and promote responsible water consumption practices.

Considering financial reporting qualities, generally, Palea (2013) defined financial reporting quality as the desirable characteristics that financial reports should possess. These qualities include accuracy, relevance, comparability, and transparency. Accuracy ensures that the information presented is reliable and free from errors. Relevance means that the information is useful for decision-making. Comparability allows for the comparison of financial information across different periods and companies. Transparency ensures that the reports provide sufficient information for users to understand the organization's financial position and performance Albu and Flyverbom (2019). According to Joyce (2020), financial reporting quality refers to the accuracy, transparency, and reliability of financial information presented in a company's financial statements. It reflects the extent to which financial statements provide a true and fair view of a company's financial performance and position. Financial reporting is a critical aspect of corporate governance and transparency, allowing stakeholders to make informed decisions (Ademola, 2023). The information presented in financial reports helps investors assess the financial health and viability of a company, creditors evaluate creditworthiness, and regulators ensure compliance with accounting standards and regulations.

Theoretical Review and Framework

Theories such as institutional theory, legitimate theory, agency theory, stakeholder theory and contingency theory are considered relevant in this study. Essentially, this study finds it important the theory of Triple Bottom Line (TBL) theory which was propounded by John Elkington (1994) which assumes that companies should not only focus on financial profits but also on their impact on the planet and society. In the context of environmental disclosure and financial reporting qualities of oil and gas companies in Nigeria, the TBL theory can be applied to assess how these companies address their environmental impact, such as energy consumption, carbon emission and water usage, while also considering their financial reporting quality. The Triple Bottom Line (TBL) theory is an approach that considers three dimensions of sustainability: environmental, social, and economic.

It recognizes that companies should not only focus on financial profits but also on their impact on the planet and society. The environmental dimension of the TBL theory focuses on minimizing negative impacts on the environment and promoting sustainable practices. This includes reducing energy consumption, implementing conservation measures, and adopting efficient water usage strategies. Companies can disclose their efforts in these areas through environmental reports, sustainability disclosures, or integrated reporting frameworks. The social dimension of the TBL theory emphasizes the relationships between companies and their stakeholders, including employees, local communities, and other relevant parties. Oil and gas companies can disclose their social initiatives, such as community development projects, employee welfare programs, and stakeholder engagement activities. In the context of environmental disclosure and financial reporting qualities of oil and gas companies in Nigeria, the TBL theory can be applied to assess how these companies address their environmental impact, such as energy consumption, carbon emission and water usage, while also considering their financial reporting quality.

Empirical Review

Although it is obvious that financial reporting quality has becoming issue across developed, developing nation and more worrisome in the Nigeria context, for instance, Sanusi and Sanusi (2019) studied the popularity and level of compliance to the practice of environmental

sustainability reporting in some quoted manufacturing companies in Nigeria. A survey research design was used covering a period of 6 years 2010-2015. Descriptive and inferential statistics were used in the analysis of the study. The study found that majority of the manufacturing companies were familiar with environmental sustainability reporting practice, but the compliance rate was low.

In addition, Ofoegbu and Megbuluba (2016) examined the inadequacies of corporate environmental disclosures both in quantity and quality among manufacturing firms in Nigeria. In order to achieve an in-depth study and wider coverage of the subject-matter; secondary data were obtained from the annual reports of fourteen (14) manufacturing firms. The annual reports were examined for a period of six years (2010 to 2015). The companies were selected based on judgment or purposive sampling. Interpretative content analysis was used to elicit information from the annual reports. The study revealed that corporate environmental disclosure is still at its lowest ebb among manufacturing firms in Nigeria and there will be a need for sensitization, regulatory compulsion or government intervention for companies to participate in corporate environmental disclosure.

However, Aruna and Amahalu (2020) ascertained the effect of environmental cost disclosure on profitability of oil and gas firms listed on Nigeria Stock Exchange between 2010 and 2019. Eleven (11) listed oil and gas firms were purposively sampled, and Content analysis was employed while Pearson Correlation Coefficient and Panel Least Square (PLS) Regression analysis via STATA 13 statistical software were used to test the hypotheses of the study. The result of this study showed that waste management cost disclosure, employee health and safety cost disclosure and environmental remediation cost disclosure have a significant positive effect on net profit margin at 5% level of significance respectively.

In the light of financial performance, Alhassan and Anwaruislam (2020) examined the impact of environmental and social disclosures on the financial performance of oil and gas companies in Nigeria. The study used secondary data sourced from the annual reports and accounts of the sampled companies. Environmental and social disclosure is the independent variable, while the dependent variable is the financial performance proxied by return on asset. The findings of the study revealed that environmental and social disclosure has a significant impact on companies' financial performance. Similarly, Iliemena and Ijeoma (2020) investigated the effect of Sustainability reporting on financial performance of manufacturing firms quoted on the Nigerian stock exchange using secondary data from annual reports and accounts of 24 sampled quoted manufacturing companies. The study period ranged from 2012 to 2018 which represents IFRS reporting period in Nigeria. The study revealed that among others that there is no significant effect of environmental disclosure on return on capital employed (ROCE).

Summary of Gaps Identified in Literature

Studies conducted over time have often produced contradictory findings about the relationship between environmental disclosure and the caliber of financial reporting. Due to variations in the research country, study period, or statistical methods, some studies found positive associations while others found negative ones. Consequently, more research is required utilizing increasingly complex analytical techniques, such as integrating correlation analysis, multiple regression, and descriptive statistics. Thus, this study intends to use several financial reporting metrics to determine the connection between environmental disclosure and the caliber of financial reporting, particularly from the viewpoint of a developing nation like Nigeria. This study therefore set out to fill these gaps identified, and thus provides theoretical justification for environmental disclosure and financial reporting quality of listed oil and gas companies in Nigeria.

Methodologically, this is because companies' techniques and measures for measuring and reporting their environmental performance are not standardized or consistent. To improve the comparability and dependability of environmental data, a more standardized method of data collection, measurement, and reporting is required. Numerous variables may contribute to this disparity. It can be difficult for stakeholders to compare and evaluate performance across various businesses since different companies may employ different approaches and measures to monitor and quantify their environmental impacts. Furthermore, there might not be any industry guidelines or guidance on the precise methods to be applied when measuring and reporting environmental data. Variations and inconsistencies in reporting procedures may result from this.

To bridge the methodology gap in environmental disclosure requires the development and adoption of standardized methodologies and metrics. This can be achieved through the establishment of industry-wide guidelines or frameworks that provide clear instructions on how to measure and report environmental impacts. For instance, the Greenhouse Gas Protocol for measuring carbon emissions and the Water Accounting Framework for measuring water usage. By addressing the methodology gap, companies can ensure that their environmental data is collected and reported in a consistent and reliable manner, allowing for better comparability and transparency. This, in turn, enables stakeholders to make more informed decisions and encourages companies to improve their environmental performance.

3. Methodology

Ex-post factor research deign was used to investigate energy consumption and water usage as determinants of financial reporting quality. As at 5th June, 2024 Nine (9) Oil gas companies were listed in the Nigeria Exchange Group (NGX), therefore, it become population and sample size of this study. However, the necessary secondary data will be sourced from the Nigeria Exchange Group (NXG), which houses the annual reports of all listed companies in Nigeria. The descriptive statistics (mean, minimum, maximum value and standard deviation) will be used in analyzing the distribution of the data to be collected, while the study's hypotheses will be tested with the use of linear regression. The model of of Onyali, et al (2018) model was adopted and modified to align with the objective of this study. Thus, $FRQ_{it} = B_0 + B_1 ENCONS_{it} + B_2 WATUSAGE_i + e_{it}$

Where;
FRQ= Financial Reporting Quality
ENCONS= Energy Consumption
WATUSAGE= Water Wastage
e = Standard Error Term
B_0 = Constant
B_1 - B_3 = parameters of the independent variables to be estimated
i= numbers of companies
t= current period

Definition and Measurement of Variables

Variable	Variable Types	Measurement	Sources
Financial Reporting Quality	Dependent	A dummy variable of 1 if the company reporting framework is in tandem with	Akinlade &Adegbie, (2020).

		the International Financial Reporting Standards (IFRS)	
Energy Consumption	Independent	A dummy variable of 1 if the company level of energy consumption is reported, otherwise 0.	Li et al. (2018), Adebayo (2020), Adeola, 2021)
Water Usage	Independent	A dummy variable of 1 if the company level of water usage is reported, otherwise 0.	Adebayo (2020), Alade (2023)

4. Result

With an introduction, descriptive statistics, inferential analysis, and findings discussion, the study's results are presented in depth. Pretests for validity, reliability, normalcy, and multicollinearity were performed on the gathered data. Frequency, mean, standard deviation, skewness, and kurtosis are examples of descriptive statistics; regression analysis, which includes a summary, coefficient of determination, and correlation, is an example of inferential statistics. Lastly, the findings are contrasted and compared with those of earlier related research.

Table 4.1: Descriptive statistics

The results of mean, standard deviation, skewness and kurtosis are well analyzed and discussed

N	Mean	Std. Deviation	Skewness		Kurtosis	
Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
99	.8889	.31587	-2.513	.243	4.404	.481
99	.4444	.49943	.227	.243	-1.989	.481
99	.4040	.49320	.397	.243	-1.881	.481

According to Table 4.1, the average financial reporting quality is approximately 89%, with a mean FRQ score of 0.8889. The data points appear to be distributed very equally around the mean, according to the standard deviation of 0.31587. The skewness score of -2.513, on the other hand, shows that the FRQ distribution is heavily skewed to the left, indicating that the majority of businesses have high-quality financial reporting. The distribution is platykurtic, or flatter than a normal distribution, according to the kurtosis value of 4.404. This implies that the distribution may be impacted by outliers or extreme values in the data. The high average FRQ score and low variability imply that most businesses have high-quality financial reporting. The distribution may be impacted by certain companies with extremely high or extremely low FRQ scores, according to the skewness and kurtosis values.

Additionally, the average energy usage is 0.4444, meaning that it is around 44%. The data points appear to be distributed rather equally around the mean, according to the standard deviation of 0.49943. The majority of businesses use relatively little energy, as indicated by the skewness value of 0.227, which shows that the distribution of energy consumption is

somewhat skewed to the right. The distribution is flatter than a normal distribution, as indicated by the kurtosis value of -1.989. According to the results, most businesses have relatively low energy consumption, with an average of about 44%. The skewness and kurtosis values, however, suggest that the distribution may be impacted by a few businesses that use a lot of energy. Additionally, the average water usage is 0.4040, meaning that it is almost 40%. The data points appear to be distributed rather equally around the mean, according to the standard deviation of 0.49320. The majority of businesses use relatively little water, as indicated by the skewness score of 0.397, which shows that the distribution of water usage is somewhat skewed to the right. The distribution is flatter than a normal distribution, as indicated by the kurtosis value of -1.881. The majority of businesses use relatively little water, with an average usage of about 40%. The skewness and kurtosis values, however, suggest that the distribution might be impacted by certain businesses that use a lot of water.

Inferential Statistics

In this section, inferences were provided on the aforementioned null hypotheses. It's noteworthy that the null hypothesis is rejected if Sig-value is less than level of significance (0.05).

Table 4.2 Model Summary I

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Sig. F Change
1	.316[a]	.100	.091	.30120	.100	.001

a. Predictors: (Constant), EN_CONS

The adjusted R Square value of .091 is a modified version of R Square that takes into account the number of predictors in the model. In this case, the adjusted R Square is slightly lower than the regular R Square, indicating that some of the variance explained by energy consumption may be due to chance. However, the value is still positive, suggesting that energy consumption has a significant impact on financial reporting quality even after accounting for chance. The standard error of the estimate is a measure of the average distance between observed and predicted values of financial reporting quality. A value of .30120 indicates that the model is reasonably accurate in predicting financial reporting quality based on energy consumption. However, there is still some room for improvement, as the standard error is not extremely low.

Table 4.3 Model Summary II

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F Change	Sig. F Change
1	.291[a]	.085	.075	.30374	8.981	.003

a. Predictors: (Constant), WAT_USAGE

The adjusted R Square value of .075 is a modified version of R Square that takes into account the number of predictors in the model. In this case, the adjusted R Square is slightly lower than

the regular R Square, indicating that some of the variance explained by water usage may be due to chance. However, the value is still positive; suggesting that water usage has a significant impact on financial reporting quality even after accounting for chance. The standard error of the estimate is a measure of the average distance between observed and predicted values of financial reporting quality. A value of .30374 indicates that the model is reasonably accurate in predicting financial reporting quality based on water usage. However, there is still some room for improvement, as the standard error is not extremely low.

Discussion of Findings

Energy Consumption and Financial Reporting Quality

Model 1 analysis reveals a notable positive correlation between energy consumption and financial reporting quality, with a moderate R value of .316. This indicates that as energy consumption increases, financial reporting quality also tends to increase. The R Square value of .100 suggests that energy consumption explains 10% of the variation in financial reporting quality, which is a significant proportion. The adjusted R Square value of .091 confirms that energy consumption has a meaningful impact on financial reporting quality, even after accounting for chance. The significance level of the F-statistic (.001) confirms that the relationship between energy consumption and financial reporting quality is robust and reliable. Overall, the findings suggest that energy consumption has a notable positive impact on financial reporting quality, explaining a significant portion of the variability. This implies that companies with higher energy consumption tend to have better financial reporting quality, and that energy consumption is a meaningful predictor of financial reporting quality. This result in contrary with the study of Ayuba and Yunusa (2023) that examine the impact of environmental management practices on the financial performance of a South African mining firm. The findings showed there is no significant relationship between energy efficiency and financial performance.

Water Usage and Financial Reporting Quality

Model 2 investigates the relationship between water usage and financial reporting quality among listed oil and gas companies in Nigeria. The results show a significant positive correlation between water usage and financial reporting quality, with an R value of .291, indicating that companies with higher water usage tend to have better financial reporting quality. The findings suggest that water usage is a meaningful predictor of financial reporting quality, explaining 8.5% of the variance. These results have implications for investors, regulators, and companies seeking to improve their financial reporting quality. The F change value of 8.981 and significance level of the F-statistic (.003) confirm that the relationship between water usage and financial reporting quality is statistically significant and robust. By implication, companies with higher water usage tend to have better financial reporting quality, and that water usage is a meaningful predictor of financial reporting quality. Nyirenda (2020) disagreed with the findings above in his study titled "the impact of environmental management practices on the financial performance of a South African mining firm". He found that an insignificant relationship between the water usage and financial performance.

5. Conclusion and Recommendations

This study has investigated the relationship between environmental sustainability and financial reporting quality among listed oil and gas companies in Nigeria. The results have shown that energy consumption and water usage are all significant predictors of financial reporting quality. The findings of this study have important implications for investors, regulators, and companies

operating in the oil and gas industry. By prioritizing environmental sustainability, companies can improve their financial reporting quality, enhance their reputation, and create long-term value for shareholders.

Going by the conclusion, this study therefore recommends that Oil and gas industries should prioritize in disclosing information related to renewable energy sources, such as solar and wind power, to improve produce relevance and reliability of financial and non-financial information. This can be achieved by setting a target of at least 50% of their energy coming from renewable sources within the next 5 years. Companies should implement water conservation measures, such as implementing water-efficient technologies and reducing water usage in their operations, to minimize their water footprint. This can be achieved by setting a target of reducing water usage by at least 30% within the next 3 years.

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SUSTAINABLE DEVELOPMENT AND TAXATION IN NIGERIA: A PATHWAY TO ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY

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Abstract

This paper explores the interplay between taxation policies and sustainable development in Nigeria, focusing on how effective tax strategies can drive economic growth while fostering environmental sustainability. As Nigeria seeks pathways to reduce poverty, diversify its oil-dependent economy, and mitigate climate change impacts, taxation emerges as a critical tool in aligning fiscal policy with sustainable development goals. The study examines Nigeria's current tax framework, identifying gaps and inefficiencies that hinder the attainment of inclusive growth and environmental targets. Through an analysis of certain statutes on taxation, legal principles, and court cases, the paper highlights the potential of green taxes and carbon taxes to enhance revenue while encouraging sustainable practices. Key findings indicate that a well-structured tax policy can promote resource conservation, generate funds for social and environmental programs, and create a stable foundation for long-term economic growth. The paper concludes with policy recommendations, emphasizing the need for reforms to Nigeria's tax code that prioritize sustainability and provide a roadmap for integrating economic and environmental agendas. This approach has the potential to advance Nigeria's progress toward sustainable development, ensuring economic resilience and ecological preservation.

Keywords: Sustainable Development; Taxation; Economic Growth; Environmental Sustainability.

1. Introduction

In a unanimous decision in 2015, the Member States of the United Nations (UN), including Nigeria adopted the Sustainable Development Goals (SDGs) as the roadmap and the impetus to tackle the most pressing domestic challenges confronting all nations (United Nations Development Programme [UNDP], 2024; Mohajan, 2015). The SDGs which encompassed social, economic and environmental issues, are an enhancement of the Millennium Development Goals (MDGs), which lasted from 2000 till 2015 (Oweibia, *et al*, 2024). The issues covered by the SDGs include poverty eradication, elimination of hunger, promotion of health and well-being, achieving gender equality; provision of quality education, affordable and clean energy, potable water and sanitation generations (UNDP, 2024; Oweibia, *et al*, 2024; Mirzakhani, Turró & Behzadfar, 2023; Mensah & Ricart Casadevall, 2019). Other goals are economic growth, industrial innovation, reduction of inequalities, sustainable consumption, development of sustainable cities, climate action and preservation of terrestrial and aquatic life (UNDP, 2024; Oweibia, *et al*, 2024).

Nigeria is a regional power, the most populous country in Africa and a pivotal member of the UN, thus, its successful implementation of the SDGs, is likely to have a multiplier effect in Africa, particularly in the West African region (Oweibia, 2024 Garba, 2023; Wright & Okolo, 1999). Achieving sustainable development is critical for Nigeria taking into consideration the nation's challenges, including high levels of poverty, inequality, corruption, environmental degradation, and strong dependence on oil revenues (Dauda & Oyeleke, 2021).

The main goal in any economic policy is the successful transformation of economic structures to provide employment, income, and wealth in the presence of environmental capacity (Zarghami, 2024; Anam, *et al*., 2023). While it is a long-established fact that the economic and environmental goals of development are mutually reinforcing, it is often taken for granted, especially in developing countries like Nigeria (Adejumo & Adejumo, 2014). The pervasive pattern of poverty and environmental degradation in in most developing countries, Nigeria inclusive shows that they are unable to generate income and livelihood from environmental resources without degrading the environment (Dauda & Oyeleke, 2021). This failure originates from the operation of ill-planned national economic systems which inadvertently creates environmental degradation, depicted by the oil spillage, environmental pollution and acid rain experienced in the Nigeria's Niger Delta for instance (World Bank, 2024; Bello & Nwaeke, 2023; Akpoghelie, Ugbuku & Esemedafe, 2021; Ukhurebor, *et al.*, 2021). It is pertinent to state that the Nigerian economy has not adequately raised environmental indicators of scarcity at the policy level, management, and use, to complement estimates of natural resource abundance, but could adopt taxation as a tool in realizing the SDGs.

Taxation, as a major source of government revenue, is a crucial instrument for achieving the developmental objectives of nations, including SDGs (Gupta *et al.*, 2021; Mohammed *et al.*, 2018). However, large gaps between revenue and expenditure may constitute an impediment to growth and developments (Lagoarde-Segot, 2020; Mardan & Stimmelmayr, 2020). Taxation policies have been linked to not only growth and development, but also to sustainable development (Richards, 2021; Galperova et al., 2021; Gemmell, 2020; Lagoarde-Segot, 2020; Griffiths, 2018; Swan, 2016; Falade & Folorunso, 2015). Taxation is a veritable tool that could be employed to influence government revenue and expenditure in order to achieve sustainable economic growth and development (Gupta *et al.*, 2021; Lagoarde-Segot, 2020; Gnangnon & Brun, 2020; Griffiths, 2018; Falade & Folorunso, 2015). Therefore, an efficient tax system is a revenue and expenditure booster that could assist nations to achieve robust and strong macro-economic objectives project (Mardan & Stimmelmayr, 2020). Environmental tax policy for instance, reduces both economic waste and environmental degradation. A significant universal conclusion of double dividend analysis is that developing countries can – and should – incorporate environmental priorities into their tax reform efforts. The revenue generated by environmental tax reform represents a potentially powerful fiscal resource through which emission taxes and other financial incentives could be used by Nigeria to address climate change effectively. Environmental tax reform could, at the national level, facilitate increases in social spending, reductions in budget deficits, fundamental alterations in the structure and level of taxes, comprehensive efforts to overcome economic and social marginalization, and

fundamental change in the structure of both environmental regulation and outcomes. By embracing sustainable development and implementing effective taxation strategies, Nigeria can pave the way for economic growth and environmental sustainability. Taxation, as a policy tool, can be used not only to raise government revenue but also to influence economic behavior, encourage investment, and address social and environmental challenges. In Nigeria, however, the tax system faces significant limitations, including a narrow tax base, widespread tax evasion, and inefficiencies in administration. The purpose of this paper is to examine how tax reforms can support sustainable development goals (SDGs) in Nigeria.

2. Literature Review

Abere (2013) stated that the Nigerian statutes provided no definition of tax and that it is only described, but, this is not entirely true as a statutory definition subsists. A statutory definition provides that 'tax' 'includes any duty, levy or revenue accruable to the government in full or in part under this Act, the laws listed in the First Schedule to this Act or any other enactment or law' (section 69 of the Federal Inland Revenue Service (Establishment) Act, 2007). Other definitions by policy makers appointed by the federal government include: tax is a 'pecuniary burden laid upon individuals or property to support government expenditure; a tax is not a voluntary payment or donation, but an enforced compulsory contribution, exacted pursuant to legislative authority and is any contribution imposed by government, whether under the name of duty, custom, excise, levy or other name' (National Tax Policy, 2012, p. 1). Tax was defined as a compulsory contribution to the support of government, levied on persons, property, income, commodities, and transactions, at a fixed rate mostly proportional to the amount on which the contribution is levied (William & Davies, 2012; Wehmier, 2001). The authors of this paper posit that these definitions suffer few deficiencies, it fails in some cases to specify the purpose for which the collection is intended, its compulsory nature, its monetary nature and progressiveness. The authors also maintained that, the definitions fall short of distinguishing between tax and other related terms like levies, fee and duties. We may however adopt this classical definition of tax for our purpose. In *Mathews v Chicory Marketing Board,* (1938, para 15) Latham CJ define tax as "a compulsory exaction of money by a public authority for public purposes, enforceable by law and is not a payment for service rendered."

Taxation is an important component of fiscal policy, though its primary role is financing the expenditures of the government and reducing inequality but it also employed to promote sustainable development, economic growth, trade and competitiveness, environmental sustainability, economic diversification, and inclusion (Animashaun & Chitimira 2023). Animashaun and Chitimira, posited further that the quality of the tax system can be assessed based on the balance and equity of the system among the above-mentioned variables (Animashaun & Chitimira, 2021a; Chitimira, & Animashaun, 2021b). A few research studies have been done on the relationship between tax and sustainable development goals in Nigeria. Adekambi *et al* (2022) maintained that Petroleum Profit Tax, Company Tax, Value Added Tax and Personal Income Tax have a positive short-run relationship with economic growth (Gross domestic product- GDP) while Custom and Excise Duties and Personal Income Tax exhibits a negative relationship in the short and long run. They recommended that the manifest leakages in customs duties should be plugged, without providing ways of blocking such leakages.

Ekanem (2017) posited that notwithstanding that Nigeria is blessed with human and material resources, the non-sustainable exploitation is a problem and tax gathering is a challenge laced with evasion and corruption. The emphasis of Ekanem is on the enumeration of problem of taxation and inability to actualize the SDGs, rather than the solution. For Richards (2021), the pursuit of the SDGs in Nigeria is often hampered by funding constraints. He therefore contends that the main way to attain the SDGs is through taxation, considering the strong relationship between taxation and development. He however did not state the types of tax necessary for attaining SDGs. Ayeni and Omodero (2022) showed that tax revenues from company tax, petroleum tax and value added tax (VAT) had significant impact on the economy and impact the GDP directly. The findings from the study also supported the endogenous growth model which explained that economic growth is influenced by internal factors rather than external factors. Tax was one of the internal factors as it is generated internally through the workings of human capital. The findings reveal tax revenue to be significant in impacting economic growth, hence, supporting the theory. Nigeria's tax system is composed of federal, state, and local taxes. The major taxes include corporate income tax, personal income tax, VAT, excise duties, and customs duties. The Federal Inland Revenue Service is responsible for collecting most federal taxes, while state tax authorities oversee personal income tax collections. Despite having a diverse tax structure, Nigeria has historically relied heavily on oil revenues, with taxes contributing a relatively small percentage of total government revenue. The country faces numerous challenges in its tax system, including a low tax-to-GDP ratio, estimated at approximately 6% to 8%, compared to the African average of about 17% (UNDP, 2024). This reflects an underutilization of tax revenue as a source of financing for development, a significant issue considering the country's high poverty and unemployment rates.

Sustainable development on the other hand is defined by the United Nations as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UNDP, 2024, p. 5). This concept is centered on three pillars: economic development, social inclusion, and environmental sustainability (UNDP, 2024). In Nigeria, a developing economy with vast natural resources and a population of over 200 million people, the need to balance these three pillars is particularly urgent. Kjellén (2008) in figure 1 below, succinctly enumerates some of the multi-faceted and interconnected economic, political and social problems that must be addressed in helping societies to transit to long term productivity and sustainability. Consequently, Nigeria has created programmes, policies, structures and institutions to actualise the attainment of the SDGs. For instance, the Presidential Committee on SDGs (PC-SDGs) was created with communication channels across levels of government to ensure the smooth implementation of the SDGs; similarly office of the Senior Special Assistant to the President on Sustainable Development Goals (SSAP-SDGs) was created (Emah, 2023). In addition, the N-Power programme was designed to address the issue of youth unemployment and help increase social development while the Government Enterprise and Empowerment Programme (GEEP) was to provide finance capital and training to micro, small and medium sized enterprises and federal grant of over ₦140 billion was invested in the programme (Emah, 2023). Equally, the

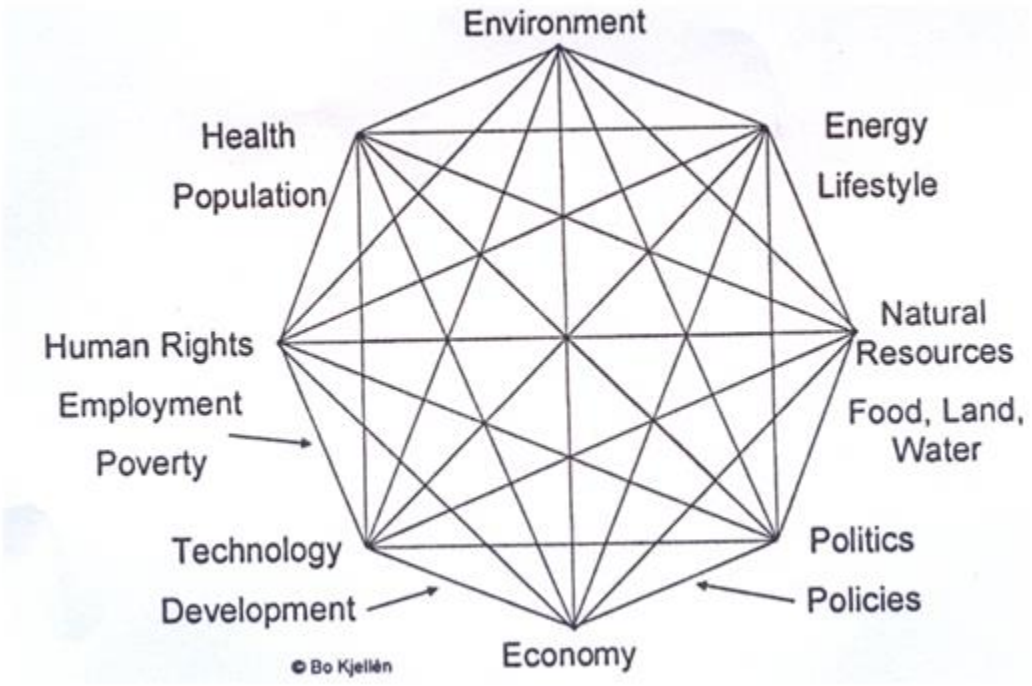


Figure 1**:** Source- 'Diamond of Sustainability' in Kjellén, B. (2008). A new diplomacy for sustainable development: The challenge of global change. Taylor & Francis.

Economic Recovery and Growth Plan (ERGP), a Medium-Term Plan for 2017–2020, builds on the Social Investment Programme (SIP) in order to restore economic growth. The ERGP was initiated by the pervasive structural changes and economic hardship occasioned by the economic recession to address problematic economic, social, and environmental sustainability issues. The authors opined that the economic recession witnessed by Nigeria in recent times could not be divorced from the price fluctuations in global commodity markets from 2014 and mismanagement of the state funds by the elites.

Ajeigbe *et al.*, (2022), maintains that enhancements of tax revenue generation, grants and other revenue accumulation boost economic performance and the attainment of SDGs in Nigeria. He suggests that tax should be levied in a manner that it is sustainable thus, it will not hamper businesses and individuals. Similarly, Oweibia, *et al.*, (2024) suggest that Nigeria has made some progress in areas such as policy alignment and strategic planning, but that challenges persist in effective implementation and tackling systemic issues like inequality and corruption. We however posited that although efforts have made to integrate the SDGs into national policies, significant gaps remain in addressing key challenges. The authors also maintain that Nigeria's scores in all the major sustainable index is still abysmal taking into consideration the waste disposal problem, poverty and environmental degradation as evidenced by gully erosion, gas flaring, environmental pollution, etc. notwithstanding the low level of industrialization.

3. Methodology

No empirical research methods are employed in this article. A qualitative and doctrinal research method is adopted. Accordingly, the relevant Nigerian tax law statutes and policies on taxation and sustainable development were consulted. The research also relied on journal articles, textbooks, case law, legal encyclopaedias, conference papers, international instruments, legislation and other relevant sources. Thus, both primary and secondary sources on taxation and sustainable development were consulted. Relevant court judgements and allied materials relating to taxation and sustainable development in the Nigerian federation were analysed and utilised in the article.

4. Results

Economic growth is a fundamental component of sustainable development. Taxes can stimulate growth by financing public infrastructure, education, healthcare, and other social services. However, Nigeria's heavy reliance on oil revenues has made its economy vulnerable to global price fluctuations, which in turn affects government spending and overall economic stability. The study found that by diversifying its tax base and improving tax collection, Nigeria can reduce its dependence on oil and increase its capacity to fund sustainable development projects, which the government is trying to achieve by tax reforms such as the Tax Reform Bills introduced by President Bola Tinubu-led administration. Moreover, tax policies that incentivize investment in renewable energy, technology, and green industries could foster long-term economic growth while reducing environmental degradation. Nigeria's abundant renewable resources, such as solar energy, could be better exploited through fiscal incentives that encourage private sector investment in sustainable industries.

4. 1. Taxation and Social Inclusion

The study found that taxation plays a key role in reducing inequality and poverty. In Nigeria, income inequality is one of the highest in Africa, with a Gini coefficient of 0.43 in 2020 and it is projected to be 0.35 in 2024 (Musa, *et al.,* 2024). Progressive tax policies, where high-income earners pay a higher proportion of their income in taxes, could help reduce inequality by redistributing wealth and funding social welfare programs that benefit low-income citizens. Personal income tax reforms that increase the tax-free threshold and ensure more progressive taxation rates would reduce the tax burden on the poor. Additionally, expanding the tax net to include the informal sector, which constitutes a significant portion of the Nigerian economy, would increase government revenue while promoting formalization and inclusivity.

4.2. Taxation and Environmental Sustainability

Environmental sustainability is the third pillar of sustainable development. The paper found that Nigeria faces severe environmental challenges, including deforestation, desertification, glas flaring and pollution. Taxation can be used as a tool to promote environmental sustainability by discouraging harmful practices and encouraging green alternatives. A green tax or carbon tax, for example, could be introduced to penalize companies that engage in environmentally damaging activities, such as excessive carbon emissions or deforestation. These taxes could be used to fund environmental protection initiatives, such as reforestation programs, renewable energy projects, and sustainable agriculture practices. Consequently, tax

incentives could be provided to companies that invest in clean technologies and sustainable business practices. The study also found that environmental sustenance related cases are determined on extraneous grounds in certain instances. In *Jalla and another v Shell International Trading and Shipping Co Ltd and another*, 2023, the United Kingdom Supreme Court unanimously dismissed the appeal, on the ground that the class action claim against Shell for oil spillage in Nigeria, which affected the livelihood of the indigenes was time-barred (see also *Okpabi v. Royal Dutch Shell Plc*, 2021). Similarly, a lot of cases such as *Ngbor v. Compagnie Generale De Geophysique (Nig.) Ltd &* Anor, 1993, *Seismograph Services (Nig.) Ltd. v. Ogbeni*, 1976) and *Seismograph Services Ltd. v.* Onokposa, 1972, were determined on issues of jurisdiction and locus standi, thus not determined on merit thereby allowing the abusers of the environment to go scot free.

4.3. Economic Transformation and Employment Generation

The study found that one of the primary objectives of sustainable development is to achieve economic transformation that generates employment opportunities. By integrating environmental considerations and taxation policies, Nigeria can create a favourable environment for economic growth, job creation, and income generation. This integration can be facilitated through the implementation of environmental tax reforms, which would incentivize businesses to adopt sustainable practices and technologies. As businesses strive to minimize their environmental impact, new jobs can be created in sectors such as renewable energy, waste management, and sustainable agriculture. Through targeted tax incentives, Nigeria can encourage the growth of these sectors, thereby fostering economic transformation and reducing unemployment rates.

4.4. Environmental Resource Management and Poverty Alleviation

The paper found that proper management of environmental resources is crucial for poverty alleviation and sustainable development. Developing countries, including Nigeria, often face challenges in harnessing the economic potential of their environmental resources due to inadequate systems and policies. By implementing effective taxation mechanisms, Nigeria can ensure the sustainable use of natural resources while simultaneously addressing poverty and inequality. Revenue generated through environmental taxation can be invested in initiatives that promote inclusive growth, provide social safety nets, and support vulnerable communities. Additionally, the introduction of environmental taxes can incentivize the adoption of sustainable practices among resource-dependent industries, ultimately leading to environmental conservation and poverty reduction.

4.5. Climate Change Mitigation and Adaptation

The study also found that climate change poses significant challenges for developing countries, including Nigeria. By incorporating environmental priorities into tax reform efforts, Nigeria can actively contribute to global climate change mitigation and adaptation strategies. Through the introduction of emission taxes and financial incentives, the government can encourage industries to adopt cleaner technologies and reduce greenhouse gas emissions. Revenue generated from these environmental taxes can then be directed towards climate change adaptation measures, such as building resilient infrastructure, implementing disaster risk reduction strategies, and supporting vulnerable communities affected by climate-related events. By integrating sustainable development and taxation, Nigeria can play a crucial role in

the global fight against climate change while ensuring long-term economic growth and environmental sustainability.

4.6. Proliferation of Taxes

The authors observed that there are too many taxes and levies imposed by the federal, states and local governments on the same transaction. The state and local governments collect corporate taxes which are referred to by other nomenclatures such as business permits, business registration levies and so on. Although, taxes may be concurrently levied on the same person, instrument, transaction or property legally, but it breeds inter-jurisdictional conflicts and encourage the fleeing of business to other jurisdictions especially with the ECOWAS treaty that allows free movement of goods and persons within the region (Parts II, III, IV and V ECOWAS Protocol on Free Movement of Persons, Residence, and Establishment 1979; see also Onwuka, 1982).

4.7. Update of Digital Technology

There is a need for the introduction and updating digital technology solutions to tax authorities for proper assessment, information storage enhancement and efficiency.

5. Policy Recommendations

To optimize the role of taxation in promoting sustainable development in Nigeria, the following policy recommendations are proposed:

5.1: Diversification of the Tax Base: Nigeria must reduce its dependence on oil revenues by expanding its tax base. This can be achieved by broadening the VAT base, improving personal income tax collection, and formalizing the informal sector.

5.2: Progressive Taxation: A more progressive personal income tax system would reduce income inequality and ensure that wealthier individuals contribute a fairer share of their income to public goods and services.

5.3: Environmental Taxation: The government should implement green taxes, such as a carbon tax, to discourage environmentally harmful activities and fund sustainable development projects.

5.4: Strengthening Tax Administration: Improving the efficiency and capacity of tax collection agencies is crucial for reducing tax evasion and increasing revenue generation. Investing in digital technologies and capacity building for tax officials would be key steps in this regard.

5.5: Public Engagement and Transparency: The government must work to rebuild public trust in the tax system by increasing transparency in the use of tax revenues and involving citizens in the budgeting process.

5. Conclusion

In conclusion, sustainable development and taxation may go hand in hand in Nigeria's journey towards economic growth and environmental sustainability. By implementing effective environmental tax reforms, Nigeria can promote economic transformation, generate employment opportunities, alleviate poverty, and contribute to global climate change

mitigation and adaptation efforts. It is essential for the government to prioritize the integration of environmental priorities into tax policies, effectively manage environmental resources, and invest in sustainable development initiatives. Through these measures, Nigeria can chart a path towards a greener, more prosperous future for generations to come.

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INTELLECTUAL CAPITAL AND PUBLIC SECTOR NON-FINANCIAL PERFORMANCE

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Abstract
Nigeria public sector has continuous issues in operational efficiency, service quality, and accountability, despite ongoing expenditures in resources and infrastructure. Addressing these difficulties demands assessing intangible assets, notably intellectual capital, which has proven useful in increasing organizational performance globally. The influence of intellectual capital, which includes human, organizational, and social capital, on the functioning of Nigeria's public sector is still insufficiently examined. This research examines the impact of intellectual capital on the non-financial performance of Nigeria's public sector, concentrating on characteristics such as efficiency, effectiveness, service delivery quality, accountability, and transparency. The fundamental purpose is to examine how intellectual capital contributes to overcoming operational constraints and boosting public sector functionality. A survey research approach was adopted, with structured questionnaires delivered to top management executives in selected ministries within Nigeria's North Central area. Data were evaluated using multiple regression to evaluate correlations between intellectual capital and performance metrics. Findings demonstrate substantial positive correlations between intellectual capital components and all measured performance metrics, underlining the essential role of intellectual assets in improving non-financial outcomes in Nigeria's public sector. The study indicates that deliberate investment in intellectual capital, emphasizing professional development, a culture of information sharing, and stronger accountability structures, can enhance public sector effectiveness and efficiency. These insights underline the need for public institutions to prioritize intellectual capital development as a means of achieving performance gains and meeting governance expectations.

Keywords: **Intellectual Capital, Public Sector, Non-Financial Performance, Public Sector Performance, Efficiency**

Introduction

The performance of the public sector is critical for socio-economic advancement, particularly in growing nations like Nigeria, where public institutions manage essential services, including healthcare, education, infrastructure, and security. However, these institutions generally deal with inefficiency, poor service delivery, and inadequate transparency. According to the World Bank, Nigeria's public sector ranks low in efficiency, and its governance difficulties continue to limit effective service delivery (World Bank, 2023). These difficulties are especially prevalent in the North-Central area, where difficulty in resource management, obsolete

systems, and bureaucratic delays have undermined public trust and overall efficacy (Nigerian Bureau of Statistics, 2022).

A significant yet underutilized aspect in boosting public sector performance is intellectual capital, which comprises human, social, and organizational capital. Intellectual capital has proved to increase organizational efficiency, accountability, and innovation, but it remains mostly untapped in Nigeria's public institutions, with little training and collaboration hampering its potential (Salehi et al., 2022). This study aims to examine the influence of intellectual capital on non-financial performance indicators within Nigeria's public sector, concentrating on efficiency, effectiveness, accountability, transparency, and service quality within chosen ministries in the North-Central area. By studying these links, the project intends to reveal insights that could assist public institutions harness intellectual capital to improve governance and service outcomes.

Literature Review

Conceptual Review

Intellectual Capital

Intellectual Capital, as articulated by renowned academics, includes human, social, and organizational capital, which together provide a foundation for innovation and competitive advantage (Kianto et al., 2020). Human capital covers individuals' knowledge and abilities, Social capital denotes connections and networks that facilitate collaboration, and organizational capital contains the institutionalized processes and systems that contribute to organizational efficiency (Teofilovic et al., 2023). While the notion is highly developed in the business sector, public institutions in Nigeria have been reluctant to integrate IC management into their strategy frameworks. In the public sector, IC is vital for improving service delivery, openness, and accountability. A significant gap in the research is the scarcity of extensive studies examining how public institutions, particularly in developing nations, might leverage intellectual capital to enhance non-financial performance metrics like citizen satisfaction and service quality. Existing studies tend to focus on financial outcomes, omitting the broader, non-financial components of public sector success (Oluwagbemiga & Ajibike, 2021).

Human Capital

Human Capital Studies consistently illustrate the relevance of human capital in driving organizational effectiveness. Human capital's value as the cornerstone of innovation and productivity has been extensively researched (Tajeddini et al., 2020). In public sector contexts, however, there is minimal examination of how human capital development could improve service delivery and governance. Most study focuses workforce skills but fails to explore how institutionalized professional development could improve inefficiencies in public service, particularly in the setting of Nigeria's public institutions.

Social Capital

Social capital is crucial for fostering trust, collaboration, and efficient communication, particularly within public sector organizations (Alghababsheh & Gallear, 2021). However, Nigerian public institutions are often marked by poor social capital, with limited coordination between government authorities and stakeholders. The literature acknowledges the potential of social capital to improve transparency and accountability, but actual research addressing these processes in Nigeria's public sector remain sparse. This study seeks to explore how building social capital could lead to better governance and institutional trust.

Organizational Capital

Organizational capital, which incorporates procedures, systems, and institutional knowledge, is vital for operational efficiency. The literature demonstrates that outmoded bureaucratic procedures impair performance in public entities (Anosa, 2021). While research in developed nations has emphasized on organizational innovation, there is a lack of context-specific studies that analyze how Nigerian public institutions may reform their structures to better harness organizational capital.

Non-Financial Performance in the public sector

Non-financial performance in the public sector comprises numerous qualitative and quantitative assessments that assess the success of government services beyond traditional financial outcomes (Budding et al., 2022). These criteria are crucial for understanding the greater influence of public institutions on society. Key markers of non-financial achievement include:

Efficiency

Efficiency in the public sector refers to the efficient usage of resources to deliver public services with minimal waste (Felício et al., 2021). Nigerian governmental institutions, however, are often distinguished by inefficient utilization of resources, resulting to poor service delivery. Intellectual capital, particularly human and organizational capital, can play a vital role in increasing resource management, although research has not adequately studied this potential within Nigeria's public sector.

Effectiveness

Effectiveness defines the extent to which public institutions achieve their purposes, such as delivering quality education or healthcare services (Oluwagbemiga & Ajibike, 2021). While effectiveness has been well-studied in the context of financial performance, there is a large research vacuum in understanding how intellectual capital—especially human and social capital—affects the ability of public sector institutions to fulfill their aims.

Quality of Service Delivery

The quality of service delivery in the public sector indicates the accessibility, punctuality, and contentment of citizens with public services (Ameen et al., 2020). Studies have proven that human capital, in particular, plays a vital impact in raising the quality of services, but the literature lacks sufficient empirical information on how IC affects service quality in Nigeria's public institutions, especially in areas like healthcare and education.

Accountability

Accountability assures that public officials and institutions be held responsible for their activities and use of resources (Rana & Hoque, 2020). Accountability is crucial for building trust in public institutions, and IC, especially social capital, can strengthen these mechanisms by fostering greater transparency and collaboration between public officials and citizens. However, the existing research on the function of IC in improving accountability in Nigeria's public sector is sparse.

Transparency

Transparency refers to the openness and availability of information about government acts, choices, and resource utilization (Ingrams, 2023). It is intimately connected to accountability and is vital for preventing corruption. While intellectual capital, particularly social and organizational capital, can help boost openness by promoting increased communication and information flow, research in this area remains underdeveloped, especially in Nigeria's public sector.

Theoretical Review

Resource-Based View (RBV)

The RBV argues that firms obtain a competitive edge through the effective exploitation of distinctive internal resources, notably intangible assets like intellectual capital (Amaya et al., 2024). Originated by Edith Penrose (1959) and extended by Jay Barney (1991), the RBV highlights human, social, and organizational capital as vital resources that can improve public sector service delivery, efficiency, and transparency. While the RBV has been widely implemented in the commercial sector, its usage in non-financial public sector performance is restricted. This study aims to address this gap by examining the role of intellectual capital in the outcomes of Nigeria's public sector.

Social Capital Theory

Introduced by Pierre Bourdieu (1986) and further enhanced by Robert Putnam (1995), Social Capital Theory stresses the relevance of networks, relationships, and trust in boosting organizational performance. In the public sector, social capital enhances collaboration, openness, and accountability (Miković et al., 2020). However, Nigerian governmental institutions generally lack sufficient social capital, hampering efficient governance. This study will employ Social Capital Theory to evaluate how stronger networks can enable improved service delivery in Nigeria.

Human Capital Theory

This theory was created by Gary Becker (1964), asserts that education and training investments boost individual capabilities and organizational output. In the public sector, human capital is vital for quality service delivery and effectiveness. Yet, research on its influence in Nigeria's public sector non-financial performance are limited. This study explores human capital effect on efficiency, service quality, and transparency across Nigerian public institutions.

Empirical Review

Shahwan and Fathalla (2020) investigated how intellectual capital (IC) mediates the relationship between corporate governance (CG) and business performance. They did this by analyzing IC and operational efficiency performance criteria using the Value-Added Intellectual Coefficient (VAIC), they discovered that CG boosts IC and firm performance, however IC only partially mediated the link between CG and efficiency.

Gupta et al. (2020) evaluated the "Intellectual Capital and Profitability" of Indian pharmaceutical enterprises, adopting a modified VAIC model. Their studies demonstrated that human, social, and physical capital significantly improved profitability measures, recommending organizations develop IC to enhance stakeholder value.

Ibarra-Cisneros et al. (2020) studied IC's influence on performance in Mexican manufacturing enterprises. The study's use of Partial Least Squares Organizational Equation Modeling (PLS-SEM) revealed that human, organizational, and social capital positively affect performance, proposing investments in IC to obtain a competitive edge.

Adesanmi (2021) examined IC's influence on non-financial enterprises in Nigeria. Panel regression study indicated that human and organizational capital efficiency significantly affected ROA and ROE, suggesting organizations to boost human and customer capital.

Ovechkin et al. (2021) analyzed Russian agricultural enterprises, showing that human and organizational capital most substantially drive profitability. The report recommends focusing on organizational improvements to boost financial results.

Essien and Aniekan (2022) analyzed 85 non-finance Nigerian enterprises, showing that organizational and social capital had considerable positive effects on ROA. The authors proposed greater investment in organizational and social capital to enhance performance.

Bello (2022) evaluated 71 Nigerian non-financial enterprises, indicating that IC had negligible impact on success but advocated reforms in human capital and organizational frameworks to boost growth.

Research Gaps

Most study on intellectual capital (IC) focused on private sector profitability, omitting non-financial performance characteristics in the public sector. For example, research like Shahwan and Fathalla (2020) and Gupta et al. (2020) studied IC's impact on company performance, concentrating primarily on financial outcomes. In Nigeria, studies by Adesanmi (2021) and Bello (2022) studied IC in non-financial firms but did not assess its influence on public sector KPIs like service quality, accountability, or transparency. These gaps underscore the need for targeted research on IC's role in increasing non-financial performance within Nigeria's public sector, which this study intends to address.

Contribution of the Study

This study adds by assessing how intellectual capital—human, social, and organizational—affects non-financial performance measures in Nigerian public sector, including efficiency, quality of service, accountability, and transparency. It broadens the use of the Resource Based View, Social Capital Theory, and Human Capital Theory in developing country settings and offers information on how IC may improve public service delivery and governance. The findings will give significant information for policymakers looking to better public sector performance and boost national development.

Mthodology

Research Design

This study uses a survey design to explore how intellectual capital influences non-financial performance in Nigeria's public sector. By collecting firsthand data from senior staff and management across several ministries, the survey method provides insights into the effects of intellectual capital on key performance areas like efficiency, effectiveness, service delivery, accountability, and transparency. Story and Tait (2019) highlight the survey approach's strength in collecting data from large, dispersed populations, while Mweshi and Sakyi (2020) emphasize its effectiveness for broad population studies, enabling comprehensive analysis.

Population of the Study

The study targets public sector institutions in Nigeria, specifically various ministries in the North-Central region. The focus is on top management involved in governance, institutional oversight, and performance management, as their roles are crucial in policy influence and organizational effectiveness.

Table 1: Distribution of Population

North Central States	Benue	Kogi	Kwara	Nasarawa	Niger	Plateau	Total
Number of Ministries	17	19	16	18	20	19	109

FCT, Abuja is not inclusive as its not a state, but a federal territory with departments and agencies

Sample Size and Sampling Technique

This study uses Yamane's (1968) formula, a well-established method applied in similar research, such as the work by Ekwochi et al. (2023). This formula provides a representative and reliable sample size, enhancing the accuracy of generalizations about the population. The calculation follows standard statistical practices, as shown below, to ensure robust and reliable representation of the target group.

$$n = \frac{N}{1 + N(e)^2}$$

Where:

N = Total population (190)

1 = Constant

e = Allowable margin to error. In this study, we consider 5% (0.05) error margin

$$n = \frac{109}{1 + 109\,X\,(0.05)^2} = \frac{109}{1 + 109\,X\,(0.05)^2} = \frac{109}{1.2725} = 85.658$$ Approximately = 86 ministries

After selecting the sample, a proportional stratification method was used to distribute the sample across various ministries according to each ministry's share of the total population. Kumar's (1976) proportional allocation formula guided this process, ensuring that each ministry's sample size accurately reflects its population proportion. This approach enhances sample representativeness, allowing for a more precise analysis across ministries.

$$nh = \frac{n(NH)}{N}$$

Where:

NH = Population of the Stratum,

n = Overall sample size

N = Overall Population

Example: NH of Benue = $\frac{17(86)}{109}$ = 13.4. Approximately 13

Table 2: Distribution of sample among the states

North Central States	**Benue**	**Kogi**	**Kwara**	**Nasarawa**	**Niger**	**Plateau**	**Total**
Number of Ministries	**17**	**19**	**16**	**18**	**20**	**19**	**109**
Number of selected Ministry	**13**	**15**	**13**	**14**	**16**	**15**	**86**

A purposive sampling strategy was used, targeting four top management executives from randomly chosen ministries within Nigeria's North-Central region. This non-probability approach ensures that only individuals with relevant expertise and experience are included. Top management officials were selected for their roles in decision-making and policy

implementation, making them key sources for understanding intellectual capital's impact on public sector performance. Nyimbili and Nyimbili (2024) highlight that purposive sampling is ideal for gathering in-depth insights from specific sub-groups, improving data reliability.

Data Collection Procedure

Structured questionnaires relating with the study's aims were employed to gather primary data from the chosen respondents, emphasizing thorough information across research domains.

Method of Data Analysis

Data collected were analyzed using descriptive statistics and a linear regression model in SPSS (Version 23), with results presented in tables and charts. Hypotheses were tested to reach valid conclusions.

Model Specification

A model of Adegbayibi (2021) was adopted, the model was stated as;

$ROAit = \beta o + \beta 1HCEit + \beta 2SCEit + \beta 3CCEit + \beta 4AGEit + \beta 5LEVit + \beta 6FIRM_SIZEit + \mu$…….(i)

The model restructured (Independent and Dependent Variable) was resulted in a final model as follows.

$Y = \beta_0 + \beta_1 HC + \beta_2 SC + \beta_3 OC + \varepsilon$ …….(ii)

Where:

Y represents efficiency, effectiveness, service quality, accountability, and transparency, with HC, SC, and OC as independent variables.

Results

Table 3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
IC	**344**	**1.00**	**5.00**	**3.7119**	**.98319**
EFF	**344**	**1.00**	**5.00**	**3.8619**	**.80073**
EFT	**344**	**1.00**	**5.00**	**4.0267**	**.80030**
QSD	**344**	**1.00**	**5.00**	**4.2129**	**.85377**
ACC	**344**	**1.00**	**5.00**	**4.1929**	**.81710**
TRP	**344**	**1.00**	**5.00**	**4.2238**	**.82613**

Source Author's Computation (2024)

Table 3 above show the descriptive statistics, revealing high mean scores for all variables, suggesting positive perceptions of intellectual capital (IC) and public sector non-financial performance in Nigeria. IC has a mean of 3.71, while efficiency, effectiveness, quality of service delivery, accountability, and transparency have means ranging from 3.86 to 4.22. Standard deviations range from 0.80 to 0.98, indicating moderate variability in responses, with ratings spanning from 1 to 5, reflecting diverse viewpoints among participants

Table 4: Correlations Matrix of the Independent and Dependent Variables

	Intellectual Capital	Effectiveness	Efficiency	Quality of Service Delivery	Accountability	Transparency
Intellectual Capital	1					
Effectiveness	0.921**	1				
Efficiency	0.940**	0.922**	1			
Quality of Service Delivery	0.895**	0.870**	0.945**	1		
Accountability	0.832**	0.817**	0.891**	0.950**	1	
Transparency	0.885**	0.863**	0.940**	0.996**	0.949**	1

** Correlation is significant at 0.01 level (2-tailed)
Source: Author's Computation (2024)

The connections between the independent variable (intellectual capital) and the dependent variable (public sector non-financial performance, measured by effectiveness, efficiency, quality of service delivery, accountability, and transparency) are shown in Table 4. The correlation coefficients in Table 4 reveals substantial correlations between all independent variables and the dependent variable.

Test for Hypothesis

Multiple Regression Estimation

Table 5: Coefficients

Model		**Unstandardized Coefficient**		**Standardized Coefficient**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	**(Constant)**	**1.079**	**.065**		**16.486**	**.000**
	Efficiency	**.750**	**.017**	**.921**	**44.002**	**.000**
	Effectiveness	**.765**	**.015**	**.940**	**51.443**	**.000**
	Quality of Service Delivery	**.777**	**.021**	**.895**	**37.482**	**.000**
	Accountability	**.692**	**.025**	**.832**	**28.023**	**.000**
	Transparency	**.744**	**.021**	**.885**	**35.531**	**.000**

Source: Author's Computation (2024)

The regression analysis indicates that intellectual capital substantially improves all non-financial performance metrics in Nigeria's public sector. Specifically, intellectual capital has a strong positive impact on efficiency (Beta = .921, P = 0.000), effectiveness (Beta = .940, P = 0.000), and quality of service delivery (Beta = .895, P = 0.000). It also improves accountability

(Beta = .832, P = 0.000) and transparency (Beta = .885, P = 0.000), fostering greater supervision and public trust. The findings demonstrate that intellectual capital is crucial for enhancing governance and public sector performance, resulting in the rejection of the null hypothesis at a 5% significance level.

Discussion of Findings

This study's findings provide valuable insights into the role of intellectual capital (IC) in enhancing non-financial performance within Nigeria's public sector. The results shows that respondents, especially with advanced qualifications and substantial work experience, feel IC positively influences key performance areas such as efficiency, effectiveness, service delivery, accountability, and transparency. This correlates with studies by Olayiwola (2018) and Musa & Ibrahim (2022), which emphasize the relevance of education and experience in driving organizational effectiveness.

The study underlines that human, social, and organizational capital are vital for enhancing efficiency in the public sector. While respondents acknowledge the abilities and competence of the workforce, they also stress the need for more investment in training and development. This corresponds with Ibarra-Cisneros et al. (2020), who argue that IC increases organizational performance and competitive advantage. The study indicates that intellectual capital enhances the execution of government initiatives and the quality of public services, consistent with Ovechkin et al. (2021).

Accountability and openness, crucial for public trust, are considerably strengthened by IC, notably through improved organizational processes and ethical standards. These findings confirm Essien and Aniekan (2022), who emphasize the relevance of social and organizational capital for organizational effectiveness. The report underlines that improving IC in Nigeria's public sector can solve challenges like corruption and promote more public confidence. From an economic and practical standpoint, the study underlines that leveraging the knowledge and expertise of public sector employees can improve efficiency and resource allocation, resulting to large cost savings. Additionally, promoting IC through human, social, and organizational capital can generate advances in accountability and transparency, which are vital for building confidence and attracting foreign investment.

The study supports the Resource-Based View (RBV), which believes that valuable, uncommon, and inimitable resources generate competitive advantage. IC is such a resource, contributing significantly to non-financial performance metrics. Similarly, the findings fit with Social Capital Theory, which underlines the value of connections and trust in organizational effectiveness, and Human Capital Theory, which underscores the need of investing in skills and knowledge to boost productivity and performance.

Conclusion and Recommendation

This study highlights the significance of intellectual capital—human, social and organizational capital—in improving the performance of Nigeria's public sector. The results indicate that investment in intellectual capital enhances operational efficiency, improves service quality, and increases accountability and transparency.

Key recommendations include:

i. Prioritize continuous skill-building for civil servants to improve efficiency.
ii. Foster initiatives that promote collaboration and organizational effectiveness.
iii. Streamline processes and adopt new technologies for better service delivery.
iv. Strengthen accountability through improved organizational structures.
v. Enhance communication and ensure public sector information is accessible to build trust.

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THE EFFECT OF SUSTAINABILITY REPORTING PRACTICES ON THE PERFORMANCE OF MULTINATIONAL COMPANIES IN NIGERIA

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Abstract: Concerns about the impact of corporate activities on the environment as well as the firm's drive for profit maximization have recently increased, spiking greater interest in Environmental, Social, and Governance (ESG) disclosure, and its consequential effect on corporate performance. The research seeks to assess the effect of sustainability reporting practices on the performance of multinational companies in Nigeria, employing a dataset spanning 2014 to 2023. Using an ex-post facto research approach, with data sourced from stand-alone sustainability and annual reports of the listed multinational corporations, the research examines how the adoption of sustainability reporting (ESG) vis-a-vis governance mechanism and reputation impacts financial performance. By identifying this interconnectedness, the research provides insights into the strategic benefits of sustainability for multinational corporations in Nigeria's evolving business landscape. The findings will offer insights into the strategic role of ESG reporting in driving sustainable business performance and offer practical recommendations for enhancing corporate sustainability efforts and their integration into long-term business strategies, contributing to the advancement of sustainable development goals in Nigeria.

Keywords: ESG reporting; Corporate reputation; Governance Mechanism; Firm Performance

1. Introduction

Sustainability reporting has roots in the concept of accounting for social audits and human resources in the 1970s, triple bottom line reporting in the 1990s, environmental reporting, corporate social responsibility reporting, and multiple iterations of the Global Reporting Initiative guidelines (Simnet et al, 2019).

Sustainability reports have grown dramatically in the last few years. Sustainability reporting in Nigeria is gaining traction, driven by increased global awareness of environmental, social, and governance (ESG) factors and local regulations. The Nigerian government and regulatory bodies have implemented several frameworks to encourage sustainability reporting. Key among them is the **Nigerian Stock Exchange (NSE),** which introduced its "Sustainability Disclosure Guidelines" in 2019. These guidelines align with international standards like the

Global Reporting Initiative (GRI) and United Nations Sustainable Development Goals (SDGs), requiring listed companies to disclose their environmental and social impact.
Multinational oil and gas companies like **Shell** and **Chevron** have been at the forefront of sustainability reporting, largely due to international scrutiny and the environmental impacts of their operations. These companies issue comprehensive reports highlighting their efforts in environmental conservation, community development, and local content enhancement. Banks such as **Zenith Bank** and **Guaranty Trust Bank (GT Bank)** have adopted sustainability reporting as part of their annual reports. These banks disclose ESG risks, CSR initiatives, and their contributions toward climate finance and responsible lending practices. Companies like **Nestlé Nigeria** and **Unilever Nigeria** have integrated sustainability into their operations, focusing on reducing their carbon footprint and engaging in responsible sourcing practices.

Statement of the Problem
A business organization exists to generate and optimize wealth for its proprietors. The business's primary money suppliers and risk-takers are its shareholders. Consequently, its resources are generally used to compensate the capital supplier. Most of the time, these organization's actions have an impact on both the local and global environments in which they operate.
Reporting on sustainability has gained a lot of attention worldwide, especially in Nigeria. Business-wise, the difficulty facing organizations is how to continue operating sustainably and consistently considering the intricate workings and high expenses associated with social and environmental externalities in the oil business. Sustainability reporting facilitates the assessment of companies' ethical and sustainable business practices, including their physical, social, and economic operations, as well as the timely sharing of information in their annual reports to enable stakeholders to make informed decisions.
Sustainability reporting has become crucial for both developed and emerging economies. Businesses in developing nations such as Nigeria perceive Sustainability Reporting (SR) as a tedious and time-consuming process that requires data collection, content creation, and clearance from upper management (Buba & Kumarul, 2019). Given this, the majority of the economy's sectors do not require sustainability reporting, which has alarmed the Financial Reporting Council of Nigeria (FRCN).

Objectives of the Study
The main objective of this study is to assess the effect of Sustainability Reporting Practices on Performances of Multi-National Companies in Nigeria. However, the study sought to:

- evaluate the impact of sustainability reporting on investment returns (ROI)
- analyze the effect of sustainability reporting on market performance (Tobin's Q)
- Examine the relationship between sustainability reporting practices and financial performance (ROA):

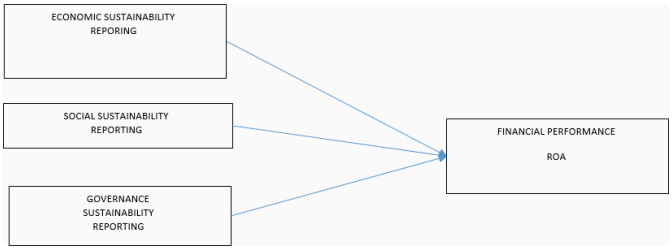
Scope of the Study
The scope of this study will be viewed from two perspectives; in terms of variables, three (3) explanatory variables will be employed including Economic Sustainability Reporting, Social Sustainability Reporting, and Governance Sustainability Reporting, while financial performance will be proxy by Return on Assets for the year. The study will cover the period 2014 -2023.

LITERATURE REVIEW
Conceptual Framework

Concept of Sustainability Reporting
GRI (2019) defines sustainability reporting as monitoring, revealing, and holding internal and external stakeholders accountable for achieving sustainable development goals. Umoren and Ukpong (2022) establish sustainability accounting as a subbranch. Accounting focuses on recording, analysing, and reporting the financial impacts of environmental and social elements, as well as the ecological and social implications of an economic system. Sustainable development reporting is more than just generating reports from collected data. It is a mechanism to demonstrate an organization's commitment to sustainable development to internal and external stakeholders. Akpan & Simeon (2021) argue that making these disclosures informs stakeholders about how corporations integrate sustainable development ideas into their aims and operations.

Concept of Financial Performance
Performance is a challenging notion to define and assess. Financial performance is defined as the outcome of activities. The best measure for evaluating an organization depends on its nature and aims (Jat, 2016). Uwuigbe et al. (2018) found that firms' performance can be measured by their size (total assets), profitability (return on assets, return on equity, earnings per share), and market-based proxies (Tobin's Q and market price per share). Financial ratios are commonly used to evaluate a firm's performance and improve management (Kwaghfan, 2015).

Sustainability Reporting Practices and Firm Performances
Many studies have investigated the impact of ESGD on company performance, but the results have been conflicting. Some researchers (e.g., Qiu et al. 2016) found no association, while others confirmed that ESGD could increase a firm's costs, resulting in an economic disadvantage (Yoon et al. 2018). Prior research suggests that ESGD may improve business performance directly and indirectly, increasing organizations' competitive advantages and shareholder value (Bernardi and Stark, 2018; Li et al., 2018). Certainly, the benefits of corporate engagement in ESGD appeared to include, among other things, improved operating efficiency and firm reputation in the capital market (Yoon et al., 2018; Li et al., 2018).



Theoretical Framework
The Stakeholder's Theory
Freeman's (1984) stakeholders' theory provides support for this study. This idea focuses on how firms manage their stakeholder relationships through acknowledgment, openness, and accountability. Freeman (1984) argues that all stakeholders have the right to reasonable treatment by the organization. He defines stakeholders as any group or people who can influence or be influenced by the organization's aims. These groups include employees, local

communities, customers, suppliers, competitors, banks, investors, governments, and NGOs. Some scholars agree with his position on the firm's responsibility to stakeholders beyond shareholders, whereas Friedman (2004) disagrees.

The stakeholder theory aims to identify which stakeholders are most important to the organization's performance and success (Rahman & Rahman, 2020). This is crucial for effective management. Okafor, Adeusi, & Adeleye (2021) agree that firms identify stakeholders to manage for the corporation's best interests.

Relevance of the Theory to the Research

This theory is pertinent to this study as it suggests that stakeholders expect corporations to be socially and ecologically responsible, resulting in a market premium for improved economic, environmental, and social performance, which increases shareholder value. As we all know, shareholders are the organization's key stakeholders. Jensen and Meckling's agency theory, proposed in 1976, provides additional support for this study. According to this view, shareholders form a principal-agent relationship with management, appointing them to handle the company's activities. Conflicts of interest may arise when agents prioritize personal aims over those of the principal.

Empirical Review

Alshehhi, Nobanee, and Khare (2018) explore how business sustainability affects financial performance. A rigorous content analysis was conducted to assess the present state of research. A total of 132 publications from high-quality journals were shortlisted. 78% of publications show a positive correlation between company sustainability and financial performance. Researchers' perspectives on a link may differ due to differences in technique and varied measurements between studies.

Hongming, Ahmed, Hussain, Rehman, Ullah, and Khan (2020) examined the level and extent of sustainable financial reporting for non-financial firms in Pakistan and assessed the level of the impact of sustainable financial reporting on firm performance in Pakistan. The study collected data from the sustainability reports as well as annual reports of 50 non-financial public limited companies listed in the Pakistan Stock Exchange for the period 2013 to 2017.The results confirm the positive effects of all three individual indicators as well as the composite form of sustainability reporting index on firm performance.

Mbu-ogar, Kangkpang, Nkiri, & Amoke, (2023) examined the effect sustainability reporting on corporate survival of oil and gas companies in Nigeria. The study adopted the GRI content index to scrutinize oil and gas companies' financial statements for the availability of sustainability reports (economic, environmental, and social performance) for the study period (2016-2020). The study population of the study comprised 10 oil and gas companies quoted on the Nigerian Stock exchange as of 2020 with complete financial statements for the study period. The multiple regression statistic served as data analyses tool. The study found that sustainability reporting has an inverse and insignificant effect on corporate survival. The implication of this result is that oil and gas firms' sustainability reporting strides do not guarantee corporate survival (positive financial position and healthy liquidity and solvency status).

Onoh, Adonye, Biradawa, and Ndubuisi (2023) examined the effect of sustainability reporting practices of environmental, social, and economic on the firm value proxied by Tobin's Q of listed oil and gas firms in Nigeria. The study relied mainly on secondary source of data and comprised of published annual reports. The study revealed that; environmental sustainability

reporting has a positive significant effect on the value of listed oil and gas firm in Nigeria. Also, economic sustainability reporting has a negative significant effect on the value of listed oil and gas firm in Nigeria. The result also showed that firm characteristics proxied by sales growth and leverage exerts a negative significant effect, whereas firm size exerts a positive significant effect on sustainability reporting and firm value of oil and gas companies in Nigeria.

Research Gap

Understanding the relationship between Sustainability Reporting Practices and Corporate Performance has become more important as the effects of Sustainability Reporting on business operations and Corporate Performance are becoming more widely acknowledged. Prominent investigations (Buallay et al., 2020; Abdi et al., 2021; Naeem et al., 2022) have examined this relationship; yet, cross-sector comparative studies are scarce, especially in the Nigerian setting. Most of the research that is currently available in Nigeria focuses on the particulars of certain industries, such as the consumer goods industry (Ofoegbu & Asogwa, 2020; Obamwonyi & Ugbogbo, 2023), and the industrial goods industry (Alhassan et al., 2021; Akinadewo et al., 2023), and financial institutions (Temitope & Godwin, 2021; Sani et al. 2022). Only a few studies have been done in the field of Multi-National Oil Companies thereby vindicating the cogent reason for this study. Much of the research work that has been done on Sustainability Reporting Practices frequently ignores sector-specific dynamics in favour of generalizing findings across industries. Research on the effects of sustainability reporting on Nigeria's various Industries—such as banking, telecommunications, and oil and gas—is required. A lot of the research work in the field of Sustainability Reporting Practices offers a quick overview of sustainability reporting procedures and their results. Longitudinal studies that look at these practices' changes over time and their long-term effects on business success are lacking. Few studies are comparing the performance and sustainability reporting of local and international businesses in Nigeria. Examining variations in outcomes, adoption, and execution may yield fresh perspectives. It is considering the above that the study aims to fill the looping gap in the field of Sustainability Reporting Practices in the Oil and Gas sector.

Methodology

Data Collection: Annual reports and sustainability disclosures from selected multinational companies in Nigeria (2015–2023).

Analysis:

- Quantitative: Regression analysis to examine the relationship between sustainability reporting metrics and ROA, ROI, and Tobin’s Q.
- Qualitative: Content analysis of sustainability reports to identify best practices and gaps.

Sample: Ten multinational companies across diverse industries (e.g., oil and gas, manufacturing, telecommunications).

Conclusion

Hope that at the end of this study, authorities tasked with overseeing corporate sustainability reporting compliance would find this research useful in understanding the necessity of putting in place suitable sustainable practices and reporting to prevent the collapse of economically significant firms. Additionally, the study's findings will help the company's management in its fight to uphold international best practices while simultaneously defending the interests of

shareholders, customers, and staff. The findings will offer insights into the strategic role of ESG reporting in driving sustainable business performance and offer practical recommendations for enhancing corporate sustainability efforts and their integration into long-term business strategies, contributing to the advancement of sustainable development goals in Nigeria. The study will also be useful for the academician on further study. After the analysis has been carried out, we will be able to know if sustainability report enhances performance or not.

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TAXATION AND SUSTAINABILITY: ASSESSING THE ECONOMIC DEVELOPMENT IMPACT OF NIGERIA'S PETROLEUM, CORPORATE, AND INDIRECT TAXES

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ABSTRACT

This study examined impact of petroleum profit tax (PPT), corporate and indirect taxes on economic development in Nigeria. Using an ex post factor research design with data sourced from Central Bank of Nigeria (CBN) Statistical Bulletin and Federal Inland Revenue Service (FIRS) over 12 years (2011-2022), data were analysed using regression analysis. The findings revealed a negative significant impact for Petroleum Profit Tax (PPT) but a positive significant impact for Company Income Tax (CIT) with economic development. Meanwhile, a positive insignificant relationship was found for Capital Gain Tax (CGT), Stamp Duties (SD) and Value Added Tax (VAT) with the economic development. These findings are therefore suggestive that an imbalanced impacts exists for taxation system on economic growth in Nigeria, with PPT potentially hindering economic development probably due to the over-reliance on oil revenues and inefficiencies in how the oil funds are been managed, while CIT effectively enhances it by supporting infrastructure, education, and other public goods that foster development. The insignificant influence of CGT, SD, and VAT indicates inefficiencies or untapped potential in these taxes. Thus, enhancing the efficiency and enforcement of VAT and other indirect taxes could help drive economic growth without overburdening the economy. Besides, need for a more diversified tax base and reforms in tax policies, especially in managing oil funds and improving indirect taxation systems.

Keywords: *Petroleum Profit Tax, Company Income Tax, Capital Gain Tax, Stamp Duties, Value Added Tax, Economic Development*

Introduction

Taxation in several emerging nations serves as an essential tool for revenue generation to the government purse, thus, enabling the provision of essential public services and infrastructure (Queku et al., 2024). Given this, governments tend to rely on various forms of taxes which maybe direct like petroleum profit tax (PPT), corporate taxes, and other indirect taxes like capital gain tax (CGT), stamp duties (SD) and value added tax (VAT), to fund critical development programs. With the fund generated aimed at reducing poverty, enhancing economic stability, and improving living standards (Olaoye, 2024; Olatunji et al., 2024; Alpheaus et al., 2024). While this seems interesting, its effectiveness in driving sustainable economic growth most often depends on the efficiency of the tax collection, compliance rates, and how well governments utilize the revenue to meet their developmental goals (Adeosun et al., 2024). This has been a menace bedevilling the state of Nigeria ever since it got its independence, and till date, efforts geared toward sustainable economic development is yet to yield significant results (Eze, 2024).

Although, tax revenue is the second largest source of revenue to the government of Nigeria, yet poverty still lingers in the society as there exists a wide gap between the rich and the poor, high unemployment rate, and poor healthcare and basic amenities for all (Onyernama et al., 2024). This has resulted to high mortality rate, brain drain steaming from poor educational funding, lack of critical infrastructures, high inflation rate, and insecurity. (Ortom et al., 2024). These are against the core goals of sustainable development that seeks a society of zero poverty and hunger, improved health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, reduced inequality, sustainable cities and communities, responsible consumption and production, coordinated climate action, marine life protection, animal life protection and strong institutions (Ozili & Iorember, 2024). Thus, to achieve sustainable economic development, it is crucial for Nigerian government to seek a society wherein the future generations can inherit a resource base that is no less than the inheritance of the previous generation.

While taxation has contributed significantly to government income in Nigeria, its tax-to-GDP ratio still remains one of the lowest globally, at about 6.7% as at the last updated ratio in 2021,

compared to a 15.6% average in other sub-Saharan African nations (OECD, 2023). Numerous development programs such as the Structural Adjustment Programme (SAP), Sure-P, and N-Power have been developed by the government to enhance the nation's economic development. However, financing these initiatives relies heavily on tax revenue. Albeit, with inefficient tax collection systems and low compliance, the country struggles to unlock its full economic potential. This is evidenced by Nigeria's poverty headcount ratio, which reveals that approximately 30.9% of the population lives on less than $2.15 per day in comparison with the sub-Saharan African average of $36.7 per day, based on 2017 and 2019 purchasing power parity-adjusted prices (World Bank, 2023). Additionally, Nigeria's life expectancy at birth stood at 54 years as of 2022, significantly lower than the sub-Saharan African average of 61 years (World Bank, 2024). This figure reflects the number of years a newborn is expected to live if the current economic hardships and mortality patterns in Nigeria remain unchanged. All this sums up to reflect that ensuring an optimum standard of living still remains one of the pressing challenges facing the country's sustainable economic development. This might have steamed up due to how cancerous corruption had eaten deep in Nigeria (Ewa et al., 2020). Hence, an urgent need to evaluate the true impact of taxation on Nigeria's economic development and whether the revenue generated from different forms of taxation is being effectively utilized to meet developmental objectives.

This research hereby seeks to evaluate taxation and sustainability by assessing the economic development impact of Nigeria's taxation with particular focus on taxes from petroleum profit, corporate income, and indirect taxes. The remaining sections comprise a review of the system of taxation in Nigeria, explanation of sustainable economic development, theoretical underpinning and review of prior literatures. Next is the methodology, this is followed by analysis and result presentation. The final section presents the conclusion and recommendations.

2.1 The Taxation System in Nigeria

Taxation is a vital tool in which the government is expected to support economic development, address social needs, and promote sustainable growth. Taxation according to Adeosun et al. (2024) is a means through which governments raise revenue from individuals and businesses to finance public expenditures like infrastructure, healthcare, education, and social welfare programs. Taxation in the past is generally viewed as a means of generating revenue for

government but today it is more a way through which citizens contribute to a common purse for the provision of infrastructure, utilities, security and other needs for the benefit of all (Olaoye & Olaniyan, 2022). Nigeria as a country operates a tiered tax system at the federal, state, and local levels, with each tier empowered to collect taxes such as company income tax, value-added tax, and petroleum profit tax (Olaoye, 2024). The taxes are levied on individuals and company's incomes or profits, property, and sale of goods and services. Generated revenue thus become essential for funding government operations and achieving broader socio-economic objectives, like reducing inequality and promoting economic development (Olaoye et al., 2019).

Developing nations require striking a balance between revenue generation and equitable tax policies as it is critical for promoting sustainable growth and addressing pressing social needs (Alpheaus et al., 2024). For this purpose, the Nigerian tax system is governed by various laws and legislations, including the Education Tax Act (1993 & 2004), Stamp Duties Act (1990), Company Income Tax Act (CITA) (1990 & 2004), Capital Gain Tax Act (1990), the Federal Inland Revenue Service Act (2004), Petroleum Profit Tax Act (2004 & 2007), Personal Income Tax Act (PITA) (2004) and Value Added Tax Act (1993 & 2004) (Olaoye, 2024; Olaoye et al., 2019). It is argued that these tax policies are key to ensuring the country's economic progress, especially when aligned with principles of fairness and economic efficiency (Olufemi et al., 2024). Moreover, this legal infrastructure supports economic development by ensuring that tax revenues are mobilized to meet public needs and national development goals.

2.1.1 Petroleum Profit Tax

Nigeria is an oil-dependent economy with Petroleum Profit Tax (PPT) as its core source of government revenue wherein the PPT contributes significantly to the country's fiscal budget, financing critical development projects including infrastructure, healthcare, and education (Adeosun et al., 2024). Governed by the Petroleum Profit Tax Act (PPTA), PPT is imposed on the income of companies engaged in the petroleum exploration and production (Obadiaru et al., 2024). This tax structure not only supports government revenue but also incentivizes oil companies to invest in sustainable extraction methods. PPT is a key driver of Nigeria's development, providing substantial funding for public sector projects. The reliance on oil revenues through PPT supports the importance of diversifying the tax base to reduce

vulnerability to oil price fluctuations (Ewa et al., 2020). While oil remains a vital part of Nigeria's economy, leveraging PPT revenues for long-term investment in non-oil sectors can foster broader economic growth and reduce the nation's dependency on a single industry (Olaoye, 2024). This strategy is in alignment with the global trends of moving towards a more diversified and resilient economic framework.

2.1.2 Company Income Tax

Company Income Tax (CIT) is another crucial component of Nigeria's tax system, targeting profits earned by companies operating in the country, excluding those in the petroleum sector. CIT, as outlined by the Companies Income Tax Act (CITA), is typically charged at a rate of 30%, although the government offers tax incentives for certain sectors to stimulate investment and industrial growth (Olaoye, 2024). This tax serves as an important source of non-oil revenue, which is essential for balancing the government's fiscal reliance on petroleum-based income. Funds collected from CIT are used to finance key public services, such as education and infrastructure, which are crucial for national development (David et al., 2024).

The role of CIT in fostering economic development is significant, because as companies contribute a portion of their profits, the government can mobilize resources for sustainable development goals, including poverty reduction and improved public services (Alpheaus et al., 2024). Furthermore, CIT can promote corporate responsibility, encouraging businesses to invest in local economies and contribute to broader societal needs. However, challenges such as tax evasion and enforcement remain key issues that need to be addressed to maximize CIT's potential impact on economic development (Ortom et al., 2024).

2.1.3 Capital Gain Tax

Capital Gain Tax (CGT) in Nigeria is imposed on profits earned from the sale or transfer of capital assets, such as land, buildings, and investments (Upaa et al., 2023). Administered under the Capital Gain Tax Act, CGT serves as a means to redistribute wealth and ensure that individuals and corporations benefiting from the appreciation of assets contribute to the national economy. The tax rate is set at 10% on chargeable gains, providing a relatively low but important source of revenue for the government (Olatunji, 2024). The revenue generated

from CGT is often expected to be reinvested into public infrastructure projects and social services, helping to improve the overall quality of life for citizens.

Furthermore, by taxing capital gains, the government also promotes fairness and equity in wealth distribution, ensuring that those who profit from asset sales contribute to national development efforts. This aligns with broader fiscal strategies aimed at reducing inequality and fostering inclusive growth in Nigeria (Adeosun et al., 2024). Therefore, CGT can be said to be a tool for promoting economic stability and equitable development.

2.1.4 Stamp Duties

Stamp Duties are taxes imposed on legal documents, such as contracts, agreements, and property transactions, making them a vital component of Nigeria's tax system (Ahmed & Musa, 2024). These taxes, governed by the Stamp Duties Act, apply to both individuals and corporations, ensuring that a wide range of economic activities are formally documented and taxed (Olaoye, 2024). The funds generated from these duties are often allocated to public services and infrastructure projects, thereby supporting economic development and ensuring the smooth functioning of the legal and financial systems (Onyernama et al., 2024).

The importance of stamp duties in promoting economic development cannot be overstated, because by creating a legal framework that underpins economic transactions, these duties help maintain order and transparency in business dealings (Ahmed & Musa, 2024). This legal assurance fosters confidence in the economy, attracting both domestic and foreign investments (Ortom et al., 2024). Moreover, the revenue from Stamp Duties enables the government to invest in critical infrastructure, further stimulating economic growth and development (Olufemi et al., 2024). Hence, Stamp Duties not only contribute directly to government revenue but also play an indirect role in supporting a stable and thriving business environment.

2.1.5 Value Added Tax

Value Added Tax (VAT) is a consumption tax levied on the value added to goods and services at each stage of production or distribution (Nwaiwu, 2024). In Nigeria, the VAT rate is set at 7.5%, with exemptions for essential goods and services, such as food items and educational materials (Olaoye, 2024). VAT is one of the most significant sources of revenue for the Nigerian government, accounting for a substantial portion of the country's non-oil tax revenue

(Mohammed et al., 2024). The funds collected from VAT are used to finance public projects, including infrastructure development, healthcare, and education, which are critical for national development (Obadiaru et al., 2024).

In Nigeria, VAT is essential because it is essential in the economic development of the country, because it assist in the diversification of the government's revenue base and reduces its over-reliance on oil revenues (Ortom et al., 2024). Thereby, VAT ensures that both individuals and businesses contribute to the funding of public services, thus promoting a more inclusive and equitable economic environment (Queku et al., 2024). Also, VAT encourages accountability and transparency in the business sector, as companies are required to maintain accurate financial records to comply with the VAT regulations.

2.2 Sustainable Economic Development

Sustainable economic development refers to the process of improving the economic, social, and political well-being of a nation's population (Olaoye et al., 2019). In Nigeria, taxation plays a central role in driving economic development by providing the necessary resources for public investments in infrastructure, education, healthcare, and other social services (Adeosun et al., 2024). Taxes such as PPT, CIT, CGT, and VAT are critical for funding these public goods, ensuring that the government has sufficient revenue to meet the growing demands of a rapidly expanding population (Olaoye et al., 2024). Therefore, the efficient and equitable administration of taxes is essential for fostering sustainable and inclusive growth in Nigeria.

However, challenges such as tax evasion, inefficient collection systems, and reliance on oil revenues most times hinder the full potential of taxation in promoting economic development (Ortom et al., 2024). In order to address these issues, Nigeria must strengthen its tax administration, diversify its revenue base, and implement policies that promote compliance and fairness in the tax system (Olaoye, 2024; Onyernama et al., 2024). Similarly, effective tax policies, coupled with strategic public investments, can create an environment conducive to economic growth, poverty reduction, and social development, which could potentially improve the standard of living for all Nigerians.

2.4 Theoretical Framework

Several theories have been proposed to explain the relationship between taxation and economic development. Prominent among include the ability to pay, cost of service and the benefit received theories. This study however is anchored on the benefit received theory which posits that taxpayers are to remit back to the government in proportion to the benefits they receive from public services. Here, taxation is viewed as a contractual relationship between citizens and the state, where the state provides essential services like infrastructure, healthcare, and education, in return for citizens to pay taxes to fund these services (Eze, 2024). The theory is particularly relevant in developing economies where the efficient use of tax revenues to provide public goods can significantly enhance economic development. For instance, VAT and PPT are often employed to directly fund infrastructural projects, which in turn improves productivity and drive sustainable growth (Queku et al., 2024). Meanwhile, the theory emphasizes on accountability to ensure that taxpayers enjoy tangible benefits from their contributions, and consequently promote voluntary compliance and fostering a positive relationship between taxation and economic development.

2.8 Empirical Review

Jolaiya (2024) examined the impact of indirect taxes on income inequality in Nigeria, employing a time series data from 1990-2021 and utilized the error correction model. The study found that's stamp duties are negatively associated with reduction in income inequality. Contrarily custom and excise, and value added tax all revealing a positive relationship. Alpheaus et al. (2024) in their study on the effect of corporate taxes (CT) on the profitability of listed food and beverage firms in Nigeria found that company income tax and capital gains tax positively and significantly impacted return on equity, while education tax had a negative significant effect. This contradicts the finds of Adegbite and Azeez (2022) who examined the effect of CIT revenue on the growth of Sub-Sahara countries in Africa and found CIT revenue negatively affected the growth of Sub-Sahara Africa countries over the period examined in the short and long run.

Olaoye et al. (2024) who examined similar scope for the oil and gas companies reported a significant positive effect of PPT, and customs and excise duties on firms' profitability while VAT revealed negative association suggesting the need to reduce VAT to enhance profitability in the oil and gas sector. Olatunji et al. (2024) who examined CGT impact on overall tax

revenue generation in Nigeria found CGT to not have any significant impact on Nigeria's overall tax revenue, indicating CGT does not substantially contribute to tax revenue in Nigeria.

Werekoh (2022) in its assessment found that taxation and tax compliance negatively but significantly affect economic development.

Furthermore, Adekunle (2021) who examined the relationship between taxation and the expansion of the Nigerian economy found CIT demonstrates significant positive impact while CGT and PPT showed insignificant effects on revenue generation for Nigeria's economic growth. Employing an autoregressive distribution lags (ARDL) approach, Maganya (2020) domestic goods and services (TGS) taxes are positively related to GDP growth, while income taxes showed a negative statistical relationship. Similarly, Ewa et al. (2020) revealed PPT is significantly positively related to GDP.

3. Methodology

3.1 Data Sources, Definition and Measurement

This study focuses on the Nigerian economy, utilizing data on key variables like Petroleum Profit Tax (PPT), corporate taxes, indirect taxes and Real Gross Domestic Product (GDP) for the tax years 2011 to 2022. The data were sourced primarily from the Central Bank of Nigeria (CBN) statistical bulletin and tax statistics reported by the Federal Inland Revenue Service (FIRS). These sources are considered reliable, as they represent authoritative institutions responsible for Nigeria’s monetary policies and taxation.

Table 1: Variables Measurement

Variable	**Definition/Measurement**	Studies that employed similar Metrics
Dependent Variable		
Economic Development (ED)	Annual Real Gross Domestic Product (GDP)	Onyernama et al. (2024)

Independent Variables			
Petroleum Profit Tax (PPT)		Annual revenue from petroleum profit tax	Gabriel and Ezekiel (2019)
Corporate Tax		Annual revenue from company income tax (CIT)	Adegbite and Azeez (2022)
Indirect Taxes	Capital Gain Tax	Annual revenue from capital gain tax	Dibia and Onwuchekwa (2019); Olatunji (2024)
	Stamp Duties	Annual revenue from stamp duties	Ahmed and Musa (2024)
	Value Added Tax (VAT)	Annual revenue from value added tax	Olaoye et al (2019)

Authors Definition, 2024

3.2 Model Specification

The model specification of Obadiaru et al. (2024) is adopted and adapted as a guide for this study. The model is as specified below:

$ED = f\ (PPT, CT, INDTax,)$

i.e., $GDP = a + \beta_1 PPT + \beta_2 CIT + \beta_3 CGT + \beta_4 SD + \beta_5 VAT + ẹ$

Where:
PPT= Petroleum Profit Tax
CIT= Company Income Tax
CGT= Capital Gain Tax
SD= Stamp Duties
VAT= Value-Added Tax
GDP= Real Gross Domestic Product
ẹ = Error Term

4. Data Analysis and Findings

4.1 Descriptive Analysis Result

Table 2:	**Descriptive Statistics**				
	N	Minimum	Maximum	Mean	Std. Deviation
GDP	12	58180.35	75768.95	68416.012	5134.17
PPT	12	1157.81	4209.02	2306.39	899.55
CIT	12	654.45	2649.19	1303.93	525.20
CGT	12	2.65	99.40	20.423	27.49
SD	12	5.90	120.16	24.66	33.27
VAT	12	659.15	4584.37	1445.94	1150.22
Valid N (listwise)	12				

Authors Computation, 2024

The descriptive analysis of the data in Table 2 is based on a 12-observation sample, showing the distribution and variability of Real GDP and various tax types. GDP, the dependent variable, ranges from a minimum of 58,180.35 to a maximum of 75,768.95, with an average of 68,416.01 and a standard deviation of 5,134.17. Petroleum Profit Tax (PPT) shows a considerable range (1,157.81 to 4,209.02), averaging 2,306.39 with a standard deviation of 899.55. Company Income Tax (CIT) also has a notable spread, with values from 654.45 to 2,649.19, a mean of 1,303.93, and a standard deviation of 525.20. Additionally, among the components categorized as Indirect Taxes, Capital Gains Tax (CGT) has the lowest mean of 20.42, a high standard deviation of 27.49, and a broad range (2.65 to 99.40). Stamp Duties (SD) also show a wide spread (5.90 to 120.16), with a mean of 24.66 and a standard deviation of 33.27. Value-Added Tax (VAT), however, has the highest average among the taxes (1,445.94) and significant variability, as indicated by its standard deviation of 1,150.22 and range (659.15 to 4,584.37).

The variation in GDP suggests that the economy has experienced both growth and contraction phases within the period analyzed. PPT and CIT, with moderate standard deviations, indicate relatively stable tax collections compared to the high variability within Indirect Taxes, particularly VAT and CGT. The high mean and variability in VAT imply it is a significant but fluctuating revenue source, potentially linked to consumer spending patterns. Conversely, the

lower mean and high variability in CGT suggest sporadic revenue, likely influenced by fewer capital transactions. These variations in tax sources shows the need to consider the stability and predictability of tax contributions when evaluating their potential impact on GDP.

4.2 Correlation Analysis Result

Table 3: Correlations Matrix

		GDP	PPT	CIT	CGT	SD	VAT
GDP	Correlation	1					
	Sig. (2-tailed)	-----					
PPT	Correlation	-.166	1				
	Sig. (2-tailed)	.606	-----				
CIT	Correlation	.842**	.358	1			
	Sig. (2-tailed)	.001	.254	-----			
CGT	Correlation	.177	-.116	.102	1		
	Sig. (2-tailed)	.582	.719	.753	-----		
SD	Correlation	.428	-.028	.389	-.123	1	
	Sig. (2-tailed)	.165	.932	.212	.703	-----	
VAT	Correlation	.576*	.114	.618*	-.081	.250	1
	Sig. (2-tailed)	.050	.723	.032	.802	.433	-----
	N	12	12	12	12	12	12

Significance: .01 level (2-tailed): **, .05 level (2-tailed): *.

Authors Computation, 2024

The correlation matrix in Table 3 reveals the relationships between GDP and the various tax types. Petroleum Profit Tax (PPT), however, exhibits a weak and non-significant negative correlation with GDP (r = -0.166, p = 0.606). GDP has a significant positive correlation with Company Income Tax (CIT) (r = 0.842, p = 0.001). Similarly, GDP shows a moderate positive

correlation with Value-Added Tax (VAT) (r = 0.576, p = 0.050). Among the Indirect Taxes, Capital Gains Tax (CGT) and Stamp Duties (SD) have weak and non-significant correlations with GDP (r = 0.177, p = 0.582 for CGT; r = 0.428, p = 0.165 for SD), implying limited direct influence on economic output.

The positive and significant correlation between GDP and CIT implies that corporate tax revenues may be an important driver of economic performance, potentially reflecting a stable income source from businesses that scales with economic activity. The moderate correlation between GDP and VAT suggests consumer-driven contributions to the economy, though VAT's variability may introduce fluctuations. PPT's weak negative correlation might indicate reliance on non-diversified revenue sources or lower petroleum sector contributions to growth. The minimal correlations of CGT and SD with GDP further reveal that indirect taxes, in aggregate, may not exert a substantial impact on overall economic performance in this context.

4.3 Regression Analysis Result

Table 4: Dependent Variable: Real Gross Domestic Products (GDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PPT	-.530	.530	-5.706	.001
CIT	1.022	1.231	8.116	.000
CGT	.014	16.330	.158	.879
SD	.018	14.317	.192	.854
VAT	.003	.481	.023	.982
C	62229.26	1393.43	44.66	.000
R-squared	0.960			
F-statistic	28.753			
Prob(F-statistic)	0.000			

Authors Computation, 2024

The regression analysis in Table 4, with GDP as the dependent variable, shows the impact of various tax types on economic output. The model has a high R-squared value of 0.960, indicating that 96% of the variance in GDP is explained by the independent variables, which suggests a strong fit. The F-statistic of 28.753 is significant (p = 0.000), confirming the model's overall statistical significance.

The analysis reveals that by examining the individual coefficients, Company Income Tax (CIT) has a significant positive impact on GDP, with a coefficient of 1.022 (p = 0.000). This suggests that for each unit increase in CIT, GDP increases by 1.022 units. This proves that CIT has a crucial role in supporting economic growth. Petroleum Profit Tax (PPT), however, has a significant negative coefficient (-0.530, p = 0.001). This implies that higher PPT may be associated with a decrease in GDP, which may possibly reflect the economic fluctuations in the Nigeria petroleum sector or resource dependency issues.

In contrast, Capital Gains Tax (CGT), Stamp Duties (SD), and Value-Added Tax (VAT) have positive but non-significant coefficients (p-values of 0.879, 0.854, and 0.982, respectively). This suggests that these indirect taxes have minimal direct effects on GDP within this sample. The constant term (C) is significant (p = 0.000) and reflects the baseline GDP level when other variables are zero. Overall, the results show that CIT is a primary tax driver of economic growth, while PPT's negative impact may warrant closer analysis of its economic implications.

4.4 Discussion of Findings

This study examined impact of petroleum profit tax, corporate and indirect taxes on economic development in Nigeria. The findings from this study align with and diverge from existing research on taxation's impact on economic development, particularly in relation to the effects of different tax types on Nigeria's GDP. The significant positive influence of Company Income Tax (CIT) on GDP aligns with the findings of Adekunle (2021) and Alpheaus et al. (2024), both of whom reported CIT as a major contributor to economic growth and profitability in Nigeria. Adekunle's work emphasized CIT's importance in supporting Nigeria's economic expansion, while Alpheaus et al. specifically confirmed CIT's positive impact on firm

profitability. In contrast, Adegbite and Azeez (2022) found a negative relationship between CIT and growth in Sub-Saharan African countries. This suggests that regional economic structures or tax policies may influence the role of corporate taxes. Our study's results also confirm CIT's critical role in the Nigerian context, indicating that corporate taxes could serve as a key lever for economic development policies.

The mixed results regarding Petroleum Profit Tax (PPT) and Indirect Taxes further reflect the complexity of their impacts on the economy. While PPT demonstrated a negative relationship with GDP in this study, findings from Ewa et al. (2020) and Olaoye et al. (2024) observed a positive effect of PPT on growth and profitability in Nigeria's oil and gas sector. This difference may stem from sector-specific factors influencing PPT's economic effects, as high dependency on petroleum revenues can expose the economy to volatility. Additionaly, indirect taxes such as Stamp Duties (SD), Capital Gains Tax (CGT), and Value-Added Tax (VAT) showed minimal direct effects on GDP here, consistent with Olatunji et al. (2024), who found CGT had an insignificant impact on overall tax revenue. Jolaiya (2024) also found indirect taxes such as VAT contributed to income inequality, suggesting potential socioeconomic trade-offs. Together, these results suggest that while CIT serves as a reliable revenue source for growth, the impact of PPT and indirect taxes is more complex, possibly due to structural economic factors and the unique characteristics of indirect taxation.

5. Conclusion and Recommendations

5.1 Conclusion

This study examined the impact of various taxes, specifically Petroleum Profit Tax (PPT), Company Income Tax (CIT), and Indirect Taxes (Capital Gains Tax, Stamp Duties, and Value-Added Tax), on Nigeria's economic development, represented by Gross Domestic Product (GDP). The findings indicate that CIT has a significant positive effect on GDP, while PPT was found to have a negative effect on GDP. Indirect taxes, such as CGT, SD, and VAT, had minimal direct effects on economic development, suggesting limited contributions to GDP growth within the study period. Overall, the study concludes that CIT is important in supporting Nigeria's economic framework, while exposing the complexities surrounding the impacts of PPT and indirect taxes. This reflects the challenges associated with Nigeria's heavy reliance on the oil sector, amidst fluctuations in global oil prices.

5.2 Recommendations

These recommendations aim to optimize Nigeria's tax revenue structure, minimize the adverse impacts of tax volatility, and support long-term economic growth.

1. Strengthen Corporate Tax Policies: Given the positive impact of CIT on GDP, the government should prioritize and strengthen policies that promote corporate tax compliance and optimize tax revenue from the business sector.

2. Diversify Revenue Sources Beyond Oil: With PPT showing a negative relationship with GDP, there is a need for Nigeria to diversify its revenue streams to reduce dependency on oil. Developing sectors such as technology, agriculture, and manufacturing could mitigate the volatility associated with oil revenues and foster more stable economic growth.

3. Enhance the Efficiency of Indirect Tax Collection: Although indirect taxes showed limited direct impact on GDP, improving collection efficiency and expanding the tax base could increase their contribution to revenue without imposing significant burdens on low-income households.

4. Security availability in petroleum refineries: The government must ensure adequate security measures are put in place at petroleum refineries to address issues such as oil theft and pipeline vandalism. By doing so, oil wastage can be minimized, and the production of petroleum can be accurately accounted for. This will, in turn, positively impact the Petroleum Profit Tax (PPT) and reducing revenue losses.

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THE MODERATING EFFECT OF SUSTAINABLE DISCLOSURE AND CORPORATE FINANCIAL PERFORMANCE: EVIDENCE FROM NIGERIA MANUFACTURING COMPANIES

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Abstract

Companies across the globe, particularly Nigerian manufacturing enterprises, have been concerned about poor financial performance lately. This is because of a decline in revenue, a decline in profitability, and issues with sustainability and viability. Despite the efforts of shareholders, investors, and other interested parties, recent research has revealed that the lack of sustainable environmental disclosure was the cause of this poor financial performance. In spite of this issue, this study investigates environmental material disclosure on financial performance of listed manufacturing companies. This study used sample size of 28 drawn from Krejcie and Morgan's (1970) table and a population of 30 listed consumer enterprises, the study used a survey research design. Multiple regression analysis was used to analyze the collected data. The result of the finding shown that environmental material disclosure ($\beta = 0.28$; $P < 0.05$) which implies a positive and significant relationship with environmental disclosure practices. Therefore, the study concludes that environmental material disclosure has moderating significant on financial performance of listed manufacturing companies. Thus, this study recommends that the regulatory body such as Financial Reporting Council of Nigeria should strengthen the policy to ensure companies are mandated to disclosure more sustainable information that will enhance the financial performance of their companies. **Keyword: Environmental Sustainable Disclosure; Environmental Material Disclosure; Financial Performance**

1. Introduction

Over time, companies across developed and developing countries are decade has a result of their poor financial performance. However, the alarming rate of decrease in investor confidence and share price which are consequently reflect negatively on the share value and companies' reputations are pathetic to the shareholders. However, financial performance has become important to stakeholders particularly the shareholder. Importantly, thus, this existence of this financial performance will enhance the investor, shareholder to make successful decision to the organization.

Without doubt, the existence of environmental issues particular increase in carbon emission, the use of material pollution and other environmental problems are resulting into poor performance among developing countries. Expectedly, stakeholders such as investors, shareholders, community advocators, government regulators and other notable stakeholders are requesting for negative and positive effect on the performance of their companies. Unfortunately, research has shown that companies are aggrieved in disclosing this information which is reflecting negatively on companies' financial performance.

Nonetheless, the scenario persists in Nigeria, where listed consumer companies are important to the economy but face sustainability and environmental impact issues. According to Akinleye and Ogundipe (2024) listed consumer firms can improve their overall financial performance, manage environmental costs, and improve resource efficiency by using environmental disclosure policies. Nigeria, one of Africa's biggest economies, faces environmental problems that are made worse by industrial activity. Thus, there is an increasing need to investigate the connection between listed consumer firms' financial success in Lagos, Nigeria, and their environmental disclosure procedures (Abdulsalam, 2022).

In spite of on-going issues on environmental sustainability, the adoption of environmental disclosure practices among Nigerian listed consumer firms remains relatively low. This study addresses this gap by investigating the impact of environmental disclosure on the profitability of quoted listed consumer firms in Nigeria. In Nigeria, the listed consumer firm is a vital contributor to the economy, but its operations often result in environmental degradation (Osazefua, 2019). Therefore, integrating environmental concerns into financial management practices, such as environmental accounting, has become imperative.

Previous studies such as (Abdulsalam, 2022; Akinleye and Ogundipe 2024; Osazefua, 2019) have not thoroughly investigated the role of corporate governance structures in enforcing environmental accountability among listed consumer firms in Nigeria. Effective governance can drive better environmental practices, but the link between governance quality and environmental performance remains underexplored the potential of technological innovation to mitigate environmental impacts in the consumer goods sector has not been extensively studied in Nigeria.

In addition to the existing gaps, exploring how advancements in technology can improve environmental performance and reduce the ecological footprint of consumer firms is essential. Cultural attitudes towards environmental sustainability and their influence on corporate

environmental disclosure practices in Nigeria have not been sufficiently addressed. Understanding how cultural factors impact firms' willingness to disclose environmental information is crucial for tailoring effective policies.

Given the issue that has not been address in the previous, the study therefore investigate the influence of environmental material disclosure on financial performance among listed Nigeria manufacturing companies

2. Literature Review

Conceptual Review

Sciulli and Adhariani (2023) viewed environmental disclosure as multiple purposes, which including enhancing transparency, accountability, and stakeholder engagement. Companies can show their dedication to environmental sustainability, foster stakeholder trust, and control reputational risks by informing stakeholders about their environmental performance and policies (Yan et al, 2022). Furthermore, stakeholders can evaluate the environmental effects of organizational operations, make well-informed judgments, and hold businesses responsible for their environmental stewardship through environmental disclosure Dragomir and Dragomir (2020). Organizational culture, industry standards, stakeholder demands, and legal requirements are some of the elements that affect the quality and substance of environmental disclosure in different industries and companies (Tahir et al, 2019). Information asymmetry and difficulties in evaluating environmental performance may result from some firms' selective or limited disclosure, while others may give thorough and transparent disclosure (Fabrizio and Kim 2019).

In the light of financial performance, Kim et al, (2003) defined corporate financial performance as the evaluation of a firm's ability to generate revenues, manage expenses, and produce profits over a specific period, It comprises several key components, including profitability, liquidity, and solvency, efficiency, and market performance. Corporate financial performance is a critical aspect of business evaluation, representing the ability of an organization to generate profits and create value for its stakeholders (Perrini et al, 2011). It encompasses various financial indicators and metrics that reflect the efficiency, effectiveness, and sustainability of a firm's operations and investments (Adams & Buckle, 2020). However, profitability measures the ability of a firm to generate earnings relative to its expenses and investments, typically assessed through metrics such as net income, return on assets (ROA), return on equity (ROE), and gross profit margin (Kharatyan et al, 2016).

Theoretical Review and Framework

Although, several studies have reviewed theories such as agency theory, stakeholder, institution theory and contingency theory but unfortunately, the findings of these studies are not cleared and it can be used in further studies. Considering the objective of this study, stakeholder theory Freeman (1984) which emphasizes the importance of considering stakeholder interests in corporate decisions, the objective can be related to the theory as disclosing environmental material aligns with the interests of regulators and environmentally conscious customers. Compliance with environmental regulations and meeting customer expectations can enhance a firm's market standing and financial performance. Stakeholders, including environmental groups and communities, often pressure firms to reduce carbon emissions. By responding to this pressure through transparent disclosures, firms can mitigate

risks such as regulatory fines, legal liabilities, and reputational damage, leading to better financial outcomes. Aligning with broader societal goals, such as reducing carbon footprints, can attract support from stakeholders who value sustainability. This alignment can result in financial benefits, such as access to green financing and subsidies.

Empirical Review

There is much literature in financial performance but little literature in relating to environmental disclosure. However, among the little literature is the study of Nor et al, (2015) investigated The Effects of Environmental Disclosure on Financial Performance in Malaysia. The 100 company of market capitalization in Malaysia for the year 2011, data were obtained from the annual report of all these companies. The finding of the study indicated that there is existence of the environmental disclosure practices in Malaysia and financial performance. Asides, Adu (2022) examined sustainable banking initiatives, environmental disclosure and financial performance: The moderating impact of corporate governance mechanism. The study used 220 banks in 16 Sub-Saharan Africa countries over the 2007–2018 periods (i.e., making over 2027 bank-year observations). The results of the findings shown that corporate governance have significant impact on the financial performance.

However, lfada et al, (2022) investigated the effect of environmental performance and environmental Disclosure. Manufacturing and coal mining firms that adhere to "PROPER" and are listed on the Indonesia Stock Exchange (IDX) between 2017 and 2019 were employed in the study. Purposive sampling was employed in this investigation, yielding a sample size of 117. Multiple linear regression analysis along with statistical hypothesis testing was the data analysis method employed. The findings demonstrated that firm size and environmental performance positively impacted financial performance. Financial performance is unaffected by the independent board of commissioners. Additionally, environmental disclosure is positively impacted by corporate size, financial performance, and environmental performance. Environmental disclosure is unaffected by the independent board of commissioners.

In the same vein, Gatimbu and Wabwire (2016) elucidated the effect of Corporate Environmental Disclosure on Financial Performance of Firms Listed at Nairobi Securities Exchange, Kenya. In order to investigate environmental disclosure practices, the study employed content analysis of the annual reports of a sample of listed corporations. Environmental disclosure indices were calculated and a checklist of environmental disclosure elements and categories was created. The total model's F=8.514 and P-value <0.05 indicated that it was significant. Changes in financial performance were explained by the predictor variable 47.7% of the time. Environmental disclosure is unaffected by firm size or leverage. The findings showed that environmental disclosure significantly improves mean financial performance, with a P-value of <0.05.

However, Lu and Taylor (2018) used a new theory: literature review to investigate the relationship between industrial businesses' financial performance and environmental disclosure. This paper's inductive methodology comprises a survey, analysis, comparison, and summary of every work published in prestigious accounting journals over the previous nineteen years. According to the studied studies, Iraq's environmental disclosure is weaker than that of emerging nations. Additionally, it was discovered that there is a stronger positive correlation

(61.29%) than a negative one (38.71%) between financial performance and environmental disclosure.

Global warming and climate change have been the most challenging environmental problem the world is facing. In spite of this, Kurawa and Shuaib (2022) elucidated effect of environmental disclosure and financial performance of listed non-financial companies in Nigeria. Out of the 113 companies in the population, 76 were selected as a sample since they were classified as non-financial. Data was extracted from audited annual reports and accounts. Multiple regressions and descriptive statistics were used in the analysis. The study used an explanatory research methodology to determine how ED affected financial success. The study found that listed Nigerian non-financial businesses' TQ has a negative correlation with EPED, WDCD, PMCD, and EPS, while these factors have a positive significant link.

3. Methodology

The study used ex post facto research design. The population of this study is thirty (30) listed consumer firms operating in Nigeria manufacturing sector. However, the study used of Krejcie and Morgan (1970), twenty eight (28) listed Nigeria consumer firm were used in this study. The data used in this were emanated from the annual report of these companies. Descriptive and inferential statistics techniques were used to analyze the secondary data collected from the annual report. Descriptive statistics provide a snapshot of variables used and would describe the socio - demographic characteristics of the respondents. The nature of data in term of measurement level and other inherent characteristics suggest the choice of regression analysis adopted in this research. The model of Auerbach and Gale (2016) was adapted and modified as follows;

$ROA = \beta_0 + \beta_1 EMD_{jt} + \mu$ ……..*3.1*

Where
ROA = Return on Asset
EMD= Environmental material Disclosure

3.2 Measurement of Variable

Definition	**Symbol**	**Measurement**	**Sources of Measure**
Corporate Financial Performance	CFP	Return on Assets	(Brigham & Ehrhardt, 2013. Brigham & Houston, 2020).
Environmental Disclosure	ED	Environmental disclosure can be measured through content analysis, disclosure indices or scoring systems, qualitative assessment frameworks	(Clarkson et al., 2008. Patten, 2002).

Source; Author's (2024)

4. Results

The preliminary analysis of the quantitative data is presented in this chapter. The result on the analysis contains the diagnostic tests of the distribution of the data relating to the variables of interests and their relationship with one another.

Table 4.1: Normality and Linearity Tests

Construct	Mean	S. D.	Skewness	Kurtosis
Financial Performance	3.24	0.71	1.46	2.23
Environmental Material Disclosure	2.45	0.66	1.43	2.31

Sources: Author's computation (2024)

From the results in Table 4.1, it is evident that the variables of interest are normally distributed, with score lying between the threshold of -3 to 3 for skewness and kurtosis.

Table 4.2 Multicollinearity Test

Pearson Correlation matrix for the independent variables

	Environmental Material Disclosure
Environmental Disclosure	1.00

Sources: Author's computation (2024)

Pearson Product Moment correlation analysis statistics was undertaken to determine if there are potential multicollinearity problems among the independent variables. The result from the correlation analysis as shown in Table 4.2 shows that the independent variables have a correlation coefficient of between 0.62 and 0.79, this indicates that there were no problems of multicollinearity among the independent variables as none of the correlation coefficient of the variables is above 0.8 (Kenned, 2008). The result implies that there exist no perfect correlations among independent variables all the variables can be included in the regression model.

Table: 4.3 VIF and Tolerance Limit

S/N	Constructs	Items	Tolerance	VIF
1	Environmental Water Disclosure	5	0.81	1.24

Sources: Author's computation (2024)

Tolerance and variance inflation factor (VIF) was calculated in order to detect the problem of multicollinearity that may not be captured in the above correlation matrix. The result in table 4.3 showing tolerance of less than 10 and VIF score of not more than 10, for all the independent variables, further strengthen our confidence of non-multi-collinearity issues amongst variab8es.

Regression Results

Variable	Coefficient	standard errors	T-value	P-value
Intercept	1.198	0.10	11.34	.0.00
Environmental Water Disclosure	0.28	0.07	4.21	0.00
F-statistic	66.12			
P-value	0.00			
R-square	0.61			
Adjusted R-square	0.61			

Sources: Author's computation (2024)

In the Table 4.9, the three independent variables show significant positive influence on environmental accounting: carbon emission (β = 0.20;P < 0.38); environmental disclosure: (β = 0.28 ; P < 0.05) and regulatory framework (β = 0.56; P < 0.05), The regression result as shown in Table 4.10 indicates that the estimated model is fairly good as it has a R^2 and an adjusted R^2 of 0.613 and 0.605 respectively. The R^2 measures how much of the variability in the outcome is accounted for by the independent variables. It shows that environmental water disclosure accounted for 60.5% of the variation in the environmental disclosure in Lagos State. The difference between R^2 and adjusted R^2 is fair (.613 - .605 = .008 or 0.8%). This means that if the model were derived from the population (generalised) rather than the sample size, it would account for approximately 0.8% less variance in the outcome, which means, the result in this study can be generalized and can affect the population with 99.2% confidence (Field, 2009). In summary, the estimated regression model of the effect of the variables of interest on forensic accounting practices was statistically significant (F = 66.156 > P < 0.05). However, 61% of the variation in environmental disclosures was successfully predicted by the independent variables.

Discussion of Findings

The study finds a statistically significant positive relationship between environmental water disclosure and the adoption of environmental disclosure practices. This implies that firms that engage in transparent reporting of their environmental performance are more likely to improve financial performance. The regression analysis shows that environmental disclosure has a β coefficient of 0.28 with a statistically significant p-value of less than 0.05, indicating a positive and significant relationship with financial performance. This finding suggests that companies with higher levels of environmental disclosure are more likely to adopt comprehensive environmental disclosure practices. Increased transparency and disclosure regarding environmental performance may incentivize firms to implement robust accounting mechanisms to track, monitor, and report on environmental impacts and financial performance.

5. Conclusion and Recommendation

The study finds a statistically significant positive relationship between environmental water disclosure and the adoption of environmental disclosure practices. The regression analysis reveals a β coefficient of 0.28 with a p-value of less than 0.05, indicating that firms engaging in transparent reporting of their environmental performance are more likely to improve on their financial performance. This finding highlights the importance of increased transparency and disclosure regarding environmental performance, which incentivizes firms to adopt robust accounting mechanisms to track, monitor, and report on environmental impacts and sustainability initiatives. Given this conclusion, the study therefore recommends that firms particularly Nigeria consumer goods should be encouraged to engage in transparent reporting of their environmental performance. This can be achieved by implementing mandatory environmental disclosure requirements and providing incentives for firms that demonstrate high levels of transparency. Encouraging environmental disclosure will not only enhance the adoption of environmental disclosure practices but also increase financial performance of their companies.

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SUSTAINABILITY, HUMAN CAPITAL ACCOUNTING DIMENSIONS, AND CORPORATE FINANCIAL PERFORMANCE IN NIGERIA

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Abstract

There is often skepticism among investors and stakeholders regarding the authenticity of sustainability disclosures which may undermines the credibility of sustainability accounting and erode stakeholder trust in companies' sustainability reports. Meanwhile, many organizations are resistant to adopting human capital accounting due to a traditional focus on financial metrics over non-financial ones, and this mindset creates a barrier to implementing effective human capital reporting, even when it is beneficial in the long run. Given this, this study examines the impact of sustainability and human capital accounting on the corporate financial performance of publicly listed companies in Nigeria. The study adopted an ex-post facto research design and the study analyzed panel data from manufacturing firms listed on the Nigerian Exchange Group, focusing on a sample of 38 firms over the period from 2015 to 2023 using judgmental sampling technique. Data were collected from the audited financial reports of the selected firms. Findings from fixed effects and random effects panel regression models indicate that both sustainability and human capital accounting significantly enhance corporate financial performance. Specifically, the Sustainability accounting positively influences return on assets (ROA) with coefficient of 0.015 ($p < 0.01$) for fixed effects and 0.013 ($p < 0.01$) for random effects, as well as return on equity (ROE) with coefficient of 0.019 ($p < 0.01$) and 0.018 ($p < 0.01$). Additionally, human capital accounting shows a positive relationship with ROA (0.028, $p < 0.01$) and ROE (0.034, $p < 0.01$. The study concluded that integrating these practices into corporate strategies is essential for enhancing profitability and long-term value creation.

Keywords: Sustainability, Human Capital Accounting, Corporate Financial Performance

1. Introduction

Many companies struggle to balance the short-term financial costs associated with sustainability initiatives with the long-term benefits they offer. This challenge is particularly pronounced in markets where immediate financial returns are expected, leading some firms to prioritize short-term profitability over the adoption of sustainable practices that could enhance long-term financial performance (Balogun et al., 2020). Traditionally, corporate financial performance has been assessed through metrics such as profitability, market value, and shareholder return, which offer a snapshot of a company's financial health (Arowele, 2021; Ovedje & Iserien, 2021). Metrics like Return on Assets, Return on Equity and Tobin's Q have long been used to evaluate how well companies generate profits from their resources and how the market values their equity (Ibrahim et al., 2022). However, in recent years, there has been a shift towards non-financial factors such as sustainability and human capital accounting, which have emerged as critical drivers of long-term corporate success (Oyewo et al., 2023; Goroke & Maccarthy, 2023). Sustainability accounting, which tracks and reports the environmental, social, and governance (ESG) impacts of a company's operations, has become essential as stakeholders demand more transparency across the globe (Oyedokun, 2022). By integrating sustainability into business strategy, companies can enhance their public image, operational efficiency, and financial performance.

In Nigeria, sustainability accounting practice is gaining traction due to increased awareness of environmental and social issues, as well as the influence of global frameworks like the United Nations Sustainable Development Goals (SDGs). Despite the benefits associate with this practice, many manufacturing companies face numerous challenges and continuing persisting, issues including the absence of universally accepted standards for sustainability reporting, leading to inconsistent disclosures that hinder stakeholders' ability to assess the true impact of sustainable practices on financial performance (Olatunji & Buyide, 2020). Additionally, implementing sustainability accounting is often complex and costly, particularly for firms operating across diverse regulatory environments (Arowele, 2021). Similarly, human capital accounting, which quantifies the value of a company's workforce, faces challenges in measuring intangible aspects such as employee skills and creativity, leading to inconsistent reporting and undervaluation of human resource investments. Without standardized frameworks for human capital accounting, it is difficult to consistently evaluate its impact on financial performance (Odunayo & Festus, 2020).

In Nigeria, businesses are increasingly expected to align with global sustainability standards and national calls for human capital development. This shift is driven by regulatory pressures, stakeholder expectations, and the need for sustainable growth (Olatunji & Buyide, 2020). As the country grapples with unemployment, skill shortages, and an evolving labor market, human capital development is becoming a key element of business competitiveness (Ibrahim et al., 2022). Understanding the relationship between sustainability accounting, human capital accounting, and financial performance is vital in the Nigerian context, where companies face unique challenges such as regulatory constraints, market volatility, and socio-economic

disparities. Therefore, this study explores how companies adopting these sustainability and human capital accounting practices perform financially in Nigeria.

2. Literature Review

There are no universally accepted descriptions of the concepts of sustainability accounting and human capital accounting. However, many researchers have described them from different perspectives. According to Oyedokun (2022), sustainability accounting is the practice of measuring, reporting, and managing a company's environmental and social impact. Newstyle and Major (2022) opine that it encompasses various elements, including resource use, waste management, pollution control, and community engagement. Companies that engage in sustainable practices tend to reduce costs through energy savings, waste reduction, and improved resource utilization, which can ultimately lead to higher profitability and greater market valuation. Furthermore, businesses that prioritize sustainability are more likely to attract long-term investment, as socially responsible investors increasingly prefer companies that align with global sustainability standards (Salameh et al., 2022).

Human capital accounting involves recognizing the value of a company's workforce as an essential asset in driving business performance (Onyekwelu & Ironkwe, 2021). According to Omisope, et all. (2020), Khan (2021), Ibrahim et al. (2022), human capital accounting dimensions refers to the various aspects used to measure and report the value of an organization's human resources. These dimensions capture the qualitative and quantitative contributions of employees to organizational performance. The fundamental dimensions of human capital accounting include cost dimensions (recruitment and hiring costs, training and development costs, compensation and benefits, severance and exit costs), productivity dimensions (employee productivity, time efficiency, and task completion rate), workforce retention dimensions (retention rate, turnover rate, average tenure, and exit interview insights), intangible dimensions (knowledge and expertise, employee creativity and innovation, and workplace collaboration), demographic dimensions (employee tenure, age and experience, gender diversity), behavioural dimensions (job satisfaction, engagement levels, turnover and retention rates), investment dimensions (training hour per employee, career development programs, health and wellbeing programs), performance dimensions (key performance indicators, leadership development, and succession planning, risk dimensions (talent shortage, attrition risk, and skill obsolescence), and strategic alignment dimensions (alignment with organizational goals, cultural fit, and adaptability)

According to Oyedokun (2022), it includes metrics such as employee skills, knowledge, productivity, and well-being. Oyedokun also added that companies that invest in human capital tend to experience improved innovation, higher productivity, and stronger organizational performance. Human capital accounting also involves capturing costs related to recruitment, training, employee benefits, and workforce retention. In Nigeria, the need to invest in human capital is particularly crucial given the country's youthful population and high unemployment rates (Olatunji & Buyide, 2020).

Khan (2021) posits that companies that prioritize human capital development contribute to the broader goals of poverty reduction and economic growth, while also improving their competitive advantage and thereby improving their financial performance. In view of different

descriptions of human capital accounting dimensions in literature, this study centers on workforce retention dimension. Retention reflects an organization's ability to keep its talent over time and is crucial for sustaining productivity, reducing costs, and maintaining organizational knowledge. Workforce retention is a fundamental aspect of human capital accounting as it directly impacts cost efficiency, employee value, sustainability performance, and organization stability.

According to Wiraguna and Burhany (2023), corporate financial performance implies the evaluation of a company's financial health, profitability, and overall success in generating value for its stakeholders over a specified period. It encompasses both quantitative and qualitative aspects that indicate how well a company utilizes its resources to achieve its financial objectives. Corporate financial performance, According to Omisope et al. (2020), Ovedje and Iserien (2021), corporate financial performance is often measured using key financial indicators such as revenue growth, return on assets (ROA), return on equity (ROE), and earnings per share (EPS). These metrics provide insight into a company's profitability, operational efficiency, and market value. Increasingly, stakeholders are also looking beyond traditional financial metrics to assess a company's sustainability practices and its investment in human capital as indicators of long-term financial health and resilience.

4. Empirical Review

Several studies have investigated the impact of sustainability and human capital accounting on corporate financial performance in developed countries and developing countries including Nigeria. For instance, Studies on sustainability accounting and corporate financial performance by Zyznarska-Dworczak (2020) and Salameh et al. (2022) converged on the argument that sustainability accounting significantly enhances the reliability and transparency of financial statements. Similarly, Salameh et al. (2022) provided empirical support by showing that sustainability disclosures in SMEs increase trust, accuracy, and financial credibility. Both studies underline the role of transparency in building stakeholder trust and improving report quality. Wiraguna et al. (2023) and Sundarasen, Rajagopalan, and Ali (2024) revealed strong evidence linking sustainability accounting to improved financial performance. Wiraguna et al. (2023), in their study of Indonesian manufacturing companies, demonstrated that sustainability accounting and environmental performance are key predictors of financial success, emphasizing the positive impact of environmental practices on corporate profitability. Oyewo et al. (2023) provided a contrasting perspective, finding that in Nigeria, the adoption of environmental and social sustainability accounting practices was not immediately linked to financial success. They note that in some firms, sustainability practices were not prioritized, particularly where the short-term financial impact was not evident. The finding suggested that contextual factors, such as the strength of corporate governance and the strategic focus of firms, can influence the effectiveness of sustainability practices in enhancing financial performance. Romero-Carazas and Tafur (2024) and Al-Gburi et al. (2024) revealed a significant rise in research and practice around environmental performance and sustainability reporting from 2015 to 2024, showing that financial performance metrics are increasingly tied to sustainability efforts.

Concerning Human Capital Accounting and financial performance, empirical findings on Human Resource Accounting (HRA) revealed a strong consensus on its positive impact on

financial performance across various sectors, particularly in banking, manufacturing, and other industries. For instance, the effect of human resource accounting on organizational performance, several studies by Balogun, et al. (2020); Olatunji and Buyide (2020), Omisope, et al. (2020), Arowele (2021), Ovedje and Iserien (2021) found that investments in human resource accounting, particularly in training and development, significantly improve financial performance. Similarly, human resource accounting's role in improving financial report transparency and credibility is underscored by findings from Ali (2020), Khan (2021), Odunayo and Festus (2020). researchers found that transparent human capital disclosures signal better management practices, enhancing investor confidence and corporate financial performance.

Focusing on Sector-Specific Insights within the Banking Sectors, Studies conducted by Olatunji and Buyide (2020), Ibrahim et al. (2022), Goroke and Maccarthy (2023) consistently reveal that human capital accounting practices lead to better financial outcomes for deposit money banks. These include higher ROA and net income, showing that effective human resource valuation is critical for bank success. In Manufacturing Sector, Focusing on another institution such as Oil and Gas Sector, Research by Lambe et al. (2021), Newstyle and Major (2022) highlights that human resource accounting (HRA) positively affects the financial performance of oil and gas companies, particularly in the pre-and post-adoption phases of HRA. Sudies by Molavi and Mohamadi (2021), Vithana (2022) emphasize the strategic role of human capital in fostering innovation, improving internal processes, and creating firm value. They argue that human resource accounting strengthens long-term organizational growth and financial success. The importance of HRA during crises, such as the COVID-19 pandemic, is highlighted by Strickland-Jackson (2022), who shows that human capital accounting helped firms maintain competitiveness, further reinforcing HRA's role in financial stability.

Gaps and Contribution to Knowledge

Several research gaps remain in the growing literature on sustainability accounting, human capital accounting, and corporate financial performance, particularly in the Nigerian context. Although many studies (e.g., Balogun et al., 2020; Olatunji & Buyide, 2020) have explored the relationship between human capital accounting (HCA) and financial performance, most of this research is sector-specific, focusing primarily on banking or manufacturing industries. There is limited research across diverse sectors in Nigeria, leaving a gap in understanding how HCA impacts financial performance more broadly. Furthermore, few studies adopt a longitudinal approach to assess the long-term effects of human capital investments on corporate financial outcomes in Nigeria's rapidly evolving economic environment (Oyewo et al., 2023; Ibrahim et al., 2022). Another key gap lies in the limited exploration of the integration of HCA with sustainability accounting, as existing studies often treat these two areas in isolation, despite the potential synergies between employee development and environmental responsibility.

3. Methodology

This study employs an ex-post facto research design, focusing on panel data analysis to examine the impact of sustainability and human capital accounting on corporate financial

performance. The study analyzed data from 55 Nigerian Exchange Group (NGX) listed companies across sectors like manufacturing, financial services, oil and gas, and consumer goods, with a sample of 38 firms representing 70% of the population of this study, selected based on data completeness from 2015 to 2023. Secondary data is collected from the firms' annual reports and financial statements, available on the NGX website and company websites, to establish causality between the independent and dependent variables. The study examines the relationship between three key dimensions: sustainability accounting, human capital accounting, and corporate financial performance, where sustainability accounting (SA) and human capital accounting (HCA) are independent variables, and corporate financial performance (CFP) serves as the dependent variable. Sustainability accounting is measured through corporate social responsibility (CSR) disclosures, while human capital accounting is assessed by workforce retention, which is indicated by the turnover ratio. A low turnover ratio indicates high workforce retention, while, a higher turnover ratio suggests low workforce retention. Corporate financial performance is evaluated using two metrics: Return on Assets (ROA) and Return on Equity (ROE). Firm size (FSIZE) is measured by the natural log of total assets, and leverage (LEV), represented by the debt-to-equity ratio, are included as control variables to account for their potential influence on corporate financial performance. The constructs for these variables are drawn from various validated sources in prior research.

The model of Khalil et al. (2020) was adapted for this study. Khalil et al. (2020) examined the impact of sustainability accounting on corporate financial performance. To test the relationship between sustainability, human capital accounting, and corporate financial performance, the following panel regression model are stated below. This study employed **Panel Data Analysis** using two estimation techniques **(Fixed Effects Model** and **Random Effects Model).** These techniques allow for the control of unobserved heterogeneity and firm-specific characteristics that may influence corporate financial performance. The equation for the fixed effects model and the equation for the random effects model is:

$$CFP(ROA)_{it} = \beta_0 + \beta_1 SA_{it} + \beta_2 HCA_{it} + \beta_3 FSize_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots \text{Eq. (1)}$$

$$CFP(ROE)_{it} = \beta_0 + \beta_1 SA_{it} + \beta_2 HCA_{it} + \beta_3 FSize_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots \text{Eq. (2).}$$

Where: CFPit is the corporate financial performance of firm *i* at time *t* (measured using ROA and ROE. SA_{it} represents sustainability accounting of firm. HCA*it* represents human capital accounting, $FSize_{it}$ is fim size, and LEV_{it} represents financial leverage of firm. ε_{it} represents the fixed effect for each firm, while u_{it} represents the random effect for each firm.

Data analysis was performed by employing both descriptive and inferential statistics. Descriptive statistics was first presented to summarize the key characteristics of the variables of interest. The **correlation analysis** was conducted to examine the relationships between the independent and dependent variables. Furthermore, **panel regression analysis** (FE/RE models) was used to test the hypotheses. It is expected that firms with higher sustainability and human capital accounting dimensions will exhibit better corporate financial performance.

3. Results and Discussion

This section presents the results from the panel regression analysis on the impact of sustainability, human capital accounting dimensions, and control variables on corporate

financial performance in Nigeria. The analysis includes descriptive statistics, correlation matrices, and panel regression results for both fixed and random effects models.

1. Descriptive Statistics

Table 1: The Descriptive Statistics of the Variables

Variable	Mean	Std. Dev.	Min	Max	Obs.
Return on Assets (ROA)	**0.065**	**0.023**	**-0.035**	**0.145**	**342**
Return on Equity (ROE)	**0.087**	**0.032**	**-0.050**	**0.210**	**342**
Tobin's Q	**1.120**	**0.236**	**0.790**	**2.410**	**342**
Sustainability Accounting (SA)	**3.410**	**1.220**	**1.000**	**5.000**	**342**
Human Capital Accounting (HCA)	**0.780**	**0.320**	**0.200**	**1.500**	**342**
Firm Size (FSIZE) (Total Assets)	**11.450**	**2.310**	**8.900**	**14.100**	**342**
Leverage (LEV)	**0.520**	**0.170**	**0.190**	**0.890**	**342**

Source: Author's Computation (2024)

The descriptive statistics show that the firms in the sample have an average Return on Assets (ROA) of 0.065 and Return on Equity (ROE) of 0.087, with moderate variability across firms. Sustainability Accounting (SA) practices vary widely, with an average score of 3.410, while Human Capital Accounting (HCA) shows a mean of 0.78. Firm Size (FSIZE), measured by total assets, has an average of 11.450, and leverage (LEV) averages 0.520, indicating firms rely moderately on debt financing.

2. Correlation Matrix

The correlation matrix is presented below to examine the strength and direction of relationships between the independent and dependent variables.

Table 2: Correlation Matrix of the Variables

Variable	*ROA*	*ROE*	*SA*	*HCA*	*FSIZE*	*LEV*
Return on Asset (ROA)	**1**					
Return on Equity (ROE)	**0.781**	**1**				
Sustainability Accounting	**0.454**	**0.394**	**1**			
Human Capital Accounting	**0.523**	**0.484**	**0.463**	**1**		

Firm Size	**0.393**	**0.345**	**0.551**	**0.497**	**1**	
Leverage	**-0.291**	**-0.334**	**-0.224**	**-0.305**	**0.183**	**1**

Source: Author's Computation (2024)

Table 2 presents the correlation matrix of the variables, highlighting the relationships between financial performance measures (ROA and ROE), sustainability accounting, human capital accounting, firm size, and leverage. ROA and ROE show a strong positive correlation (0.781). Sustainability accounting and human capital accounting both have moderate positive correlations with financial performance, with human capital accounting showing a stronger link with ROA (0.523). Firm size positively correlates with all variables except leverage, which shows a negative relationship with financial performance and other variables, particularly with ROE (-0.334).

3. Regression Analysis Results

The results from the fixed effects and random effects panel regression models are presented below and discussed for each measure of corporate financial performance.

Table 3: Parameter Estimate of Relationship Among Sustainability Accounting, Human Capital Accounting and Corporate Financial Performance (ROA)

Dependent Variable: Return on Assets (ROA)						
	Fixed Effects			Random Effects		
Variable	Coef.	t-value	p-value	Coef.	t-value	p-value
Sustainability Accounting	0.015	3.75	0.000	0.013	2.60	0.009
Human Capital Accounting	0.028	4.00	0.000	0.026	4.33	0.000
Firm Size	0.012	2.00	0.045	0.011	1.57	0.058
Leverage	-0.025	-2.78	0.006	-0.024	-2.40	0.017
Constant	0.043	3.31	0.001	0.046	3.07	0.002
Observations	400			400		
R-squared	0.62			0.61		

Source: Author's Computation (2024)

Table 4: Parameter Estimate of Relationship among Sustainability Accounting, Human Capital Accounting and Corporate Financial Performance (ROE)

Dependent Variable: Return on Equity (ROE)

	Fixed Effects			**Random Effects**		
Variable	(Coef.)	t-value	p-value	(Coef.)	t-value	p-value
Sustainability Accounting	0.019	3.80	0.000	0.018	3.00	0.003
Human Capital Accounting	0.034	3.78	0.000	0.032	4.00	0.000
Firm Size	0.015	2.14	0.035	0.014	1.75	0.045
Leverage	-0.030	-2.73	0.007	-0.029	-2.42	0.016
Constant	0.051	3.19	0.002	0.054	3.00	0.003
Observations	400			400		
R-squared	0.64			0.63		

Source: Author's Computation (2024)

Discussion of Findings

The results from the regression analysis in Table 3 indicate that both sustainability accounting and human capital accounting have a positive and statistically significant impact on Return on Assets (ROA). Specifically, sustainability accounting shows a coefficient of 0.015 under the fixed effects model and 0.013 under the random effects model, with p-values of 0.000 and 0.009 at a 5% significance level, respectively, highlighting its significant contribution to improving firm profitability. Moreover, Human capital accounting has a slightly stronger influence, with coefficients of 0.028 (fixed effects) and 0.026 (random effects), with p-values of 0.000 and 0.000 of both indicating that human capital accounting has a significant impact on corporate financial performance at the 5% significance level. Firm size shows a marginal effect on ROA, while leverage negatively affects ROA, as expected, with a significant coefficient of -0.025 (fixed effects). These findings are consistent with outcomes from Salameh et al. (2022), Wiraguna et al. (2023), Sundarasen, Rajagopalan, and Ali (2024) who also found that sustainability accounting dimensions are key predictors of the financial performance of manufacturing companies. Contrarily, this study's findings are inconsistent with the outcome of Oyewo et al. (2023) who found that in Nigeria, the adoption of sustainability accounting practices might not immediately and significantly enhance corporate financial performance due to some factors such as corporate governance and strategic focus.

In Table 4, the results show a similar trend for Return on Equity (ROE). Sustainability accounting and human capital accounting again exhibit positive and significant effects on ROE. Sustainability accounting coefficients are 0.019 (fixed effects) and 0.018 (random effects), with t-values of 3.80 and 3.00, respectively, showing its relevance for improving equity returns. Human capital accounting's effect on ROE is even stronger, with a coefficient of 0.034 (fixed effects), indicating that investments in human capital play a vital role in enhancing equity performance. Leverage continues to have a negative and significant effect on ROE, suggesting that higher debt levels diminish equity returns. The negative relationship between leverage and corporate financial performance across the models highlights the adverse effects of excessive debt on firm performance. The relatively high R-squared values in all models (above 0.60) indicate that the independent variables explain a significant portion of the variation in corporate

financial performance. The findings of this study that human capital accounting dimensions have significant impacts on corporate financial performance align with the findings of Balogun et al. (2020), Olatunji and Buyide (2020), Omisope et al. (2020),Odunayo and Festus (2020), Olatunji and Buyide (2020), Arowele (2021), Ovedje and Iserien (2021), Ali (2020), Khan (2021), Vithana (2022) and Newstyle and Major (2022), Ibrahim et al. (2022), Goroke and Maccarthy (2023) who earlier revealed that investments in human resource accounting significantly improve financial performance indicators like ROA and ROE. Goroke and Maccarthy (2023) suggested that larger firms benefit more from comprehensive human capital accounting disclosures, implying that firm size may moderate the relationship between HRA and financial performance

Implications of Findings

The significant impact of sustainability accounting on corporate financial performance highlights the benefits of integrating environmental, social, and governance (ESG) practices into reporting. This enhances transparency, stakeholder trust, and long-term profitability by demonstrating accountability and aligning with regulatory standards. Companies that prioritize sustainability accounting may gain better market valuations, investor confidence, and operational efficiency. Similarly, human capital accounting significantly influences financial performance, as investments in employee development, stability and well-being drive profitability. Transparent reporting of human capital practices boosts investor confidence and improves financial metrics like ROA and ROE, fostering innovation and resilience for long-term financial stability and growth.

Conclusion and Recommendations

The regression analysis results provide strong evidence that sustainability accounting and human capital accounting have a significant positive impact on corporate financial performance, as measured by Return on Assets (ROA) and Return on Equity (ROE). Both variables consistently contribute to improved profitability, equity returns, and market valuation, underscoring the importance of integrating sustainability practices and investing in human capital for business success. Additionally, firm size positively influences financial performance, while leverage consistently shows a negative relationship, suggesting that high debt levels are detrimental to corporate performance across all measures.

Based on these findings, the study recommended that firms focus on enhancing their sustainability and human capital accounting practices to foster long-term profitability and market value. Companies should prioritize investments in sustainable operations and employee development as part of their strategic financial management. Furthermore, firms should be cautious about over-leveraging, as excessive debt negatively impacts performance. To improve financial outcomes, firms may consider adopting more balanced financing strategies that reduce dependency on debt and focus on equity-based growth.

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TAX AUDIT MANAGEMENT, TECHNOLOGY INTEGRATION AND PERFORMANCE OF STATE INTERNAL REVENUE SERVICE IN SOUTH WEST, NIGERIA

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Abstract

State Internal Revenue Services in South West Nigeria struggle with tax compliance rates and revenue generation optimization due to inadequate audits and low technology use, affecting detection, evasion reduction, accountability and transparency in tax administration. Therefore, this study investigated the impacts of tax audit management (TAM) and technology integration (TI) in improving the performance of SIRS in South West Nigeria. The study employed a cross-sectional quantitative survey research design, data were collected from 383 management personnel across various SIRS offices in South-West, Nigeria. PLS-SEM was applied to analyze the effects of TAM and TI on SIRS performance. The findings indicate that TAM significantly enhances SIRS performance, with a coefficient of 0.440, a t-statistic of 2.736, and a p-value of 0.006, suggesting that effective tax audits boost revenue generation and reduce tax evasion. TI also positively influences SIRS performance, with a coefficient of 0.328, a t-statistic of 2.143, and a p-value of 0.032, emphasizing its role in streamlining tax processes and improving compliance. However, the combined interaction effect of TI and TAM on SIRS performance is not statistically significant, with a coefficient of -0.050, a t-statistic of 0.523, and a p-value of 0.601. This study concludes that both TAM and TI independently contribute to SIRS performance, their combined effect does not significantly enhance the operational efficiency of tax authorities. Based on these findings, the study recommends that SIRS in South West Nigeria should prioritize the adoption of comprehensive tax audit management strategies and leverage technology to automate and optimize tax processes.

Keywords: Tax Audit Management, Technology Integration, Performance, State Internal Revenue Services.

1. Introduction

The performance of revenue agencies is crucial for the economic growth and stability of any nation. In developed countries, tax authorities benefit from advanced technological integration, streamlined audit systems, and strong compliance mechanisms, leading to efficient revenue collection (Thompson et al., 2022). For instance, countries such as the United States, the United Kingdom, and Germany have integrated sophisticated tax audit management systems and digital platforms, achieving tax compliance rates of over 90%. By leveraging technology, these countries enhance taxpayer compliance, reduce tax evasion, and automate processes, improving tax administration and lowering administrative costs (Nouwens et al., 2023).

Conversely, developing countries face numerous challenges in achieving similar performance levels. Weak institutional capacity, low levels of technological integration, and ineffective tax

audit practices contribute to revenue leakages and underperformance (Aguirre et al., 2020). According to the World Bank (2023), tax revenue as a percentage of GDP in many developing countries averages around 15%, far below the 35% seen in developed economies. This highlights inefficiencies in tax administration, particularly in tax audit management and technology use, which limits compliance and enforcement.

Nigeria, as a developing country, experiences similar issues. Its tax-to-GDP ratio stands at just 6.5%, one of the lowest in Africa (OECD, 2022). Despite various reforms in tax administration, the performance of revenue agencies, especially the State Internal Revenue Services (SIRS), remains below optimal. Outdated audit practices, limited technology use, and weak enforcement mechanisms all contribute to this underperformance. In the South West region, these challenges are particularly pronounced, with revenue collection falling short of potential due to inefficiencies in tax audit management and poor technology integration (Morenike et al., 2024).

Tax audit management is a fundamental aspect of tax administration, ensuring compliance with tax laws and regulations (Thompson et al., 2022). It involves systematically reviewing taxpayers' financial records to verify the accuracy of their declarations (Zhang & Patel, 2022). Effective tax audit management is crucial for optimizing revenue collection, reducing tax evasion, and promoting voluntary compliance among taxpayers in South West Nigeria (Morenike et al., 2024). However, many Nigerian revenue agencies rely on manual, inefficient systems that delay audits, weaken enforcement, and reduce revenue collection. For example, a 2021 National Bureau of Statistics report indicated that Lagos State collected only 40% of its potential revenue, highlighting significant gaps in tax practices (National Bureau of Statistics, 2021).

Technology integration, particularly through digital audit management tools, has been identified as a key driver of performance improvement (Ambali et al., 2023). In developed countries, automated tax systems, data analytics, and real-time audit management software have transformed revenue collection (Santos et al., 2024). However, technology adoption in Nigeria has been slow (Anioke, 2024). While some South West states, including Lagos, Ogun, and Oyo, have initiated technology-driven reforms, these efforts remain insufficient. The lack of fully integrated systems hampers tax audit effectiveness and transparency, leading to revenue leakages and poor tracking of non-compliant taxpayers.

Therefore, the **performance of State Internal Revenue Services (SIRS)** in the South West region of Nigeria has been suboptimal due to the weak integration of technology in tax audit management. This research seeks to investigate the impact of tax audit management and technology integration on the performance of SIRS in South West Nigeria. Specifically, the study examined the moderating effect of technology integration on the relationship between tax audit management and the performance of the State Internal Revenue Service in the South-West region of Nigeria, including Ogun, Oyo, Lagos, Osun, Ekiti, and Ondo. The findings of this study will significantly contribute to academic knowledge, inform policy development, and improve management practices, particularly by strengthening the ability of state revenue agencies to achieve their revenue targets and other decision-making.

2. Literature Review

Tax audit management is the examination of a taxpayer's financial records and tax returns to ensure compliance with tax laws and regulations (Bugaje et al., 2023). During a tax audit, tax

authority reviews the taxpayer's records, verifies the accuracy of reported information, and my request additional document or explanations (Teka, 2023). It is defined as the process of planning, executing, and monitoring audit activities to ensure that taxpayers comply with the relevant tax laws. The fundamental components of tax audit management include audit planning, data analysis, back and field audit operations, reporting, follow-up, and enforcement. According to Bugaje et al. (2023), effective tax audit management can enhance revenue collection and reduce the instances of tax fraud and evasion.

Technology integration refers to the seamless incorporation of digital tools, systems, and processes into existing operations to enhance efficiency, accuracy, and accessibility (Udegbunam & Nwankwo, 2023). In the context of tax administration, Umar, et al. (2023) and Ambali, et al. (2023) depict that technology integration involves adopting automated systems like electronic filing (e-filing), data analytics, online payment platforms, and integrated tax management software to streamline tax processes. This transformation improves revenue collection, minimizes errors, and enhances transparency in tax reporting. Additionally, it strengthens tax enforcement through the use of digital audits and real-time tracking of taxpayer activities, ultimately contributing to better compliance, reduced tax evasion, and improved overall tax administration efficiency.

Performance refers to the measurable outcomes or results achieved by an individual, organization, or system concerning set goals or objectives (Thompson et al., 2022). According to Yani and Bambang (2024), performance can be assessed using various indicators such as productivity, profitability, service delivery, compliance, or financial success. The performance of SIRS is often measured by their ability to meet revenue targets, their operational efficiency, and the level of taxpayer compliance they can achieve (Yani & Bambang, 2024). Okonye and Akujor (2023) stressed that the success of SIRS in revenue collection is closely linked to the effectiveness of their tax audit processes. A well-structured audit system not only identifies non-compliant taxpayers but also deters potential evaders through strict enforcement and penalties.

Empirical Review

Tax audit management and organizational performance have been extensively studied from 2020 to 2024. Researchers have examined various aspects of tax management practices on revenue generation and voluntary compliance and the influence of digital transformation on tax administration. Several studies found that effective tax audit practices are crucial for enhancing revenue generation. Similar studies by Ogundeko and Idowu (2020) and Justine (2023) demonstrated that tax audits and investigations significantly improve the revenue-generating capacity of state tax agencies in Nigeria. Okonye and Akujor (2023) also found that a robust tax audit framework enhances compliance and maximizes tax revenue generation in Nigeria. However, the effectiveness of tax audits can be influenced by technological and organizational factors. Aguirre et al. (2020) reported mixed results in developing economies, revealing that technological improvements without corresponding investments in human capital led to only marginal gains in audit performance. In contrast, Johnson et al. (2021) and Zhang and Patel (2022) found that the adoption of advanced data analytics and automation for audit targeting and processes resulted in increased revenue collection and improved efficiency. The COVID-19 pandemic also affected tax audit practices, with Lee and Cho (2022) revealing that the shift to remote auditing procedures led to increased audit coverage and reduced operational costs for state tax agencies.

Several studies highlighted the importance of technology integration in enhancing the performance and effectiveness of tax systems. Researchers in Nigeria, Ethiopia, and Indonesia found that embracing digital solutions, such as e-filing, electronic payments, automated data processing, and integrated billing systems, significantly improved revenue generation, reduced fraud, and facilitated compliance (Mohammed et al., 2023; Udegbunam and Nwankwo, 2023; Umar et al., 2023; Joselin et al., 2024). The studies also emphasized the role of e-governance and public accountability in improving tax administration. Bassey et al. (2023) found that adopting e-governance practices enhanced the efficiency and effectiveness of tax collection, leading to greater public trust in government institutions in Nigeria. Similar findings were reported in studies from Portugal, Kenya, and South-West Nigeria (Santos et al., 2024; Achebe and Wanjohi, 2024; Morenike, Chukwudi, and Bello, 2024).

Research Gaps

Despite extensive research on tax audit management and technology integration, a significant gap remains in understanding the moderating effect of technology integration on the relationship between tax audit management and the performance of State Internal Revenue Services (SIRS) in South West Nigeria. Previous studies (Ogundeko & Idowu, 2020; Aguirre et al., 2020; Zhang & Patel, 2022; Justine, 2023; Mohammed et al., 2023) have largely focused on the direct impact of tax audits or emphasized efficiency gains from digital transformation, but have not considered technology integration as a moderating factor. There is also limited research exploring the simultaneous impact of both tax audit management and technology integration on SIRS performance within the Nigerian context, especially at the state level. This study aims to address this gap using Structural Equation Modeling (SEM) to examine both the direct effects and the moderating analysis of the subject matters.

Contribution to Knowledge

This study makes a unique contribution to the existing body of knowledge by examining not only the individual impacts of tax audit management and technology integration on the performance of SIRS in South West Nigeria, but also the moderating role of technology integration in this relationship. By doing so, it provides new insights into how technological advancements can enhance or hinder the effectiveness of tax audit practices. The study offers a more comprehensive understanding of the dynamics between tax administration practices and digital tools, thereby filling a critical gap in the literature concerning the interplay between audit management and technology in the Nigerian tax system. Additionally, it provides empirical evidence specific to the South West region, which has been under-researched compared to other areas in terms of SIRS performance and digital transformation efforts. This research could help policymakers in formulating more targeted

3. Methodology

The study adopted a cross-sectional research design with the population of 8,771 management staff of data were collected from State Revenue in South West Nigeria. This research employs the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique to analyze the relationship between tax audit management, technology integration and the performance of State Internal Revenue Service (SIRS) in South West Nigeria. PLS-SEM is chosen due to its effectiveness in handling complex relationships between multiple variables and its suitability for exploratory research. The primary data for this study was collected through structured questionnaires distributed to tax auditors, revenue officers, and other senior management in the

SIRS offices across South West Nigeria. A total sample size of 383 management personnel across various SIRS offices in South-West, Nigeria were targeted, with questionnaires designed to gather information on tax audit management, technology integration, and organizational performance. The data was analyzed using the SmartPLS4 software to test the hypothesized relationships between the variables. Figure 1. Sample size is calculated using Taro Yamane's formula: $n = N/(1+N(e)^2)$ where n = sample size, N = Population, e = error limit (0.05), $n= 8771/(1 + 8771(0.05)^2) =383$.

Table 1. Distribution of Sample Size of 383 to Target Respondents in the Regions

S/N	States	Population Size of Management Employees	Proportion of sample size about sampling frame	Sample size
1	Lagos	4,879	(4,879x383)/ 8,771	213
2	Ogun	1,728	(1,728x383)/ 8,771	76
3	Oyo	1,535	(1,535x383)/ 8,771	67
4	Osun	528	(528x383)/ 8,771	23
5	Ondo	285	(285x383)/ 8,771	13
6	Ekiti	324	(324x383)/ 8,771	4
	Total	8,771		383

Source: Author's compilation, 2024 from the Website database of the IRS of each State.

Table1 presents the population and sample size distribution for management personnel across the State Internal Revenue Services (SIRS) in the six South-Western states of Nigeria. The total population of management employees across the states is 8,771, with a calculated sample size of 383 based on Taro Yamane's formula. The sample size was proportionally allocated to each state according to its share of the total population.

4. Results

The results are presented using descriptive statistics (mean, standard deviation, and Cramér-von Mises p-value) in Tables 2-4. The measurement model's reliability, validity, and discriminant validity, as well as the structural model's path coefficients, were assessed to test the hypotheses.

Table 2. Descriptive Statistics for Tax Audit Management

Name	**Items**	**Mean**	**Std. Dev**	**Cramér-von Mises p value**
TAM-1	The tax audit process is well-defined and clearly communicated	3.640	1.229	0.000
TAM-2	The tax audit management system effectively organizes and tracks audit cases.	3.640	0.975	0.000
TAM-3	The tax audit compliance process aligns with regulatory requirements and industry best practices	3.380	1.075	0.000
TAM-4	The tax investigation procedures adopted are effective in identifying potential tax issues and discrepancies.	4.440	0.726	0.000

TAM-5	Tax audit takes within the premises of tax officials and cost-effective	3.120	1.070	0.000
TAM-6	The effectiveness of field audit allows physical verification of taxpayers' claims to confirm the facts and figures of the returns	3.980	1.029	0.000
TAM-7	Back duty audit practice is effective in correcting the mistake of lesser tax as a result of falsification of documents submitted by the taxpayers	3.400	1.200	0.000
TAM-8	Registration audit is effectively used to cage individuals and companies in the tax net within South-West Nigeria	3.600	1.114	0.000

Source: Author's Computation (2024)

Table 3. Descriptive Statistics for Technology Integration

Name	**Items**	**Mean**	**Std. Dev**	**Cramér-von Mises p value**
TI-1	The Integration of tax data from different departments of SIRS effectively reduces redundancy and improves consistency	3.780	0.965	0.000
TI-2	The e-tax system adopted by SIRS provides clear and accessible information to state taxpayers about their obligations	3.600	1.217	0.000
TI-3	The user interface of the e-tax system is simple for both individual and business taxpayers in the state to navigate	3.920	1.093	0.000
TI-4	Software such as SharePoint or Google Drive used b y SIRS allows for efficient electronic storage of doc uments, and has significantly reduced physical stora ge	4.040	0.824	0.000
TI-5	The use of accounting and financial management software (e.g. QuickBooks or SAP) has improved SIRS budgeting processes	3.900	1.025	0.000
TI-6	The ERP system enhances the accuracy of tax calculations and reporting in our tax accounting information system	3.840	0.946	0.000
TI-7	Tax workflow management system of SIRS effectively prioritizes tax related tasks (e.g helps in tracking the progress of tax filings and deadlines accurately.	3.620	1.056	0.000

Source: Author's Computation (2024)

Table 4. Descriptive Statistics for Performance

Name	**Items**	**Mean**	**Std. Dev**	**Cramér-von**

				Mises p value
PSIRS-1	The tax revenue agency demonstrates accountability in the use of tax revenues.	4.000	1.020	0.000
PSIRS-2	The SIRS effectively implements a tax financial reward system for their staff.	4.000	0.849	0.000
PSIRS-3	The SIRS invests in staff training and development within budget constraints.	3.980	0.883	0.000
PSIRS-4	The SIRS optimizes its operational efficiency through the utilization of its resources (e.g., labor, materials, and time) to provide service quality and achieve productivity.	3.880	0.886	0.000
PSIRS-5	The state IRS actively collaborates with other government agencies, organizations, and stakeholders to enhance tax administration compliance and reduce tax evasion.	4.040	0.999	0.000

Source: Author's Computation (2024)

The results presented in Tables 2-4 highlight the effectiveness of tax audit management and technology integration within the tax administration system. In examining the descriptive statistics across the tax audit management (TAM) and technology integration (TI) dimensions, several notable patterns emerge from the data analysis. For tax audit management in Table 2, respondents indicated the highest mean score (4.440) for the effectiveness of tax investigation procedures (TAM-4), with the lowest standard deviation (0.726) suggesting strong consensus among participants. The lowest mean score (3.120) was observed for the cost-effectiveness of tax audits conducted within tax officials' premises (TAM-5). Regarding technology integration in Table 3, the data reveals generally positive perceptions, with the highest mean score (4.040) attributed to the efficiency of electronic document storage systems (TI-4), while the e-tax system's provision of accessible information (TI-2) showed the highest variability with a standard deviation of 1.217. In Table 4, the performance metrics demonstrate consistently high scores, with stakeholder collaboration (PSIRS-5) receiving the highest mean (4.040), while both accountability in tax revenue use and staff financial reward systems (PSIRS-1 and PSIRS-2) achieved means of 4.000, indicating strong organizational effectiveness across these dimensions. All tax audit items demonstrate significant Cramér-von Mises p-values (0.000), indicating strong reliability.

Discriminant Validity

Discriminant validity was evaluated by examining the factor cross-loadings, as shown in Figure 2 of the path graph analysis using Quality Criteria in PLS-SEM.

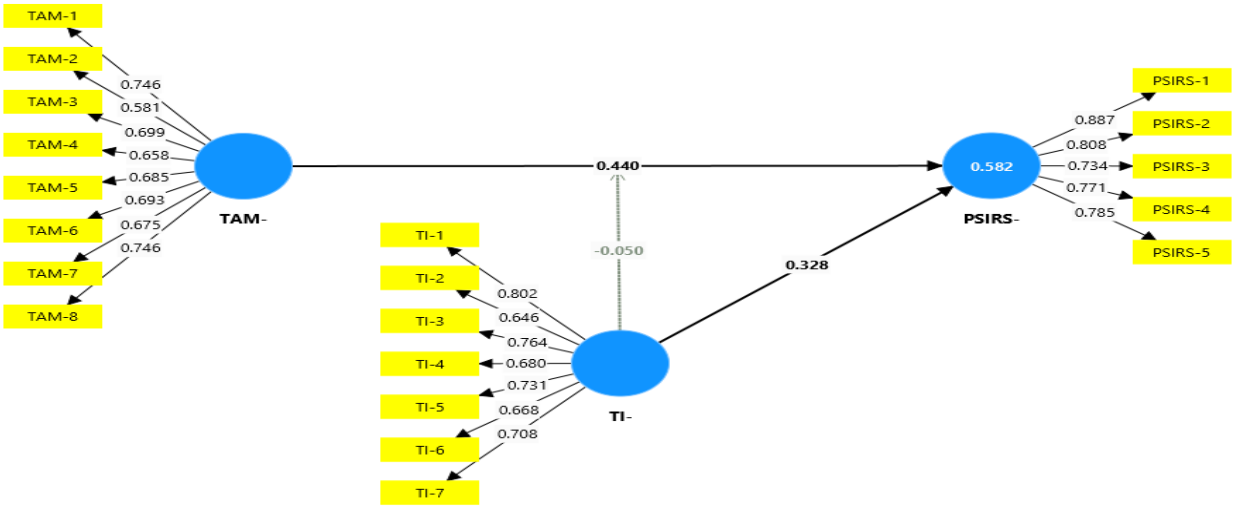


Figure 1: Path graph analysis

The cross-loadings in Figure 1 assessed the discriminant validity by comparing the factor loadings of each item on its corresponding construct (PSIRS, TAM, TI) versus other constructs. Items associated with PSIRS show higher loadings on their respective construct (e.g., PSIRS-1 = 0.887) than on TAM or TI, confirming that PSIRS is distinct from the other variables. Similarly, TAM items, like TAM-1 (0.746) and TAM-8 (0.746), load higher on TAM than PSIRS or TI, and TI items like TI-1 (0.802) show higher loadings on TI. This demonstrates adequate discriminant validity across constructs. The R-squared values for PSIRS (0.582 and adjusted 0.555) indicate that the model explains a moderate amount of variance in PSIRS, affirming the reliability of the construct relationships**.**

Table 5. Path Coefficient Result

Constructs	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
TAM-> PSIRS	0.440	0.439	0.161	2.736	0.006
TI -> PSIRS	0.328	0.346	0.153	2.143	0.032
TI x TAM -> PSIRS	-0.050	-0.049	0.095	0.523	0.601

Source: Author's Computation (2024)

The results in Table 5 show that tax audit management (TAM) has a positive and significant effect on the performance of State Internal Revenue Services (SIRS) with a path coefficient of 0.440 (p = 0.006) at 5% significant level. This indicates that improvements in tax audit management, such as more effective audit procedures and better compliance monitoring, lead to enhanced performance of revenue services. The implication of this finding is that when SIRS implements robust audit management practices, it results in increased efficiency, improved revenue collection, and a reduction in tax evasion. It emphasizes the critical role of tax audits in ensuring compliance and optimizing revenue generation for state governments. This finding is consistent with the outcomes from studies by Ogundeko and Idowu (2020), who found that tax audit improves voluntary compliance and revenue generation, and Johnson et al. (2021), who highlighted the positive impact of risk-based audit selection methods. It also aligns with the research by Lee and Cho (2022), Thompson et al. (2022), Justine (2023), Okonye and

Akujor (2023), and Kassaw (2023), all of which underscored the significance of tax audit management in enhancing the performance of revenue services.

Similarly, technology integration (TI) has a significant positive effect on SIRS performance with a path coefficient of 0.328 (p = 0.032). This suggests that the incorporation of technology into revenue service operations, such as the use of automated systems, data analytics, and digital platforms; improves organizational efficiency, reduces errors, and boosts revenue collection capacity. The implication of this finding is that embracing technological solutions leads to more streamlined processes, better taxpayer services, and enhanced accuracy in audits, which ultimately improve the overall performance of the revenue agencies. This finding aligns with the studies by Zhang and Patel (2022), which showed improvements in audit cycle times and accuracy through automation, and Mohammed et al. (2023), who found that digital solutions are crucial for improving tax system performance. It also supports the findings of Udegbunam and Nwankwo (2023), Umar et al. (2023), Ambali et al. (2023), Hussaini et al. (2023), and Anioke (2024), who all reported that technology integration significantly boosts the performance of revenue services. However, the findings of this study contrast with Aguirre et al. (2020), who reported mixed results in developing economies, noting that institutional factors like staff training and organizational culture were equally important for realizing the benefits of technology in tax audits.

However, the moderating effect of technology integration on the relationship between tax audit management (TAM) and SIRS performance (PSIRS) was found to be insignificant, as indicated by the path coefficient (p = 0.601). This implies that while technology integration has a direct positive effect on SIRS performance, it does not significantly strengthen or weaken the impact of tax audit management on performance. In other words, the effectiveness of tax audit management in enhancing the performance of SIRS is not contingent on the level of technology integration. This finding suggests that tax audit management can independently improve SIRS performance, and while technology integration improves overall efficiency, it does not act as a critical moderator in this specific relationship.

5. Conclusion and Recommendations

This study examined the impact of tax audit management and technology integration on the performance of State Internal Revenue Services (SIRS) in South West Nigeria, with a focus on the moderating effect of technology integration on the relationship between tax audit management and performance. The findings revealed that both tax audit management and technology integration have significant positive effects on the performance of SIRS, supporting the Resource-Based View theory. However, the moderating effect of technology integration on the relationship between tax audit management and performance was found to be insignificant, indicating that technology integration, while beneficial on its own, does not amplify the impact of tax audit management on SIRS performance.

Based on these findings, it is recommended that SIRS should continue to prioritize improving tax audit management practices as a key driver of organizational performance. In addition, SIRS should invest in further technological advancements to enhance efficiency and accuracy in tax collection. In addition, the regulatory framework governing tax audits should be strengthened to empower auditors with the necessary authority to enforce compliance and reduce tax evasion.

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CORPORATE SUSTAINABILITY REPORTING AND ACCOUNTING CONSERVATISM OF LISTED NON-FINANCIAL FIRMS IN NIGERIA

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ABSTRACT

Accounting conservatism ensures that companies do not overestimate financial performance and this also aligns with overall goal of sustainability reporting in which long-term sustainability is valued over short-term profit. This study delves into the nexus between sustainability reporting and accounting conservatism among Nigerian firms in the non-financial sector listed on the exchange group spanning from 2013 to 2022. Employing environmental sustainability reporting (ENVI), social sustainability reporting (SOCI) and governance sustainability reporting (GOVI) as independent variables and the ratio of market to book value as proxy for accounting conservatism as dependent variable, the research aims to unravel the nuanced relationship between these constructs. The methodology encompasses pool least square regression estimation, followed by diagnostic tests to ensure adherence to OLS regression assumptions, including assessments for multicollinearity and heteroscedasticity. Pre-regression analyses, including descriptive statistics and correlation matrix lay groundwork for robust regression analysis. Empirical findings reveal intriguing insights: while environmental sustainability reporting exhibits a significant negative impact on market to book value with coefficient value of -9.779 at 5% significant level, social sustainability reporting demonstrates an insignificant positive effect, and governance sustainability reporting yields an insignificant positive effect. The evidences as obtained from this study advocates for broader implementation and mandatory adoption of sustainability reporting, highlighting its benefits for both firms and shareholders. Greater disclosure of sustainability information by firms reduces shareholders' ambiguity about the non-financial performance of firms in the future.

Keywords: Sustainability reporting; Accounting conservatism; Robust regression analysis.

1. Introduction

Conservatism is a striking attributes of accounting information, with recent research highlighting a substantial rise in its prevalence over the past few decades (Hajawiyah, et al. 2020). Notably, accounting conservatism is a contentious subject in both policy-making and academic literature which have been considered recently by Alves, (2021) to be the uneven timeliness of earnings reporting, where greater verification is needed to disclose good news as gains compared to reporting bad news as losses. The degree of conservatism in financial reports reflects the firm's commitment to accountability and also to mitigate shareholders' risk in response to potential economic instability (Shen, Ho, Yang, & Wang, 2021). Conservative accounting is demanded by shareholders to allay the adverse impact of information asymmetry.

Most times, financial reports have primarily emphasized financial accountability when presenting information to stakeholders. However, in order to enhance firm's reputation and transparency, disclosure of non-financial information is necessary. Furthermore, to foster a sustainable business, public companies need to present sustainability report detailing their economic, social and governance performance. Comprehensive disclosure of information by firms is expected to reduce the risk of overly optimistic report. A conservative approach in sustainability reporting seeks to provide stakeholders with a realistic, risk-aware portrayal of a company's sustainability efforts, limiting exaggerated claims and encouraging proactive acknowledgment of future obligations. Furthermore, nexus between corporate sustainability reporting and accounting conservatism is an area of growing interest in accounting research that are yet to be adequately explored. Despite the close attention of research to the impacts of sustainability disclosure on accounting conservatism, the empirical evidence remains inconclusive.

Furthermore, empirical research has found that firms with conservative accounting practices tend to have better sustainability practices and reporting. However, some studies also suggest that companies with aggressive accounting practices may adopt sustainability reporting as a form of "greenwashing" to offset potential negative perceptions (Chauhan & Kumar, 2018; Kim *et. al.,* 2014). Conservative accounting practices limit the potential for managers to inflate earnings, while sustainability reports provide additional context on non-financial factors that may impact the company's long-term prospects. Together, these practices can build trust with investors and other stakeholders. At present, Nigerian companies face significant challenges in delivering high-quality financial reports and in disclosing social and environmental issues. This has driven a growing demand for transparency in both financial and non-financial reporting. Hence, this study seeks to empirically investigate the effect of corporate sustainability reporting on accounting conservatism of Nigerian listed non-financial firms from 2013 to 2022. The period from 2013 to 2022 marks a significant era of heightened activities in the Nigerian business industry. This period in focus also experienced a significant period of corporate regulations, accounting standards implementation and recapitalization. This sample size

includes a total of 70 non-financial firms that are listed by the Nigerian Exchange Group (NGX). These firms were chosen to obtain homogenous samples. Also, non-financial sector is chosen due to the crucial role it plays in the country's economic development. For this study, sustainability reporting is expressed in terms of environmental, social and governance sustainability reporting while accounting conservatism is measured in terms of ratio of market value to book value of equity.

2. Literature Review

2.1 Conceptual Review

Sustainability Reporting

Howard R. Bowen (1955) introduced the concept of sustainability reporting, emphasizing that companies should align their actions and values with societal expectations. Sustainability reporting involves organizations reporting information about their environmental, social, and governance (ESG) practices and performance. It aims to provide a transparent account of how an organization's activities contribute to or mitigate sustainability issues. Sustainability reporting is becoming a critical part of corporate strategy as stakeholders increasingly expect organizations to address sustainability alongside financial performance.

Generally, sustainability reports cover a range of topics which are environmental impact that is measures of carbon emissions, energy use, pollution control and so on; social impact which includes reporting information on labour practices, community engagement, employee welfare and governance impact which disclose information on the organization's ethical practices, board structure and management (De Villiers *et al*, 2014; Martínez & Quintero, 2023; Dincer & Dincer, 2024). The measurement indicators for sustainability report disclosures are based on the Global Reporting Initiative (GRI) standard. For the purpose of this study, sustainability report is measured by using 2021 GRI Standards.

Accounting Conservatism

Accounting conservatism according to Basu (1997) is "the accountant's tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses". Accounting conservatism refers to the promptness in recognizing a firm's economic losses and gains. Accounting conservatism is implemented by lowering net asset value or profits in response to unfavorable news while refraining from gearing up profits in response to favorable news (Shroff *et al.*, 2013). Biddle *et al.* (2020) opined that conservatism in reporting lowers bankruptcy risk for firm by curbing earnings management practices. That is, it can provide timelier notifications of default risk to stakeholders.

The degree of conservatism in financial reporting can be evaluated through 3 distinct approaches (Yenti *et al, 2023)*. The first approach relies on measuring net assets; proxy utilizes the ratio of book value to market value of firm's equity. The next approach assesses earnings and accruals by determining the variance between net earnings and cash flow; The third

technique examines the connection between firm earnings and stock returns (Shroff et al., 2013). However, we employ the ratio of book value to market value of firm's equity as a proxy for accounting conservatism.

However, adopting accounting conservatism may lead to lower reported profits because it delays revenue recognition, expedite the recording of expenses, reduce asset valuations and increase debt valuations. Firms with robust sustainability practices are more likely to adopt conservative accounting practices to manage risks and enhance transparency. For example, Khlifi et al. (2024) found that firms with better environmental and economic sustainability scores tend to adopt more conservative accounting practices, especially when strong governance structures are in place. This combination of governance and conservatism helps ensure accurate reporting that reflects both financial and sustainability goals.

2.2 Theoretical Framework

Legitimacy theory is best applied to explain the link between sustainability reporting and accounting conservatism (Pereira *et al., 2021).* Legitimacy theory posits that in order for firms to sustain legitimacy, they need to ensure that their activities align with societal norms and expectations. Firms often employ sustainability reporting as a means of aligning with societal expectations and demonstrate their commitment to social and environmental accountability. Accounting conservatism complements this by ensuring cautious financial reporting, which reinforces trust and credibility. Together, these practices help companies maintain or enhance their legitimacy by signaling responsible behavior to stakeholders and addressing concerns about ethical and sustainable practices.

2.3 Empirical Review

This subsection reviewed prior empirical work on the subject matter; For instance, Garanina and Kim (2023) employed listed 223 firms in Russia from 2012 to 2017. The study revealed that firms with greater CSR disclosure are inclined to adopt conservative reporting practices. Similarly, Wu *et al* (2022) employed Chinese firms, investigated how air pollution influences a firm's adoption of conservative accounting policies. Their study reported that air pollution has pronouncing effect on accounting policy conservatism in firms operating in "high-pollution industries". Also, Hong (2020) investigated on the relationship between sustainability management and accounting conservatism. The study used the ESG rating from KCGS as proxy for sustainability management among Korean publicly traded firms spanning year 2010 to 2016. The findings concluded that higher the ESG rating is inversely related to accounting conservatism. Furthermore, Pan and Zhoa (2021) examined the changes in accounting conservatism among Chinese firms and found that CSR policy implementation adversely affect accounting conservatism for the observed firms. The study concluded that accounting conservatism plays a partial mediating role between CSRD and financial performance.

From the period of 2015 to 2019, Altawalbeh (2021) investigated on the effect of corporate social responsibility disclosure (CSRD) on financial performance, using accounting conservatism as a mediating variable for 45 listed firms on Amman stock exchange. Patro and Pattanayak (2017) obtained evidence among Indian mining companies from the year 2000 to 2015 as regards the effect of CSR disclosure on accounting conservatism (AC). Accounting

conservatism was proxy by discretionary accruals while GRI index was used for CSR disclosure. The study concluded that accounting conservative adversely affect CSR disclosure. Likewise, Pereira *et. al.* (2021) analyzed if firm's conservative accounting practice is influenced by the disclosure of environmental sustainability information.
They found evidence that increased disclosure of environmental sustainability information promotes more conservative accounting practices.

Ferreira *et. al.* (2022) examined if ESG performance is linked to reduction in choosing accounting conservatism practice for reporting among 55 publicly traded firms operating in the Brazilian non-financial sector. Their study revealed that ESG performance measures reduce information asymmetry thereby improve the quality of accounting information thus increase accounting conservatism. Kaya and Akbulut (2021) empirically investigated on sustainability reporting and accounting conservatism among 32 Turkish deposit banks from the period of 1999 to 2019. Their findings indicated that sustainability reporting does not have influence on accounting conservatism.

Cho *et. al.* (2020) examined the effect of conservative financial reporting on CSR disclosure. Their findings showed that firms that embrace conservative reporting system are less inclined to publish CSR information.

Shaw *et. al.* (2021) examined the effect of CSR compliance on conditional accounting conservatism among Indian firms. Their findings revealed that CSR compliance significantly influence conditional accounting conservatism.

Based on the previous empirical literature reviewed and analyzed, most of the studies considered just one proxy for sustainability reporting while sidelining the other two important proxy. However, this study proxy sustainability reporting using three indices which are environmental, social and governance sustainability reporting. Also, this study used larger sample size and a greater number of years thus having robust firm-year observations, and this have significant impact on the findings; hence supporting the validation and generalization of the study's findings.

3. Methodology

This study employed causal research design because of the cause-effect relationship of firm sustainability reporting on accounting conservatism reporting. The population encompassed listed 109 firms operating in the non-financial sector of Nigerian Exchange Group (NGX) from the year 2013 to 2022. The "sample size" chosen consisted of listed 70 firms operating in the Nigerian non-financial sector from the year 2013 to 2022. Purposive and stratified random sampling techniques were used in selecting the sample size. Secondary source of data gathered from the sampled firms audited annual reports, sustainability disclosures were employed for the study. Data collected was analyzed using descriptive statistics, correlation analysis, pooled OLS, Robust regression analysis.
The econometrics model for the study is expressed as:

$$CONS_{it} = \beta_0 + \beta_1 SUST_{it} + \mu_{it} \quad (1)$$

$$CONS_{it} = \beta_0 + \beta_1 ENVI_{it} + \beta_2 SOCI_{it} + \beta_3 GOVI_{it} + \mu_{it} \quad (2)$$

Where: CONS represents accounting conservatism which is the dependent variable measured as the ratio of book value of equity to market value of equity; the proxy for independent variable of sustainability reporting are ENVI, SOCI and GOVI. ENVI denotes environmental disclosure index assessing the extent of environmental information presented in the firms' annual financial report (GRI, 2021). SOCI represents social responsibility disclosure measures information as regards firms' social practices according to GRI, 2021; GOVI is the governance disclosure index for firms' governance practices in the audited report. β_0 is the constant; β_1- β_3 is the regression coefficients; μ is the error term; i is the i^{th} company, t is the time frame.

Apriori Expectation = $\beta 1, \beta 2, \beta 3 < 0$.

4. Results

4.1 Descriptive Statistics

Table 1 displays the descriptive statistics for both the dependent and independent variables of the study. For the dependent variable, the table shows that the mean of accounting conservatism (CONS) is 4.979 with the value of standard deviation as 14.405. As for the explanatory, the findings disclose that mean value for environmental sustainability reporting (ENVD) is 0.053; value for standard deviation as 0.125 infers that on average, the listed sampled firms in Nigeria reported about 5% of their environmental related practices. Also, the findings reveals that the mean value for social sustainability reporting (SOCD) is 0.343; value for standard deviation as 0.141. This conveys that the selected firms in Nigeria publised 34% of their social related practices for the study period. In addition, the results disclose that the mean value for governance sustainability reporting (GOVI) is 0.506; standard deviation value of 0.197 for the study period. This connotes that on the average, about 51% of the selected firms in Nigeria communicated governance-related information.

Table 1: Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Cons	700	4.979	14.405	-20.23	93.24
Envi	700	0.053	0.125	0	0.63
Soci	700	0.343	0.141	0.14	0.92
Govi	700	0.506	0.197	0.06	0.95

Source: Authors computation (2024)

4.2 Correlation Analysis of the Variables

This study utilized the Spearman Rank Correlation Coefficient to analyze the relationships among the variables; the results are presented in the Table 2. The results reveal that social disclosure (0.322) is positively correlated with the predicted variable of accounting conservatism for the study period. Also, from the result, governance disclosure (0.281) has a

positive relationship with accounting conservatism. However, the result indicates that environmental disclosure (-0.044) is negatively correlated with accounting conservatism during for the study period.

Table 2: Correlation Analysis

Variables	cons	envi	soci	govi
cons	1.000			
envi	-0.044	1.000		
soci	0.322	0.061	1.000	
govi	0.281	-0.198	0.629	1.000

Source: Authors computation (2024)

4.3 Regression Analyses of the Study

Specifically, to investigate the cause-effect relationships between the dependent variable and explanatory variables, we used a robust regression analysis since the result reveals the presence of heteroscedasticity. The robust regression and an OLS pooled results obtained is presented and discussed in Table 3. The findings reveal that R-square value obtained from the pooled OLS regression is 0.4664. This infers that the explanatory variables account for about 47% of the variation in the explained variable of accounting conservatism of the pool non-financial firms for the study period. However, the unaccounted portion of accounting conservatism has been captured by the error term. The value for F-statistics (19.23); p-value of 0.0000 of the pool OLS regression for the observed firms in Nigeria indicates that the model is statistically fit at 1% significance level. However, to further validate the estimates of the pool OLS results, we test for multicollinearity and heteroscedasticity. The result obtained from using variance inflation factor (VIF) to test for multicollinearity indicates that the mean VIF is 1.47. This implies the absence of multicollinearity since the mean value is less than 10 that is the bench mark. Furthermore, the value for heteroscedasticity as seen in Table 3 reveals that a chi2 value of 41.08 with a p-value of 0.0000. The result discloses a significant p-values implying that the assumption of homoscedasticity of the pool OLS regression results has been violated. Therefore, the study employs robust regression in order to correct this violation as recommended by (Greene, 2009).

Table 3: Regression Result

	CONS Model (Pooled OLS)	CONS Model (Robust Regression)
INTERCEPT	-11.266	-1.326
	{0.007} **	{0.339}
ENVI	49.834	-9.779
	{0.000} ***	{0.026} **
SOCI	39.953	7.787
	{0.001} **	{0.070}

GOVI	-0.217	2.061
	{0.978}	{0.436}
F-statistics/Wald Statistics	19.23 (0.0000) ***	4.28 (0.0080) **
R- Squared	0.4664	0.4664
VIF Test	1.47	
Heteroscedasticity Test	41.08 (0.0000) ***	

Note: ***, **, implies significance levels at 1% and 5% levels respectively

Source: Authors computation (2024)

The results obtained from the robust regression model revealed that environmental sustainability reporting [coef. = -9.779 (0.026)] adversely affect book to market value as a measure of the accounting conservatism. The result implies that an increase in environmental disclosure will significantly reduce the market to book value as a measure of the accounting conservatism of listed non-financial firms in Nigeria during the period under study. This contradicts the findings of Pereira *et. al.* (2021); Ferreira *et. al.* (2022) who found that greater transparency in environmental sustainability reporting supports a more conservative approach in accounting. However, this study result support the findings of Hong (2020). Also, social sustainability reporting [coef. = 7.787 (0.070)] has an insignificant direct effect on market to book value as a measure of the accounting conservatism. In addition, governance sustainability reporting [coef. = 2.061 (0.436)] has an insignificant positive effect on market to book value as a measure of the accounting conservatism of listed non-financial firms in Nigeria.

5. Conclusion

This study looked at listed companies operating in the non-financial sector in Nigeria with respect to their sustainability reporting and accounting conservatism. The results of the study reveal that greater environmental disclosure will substantially reduce the ratio of market to book value as a measure of the accounting conservatism. The study also concludes that an increase in social disclosure as well as governance disclosure will insignificantly increase accounting conservatism of the sampled firms for the study period. Based on the results from our study; we suggest that firms should be encouraged to disclose their sustainability practices, as it will enhance investors' confidence; improved perceptions of long-term sustainability thereby resulting into increased long-term investment.

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FORENSIC ACCOUNTING PRACTICES AND INFLUENCING FACTORS: EVIDENCE FROM PROFESSIONAL ACCOUNTANTS IN LAGOS

By

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ABSTRACT

This study investigates the impact of forensic accounting practices, professional regulation, and institutional factors on the effectiveness of forensic accounting among professional accountants in Lagos, Nigeria. With increasing financial crimes and fraud across various sectors, forensic accounting has emerged as a critical tool for detecting and preventing these issues. However, the effectiveness of forensic accounting practices can be influenced by the regulatory environment and institutional factors. Using a quantitative research approach, data was collected from 200 professional accountants through structured questionnaires. The data was analyzed using descriptive statistics and regression analysis to determine the relationships

between the variables. The findings reveal that forensic accounting practices significantly enhance financial accountability and fraud detection, with a strong positive relationship ($\beta = 0.58$, $p < 0.01$). Professional regulation also plays a crucial role, positively impacting forensic accounting outcomes ($\beta = 0.42$, $p = 0.007$), although to a slightly lesser degree. Institutional factors showed a positive but marginally significant effect ($\beta = 0.35$, $p = 0.055$), indicating the need for stronger institutional support to further enhance forensic accounting practices. The study highlights the importance of a robust regulatory framework and institutional infrastructure in improving forensic accounting practices. The results have important implications for policymakers, regulators, and professional bodies, emphasizing the need to strengthen professional regulations and institutional frameworks to maximize the effectiveness of forensic accounting in fraud prevention and financial accountability in Nigeria. Future research should explore additional contextual factors that may influence forensic accounting practices in other regions.

Keywords: *Forensic accounting, professional regulation, institutional factors, financial accountability, fraud prevention, Nigeria.*

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1. Introduction

Forensic accounting, which blends accounting, auditing, and investigative methods, has become a vital tool in combating financial fraud and corporate misconduct. As financial crimes grow more complex, forensic accountants play a key role in detecting fraud, providing expert testimony, and collaborating with legal authorities to ensure financial accountability (Crumbley et al., 2017). The field has seen significant growth globally, driven by a demand for transparency and strong financial systems in response to high-profile scandals like Enron, WorldCom, and Lehman Brothers (Rezaee, 2002).

In developed economies such as the U.S. and Europe, forensic accounting is highly regulated and professionalized. Legislation like the Sarbanes-Oxley Act of 2002 in the U.S. strengthened corporate governance and improved financial disclosures, spurring demand for forensic accountants (DiGabriele, 2008). In Europe, tighter regulations after the 2008 financial crisis have further elevated the role of forensic accountants in fraud detection. Similarly, in Asia, countries like India and China are increasingly recognizing the importance of forensic accounting in addressing corruption and financial mismanagement, particularly with rising foreign investments and complex financial markets (Bhasin, 2015).

In developing economies, forensic accounting is becoming increasingly important as governments and businesses tackle corruption and financial mismanagement. Countries like South Africa and Kenya are relying more on forensic accountants to address financial irregularities in both the public and private sectors (Izedonmi & Ibadin, 2012). Forensic accounting has also become central to regulatory bodies' efforts to combat corporate fraud and improve financial accountability, contributing to broader economic reforms and sustainable growth.

The adoption and effectiveness of forensic accounting are influenced by various factors globally, including legal and regulatory frameworks, the prevalence of corruption and fraud, the availability of skilled professionals, and the existence of professional bodies that provide accreditation and training for forensic accountants (Seda & Kramer, 2009). Additionally, technological advancements like data analytics and blockchain are enhancing the efficiency of forensic accounting and helping it respond to modern financial crimes (Sharma & Panigrahi, 2012).

While forensic accounting plays a vital role globally in fraud detection and prevention, the factors driving its development vary by region. This highlights the need for localized research, such as examining how professional accountants in Lagos, Nigeria, are influenced by global trends and practices in their forensic accounting roles.

Forensic accounting has become an essential tool in combating financial fraud, corruption, and other financial misconduct in Nigeria, particularly in response to the high prevalence of economic crimes in both the public and private sectors (Owojori & Asaolu, 2009). As financial crimes such as embezzlement, corporate fraud, and misappropriation of funds continue to challenge economic growth and financial accountability, forensic accounting provides a proactive approach to detecting and preventing these irregularities (Modugu & Anyaduba, 2013).

Lagos, as Nigeria’s commercial hub, plays a critical role in the practice of forensic accounting due to its concentration of businesses and financial institutions, which presents both opportunities and risks for financial crimes. Forensic accountants in Lagos are vital in ensuring transparency, accountability, and good corporate governance. Regulatory bodies like the Economic and Financial Crimes Commission (EFCC) increasingly rely on forensic accountants to investigate complex financial crimes, emphasizing the growing significance of the profession (Yakubu & Faboyede, 2012).

However, several factors influence the adoption and effectiveness of forensic accounting in Nigeria. Key challenges include insufficient professional competence and training, as many accountants lack the specialized skills necessary for forensic investigations (Owolabi et al., 2017). Additionally, although legal and regulatory frameworks are improving, they are still inadequate to fully support forensic accounting practices. Other barriers include a lack of resources and resistance to change within organizations (Modugu & Anyaduba, 2013).

In recent years, efforts to institutionalize forensic accounting in Nigeria have gained momentum, with professional bodies like the Institute of Chartered Accountants of Nigeria (ICAN) and the Association of Forensic Accounting Researchers (AFAR) offering specialized training and certifications to enhance the skills of accountants in this field. However, there is still a need for more integration of forensic accounting into mainstream accounting curricula and practice to ensure professionals are equipped to address the increasing complexity of financial crimes (Popoola et al., 2014).

Key factors influencing forensic accounting practices in Lagos include the regulatory environment, professional training, and organizational support. These elements are essential for understanding the effectiveness of forensic accounting in mitigating financial crimes. The need for further research is evident, particularly in strengthening forensic accounting practices to address the unique challenges posed by Nigeria's financial landscape.

2. Literature Review

Forensic Accounting

Forensic accounting is a specialized field that combines accounting, auditing, and investigative skills to analyze financial information in legal disputes or fraud investigations (Crumbley et al., 2017). The primary objective is to detect, prevent, and investigate financial fraud and irregularities, often resulting in legal proceedings. Forensic accountants scrutinize financial data, identify discrepancies, and provide expert testimony in court. This review focuses on the core practices of forensic accounting, its development, methods, and the factors influencing its adoption among professional accountants.

Forensic accounting generally involves two major functions: fraud detection and litigation support. Fraud detection identifies financial misstatements, embezzlement, and fraud by analyzing financial records and comparing them with established standards (Zimbelman et al., 2012). It requires an understanding of financial systems, internal controls, and accounting standards, along with the ability to detect unusual patterns or transactions indicating fraud.

Techniques such as data mining, trend analysis, and digital forensics are used to gather evidence (Gray, 2008).

In litigation support, forensic accountants provide expert analysis and testimony in legal disputes, often serving as key witnesses in court cases. This role requires technical expertise and the ability to present complex financial data clearly to legal professionals and juries (Rezaee & Burton, 1997). Forensic accountants may be called upon to provide opinions on asset valuation, damages calculation, or the interpretation of financial statements in cases like bankruptcy, divorce, or shareholder disputes.

The evolution of forensic accounting has been driven by the growing complexity of financial transactions and the increasing prevalence of financial crimes. Major scandals like Enron and WorldCom in the early 2000s highlighted the need for more rigorous financial scrutiny, leading to a surge in demand for forensic accountants (Crumbley et al., 2017). These scandals exposed weaknesses in traditional auditing and internal controls, contributing to the development of forensic accounting as a distinct profession with specialized training and certification.

In Nigeria, the demand for forensic accounting has significantly increased due to widespread corruption and financial fraud, especially in the public sector (Okoye & Gbegi, 2013). The country's high levels of financial irregularities and mismanagement have driven the growing interest in forensic accounting as an essential tool for enhancing financial accountability and combating corruption. This rising need has contributed to the expansion of forensic accounting education and certification programs, including the Certified Forensic Accountant of Nigeria (CFAN), provided by the Institute of Chartered Accountants of Nigeria (ICAN) (ICAN, 2020).

Professional Regulation

Professional regulation is essential in shaping the practice of forensic accounting by ensuring ethical standards, competency, and reliable services. Regulatory bodies are responsible for creating guidelines, certifications, and legal frameworks to combat financial fraud and misconduct (Owolabi et al., 2017). Effective regulation upholds the integrity of forensic accounting practices, equipping professionals to handle complex financial investigations.

Globally, forensic accounting is governed by organizations such as the American Institute of Certified Public Accountants (AICPA), which introduced the Certified in Financial Forensics (CFF) credential to recognize expertise in the field (Rezaee & Burton, 1997). In the UK, the Institute of Chartered Accountants in England and Wales (ICAEW) offers certifications to

ensure that professionals possess the necessary skills for financial crime investigations (Bologna & Lindquist, 1995).

In Nigeria, regulation is still evolving, but strides have been made with bodies like the Institute of Chartered Accountants of Nigeria (ICAN), which offers the Certified Forensic Accountant of Nigeria (CFAN) designation (ICAN, 2020). The Association of Forensic Accounting Researchers (AFAR) also contributes by promoting forensic accounting development through training and advocating for better regulatory frameworks (Popoola et al., 2014). These bodies ensure that forensic accountants maintain ethical standards and professional credibility.

However, Nigeria's regulatory framework faces challenges, including weak enforcement mechanisms, inadequate legal structures, and fragmented standards, which undermine the effectiveness of forensic accounting practices (Modugu & Anyaduba, 2013). Additionally, while certifications like CFAN are valuable, continuous professional development is often limited, hindering the ability to adapt to emerging fraud detection methods (Owolabi et al., 2017).

Institutional Factor

Institutional factors are critical in shaping the adoption and effectiveness of forensic accounting practices, as they involve policies, structures, and norms within institutions that either encourage or hinder its implementation in combating financial fraud. These factors include the regulatory framework, corporate governance, legal environment, and organizational culture (Adegbie & Fakile, 2012).

A strong regulatory framework is essential for effective forensic accounting. In developed countries, bodies like the U.S. Securities and Exchange Commission (SEC) and the UK Financial Reporting Council enforce strict regulations that promote forensic accounting practices (Crumbley et al., 2017). In Nigeria, while institutions such as the Economic and Financial Crimes Commission (EFCC) and the Financial Reporting Council of Nigeria (FRCN) exist, enforcement is often hindered by inadequate resources, corruption, and inconsistent policies (Modugu & Anyaduba, 2013). However, reforms like the Treasury Single Account (TSA) and the Public Procurement Act have made strides in improving transparency and reducing fraud (Adebisi & Okike, 2016).

Corporate governance plays a pivotal role in forensic accounting. Effective corporate governance structures help prevent fraud and support forensic investigations. Organizations with weak governance systems often lack the internal controls necessary to detect fraud, while

those with strong governance structures are more likely to adopt forensic accounting as part of their risk management strategies (Salawu & Asaolu, 2018). In Nigeria, corporate governance has traditionally been weak, particularly in the public sector, but recent efforts to improve governance have highlighted the importance of forensic accounting in promoting transparency and compliance (Popoola et al., 2014).

The legal environment also impacts forensic accounting, as forensic accountants rely on a robust judicial system to prosecute financial crimes and provide expert testimony in court. However, Nigeria's legal system is often hindered by delays, corruption, and insufficient specialized knowledge in handling financial crimes, undermining the effectiveness of forensic accounting (Okoye & Gbegi, 2013; Yakubu & Faboyede, 2012).

Finally, organizational culture is vital for the success of forensic accounting. Institutions that prioritize ethics, transparency, and accountability are more likely to adopt forensic accounting practices. Private-sector firms, especially multinational corporations, have integrated forensic accounting due to global best practices and reputational concerns. However, in the public sector, resistance to forensic accounting remains common due to limited resources, political dynamics, and a lack of training (Adegbie & Fakile, 2012).

Theoretical

Institutional theory, as developed by Paul DiMaggio and Walter W. Powell (1983), examines how institutions—defined as established laws, norms, and rules—shape the behavior and structure of organizations. The theory focuses on understanding how external pressures, such as social, legal, and cultural factors, influence organizational practices and decisions. It also explores the processes through which organizations adopt certain practices to gain legitimacy and stability in their environments. A key concept in the theory is isomorphism, which refers to the mechanisms (coercive, mimetic, and normative) that cause organizations within a given field to adopt similar practices (DiMaggio & Powell, 1983).

In the context of forensic accounting, institutional theory is useful for understanding how practices in this field are shaped by external pressures, such as regulatory frameworks, societal expectations, and the drive for accountability. This is especially pertinent to Nigeria’s efforts to combat corruption, where organizations may adopt forensic accounting practices to align with institutional norms, enhance their legitimacy, and demonstrate accountability to regulatory bodies and the public. The theory also helps explain the professionalization of forensic accounting in Nigeria, where adherence to established standards, such as those set by

the Institute of Chartered Accountants of Nigeria (ICAN), is seen as necessary for organizational credibility (ICAN, 2020).

The strengths of institutional theory lie in its ability to provide a comprehensive framework for understanding organizational behavior in response to external pressures. It emphasizes the role of legitimacy and social acceptance, which are critical in environments where accountability is highly scrutinized. Additionally, the theory helps explain how organizations evolve their practices over time in response to shifting institutional norms and expectations.

However, critics argue that institutional theory may be overly deterministic, suggesting that organizations are passive recipients of external pressures without considering the agency and strategic choices of managers (Oliver, 1991). It has also been critiqued for not adequately addressing the power dynamics and conflicts between various stakeholders both within and outside organizations (Zucker, 1987). Furthermore, some suggest that institutional theory presents a static view of institutions, overlooking the dynamic nature of organizational environments and practices. **Empirical Review**

Appiah and Sarpong (2021) investigated the effectiveness of forensic accounting in detecting and preventing financial fraud in the UK public sector using a mixed-method approach, which involved quantitative surveys with 150 forensic accountants and qualitative interviews with 20 stakeholders. The study found that forensic accounting significantly improved fraud detection rates, with 75% of respondents indicating enhanced accountability. However, it also highlighted the lack of adequate training for forensic accountants in emerging technologies, and the impact of organizational culture on forensic accounting practices was not sufficiently addressed.

Brown and Lacy (2022) explored the relationship between forensic accounting practices and corporate governance in U.S. firms by using regression analysis on data from 200 publicly traded companies. Their results indicated a positive correlation between robust forensic accounting practices and higher corporate governance scores, suggesting that firms with effective forensic mechanisms are less likely to experience governance failures. Nevertheless, the study relied on secondary data, which may not accurately reflect the current practices of all firms involved.

Smith and Taylor (2023) assessed the role of forensic accounting in enhancing financial reporting transparency in Canadian corporations through qualitative case studies of five firms and interviews with financial executives. The study found that forensic accounting improved

transparency and stakeholder trust, especially in firms that had previously experienced fraud. Despite this, it also pointed out the high costs associated with implementing forensic accounting practices, and the small sample size limited the generalizability of the findings.

Olanrewaju and Ogunleye (2021) evaluated the impact of forensic accounting on fraud prevention in Nigerian banking institutions by surveying 100 forensic accountants and interviewing bank managers. The study revealed that forensic accounting practices led to a significant reduction in fraud incidents, with 80% of respondents confirming a decline in fraud cases. However, it did not account for other factors, such as changes in regulatory frameworks, which might also have contributed to the reduction in fraud.

Iqbal and Khan (2022) examined the effectiveness of forensic accounting in the textile industry of Pakistan in combating financial fraud. A qualitative study using semi-structured interviews with 25 professionals from the textile sector and document analysis of relevant financial reports. The findings revealed that forensic accounting practices improved fraud detection, but a lack of awareness and training among employees hindered their effectiveness. The reliance on qualitative data may limit the generalizability of the findings to other industries in Pakistan.

Khumalo and Mkhize (2023) analyzed the challenges faced by South African firms in implementing forensic accounting practices. A mixed-method approach including a quantitative survey of 150 firms and qualitative interviews with 15 forensic accountants. The study identified significant challenges such as high costs, insufficient training, and lack of regulatory support, which hinder the effective implementation of forensic accounting. The study's focus on challenges may overlook the successful practices that could be beneficial for firms to adopt.

Olanrewaju and Ogunleye (2021) evaluated the impact of forensic accounting on fraud prevention in Nigerian banking institutions. A survey of 100 forensic accountants working in the Nigerian banking sector, combined with interviews with bank managers. The study found that forensic accounting practices significantly reduced fraud incidents in banks, with 80% of respondents affirming that they noticed a decline in fraud cases since implementing these practices. The study did not account for other factors influencing fraud reduction, such as changes in regulatory frameworks or technology adoption.

Uwuigbe and Uwuigbe (2022) assessed the role of forensic accounting in enhancing transparency and accountability in public sector organizations in Nigeria. A quantitative approach involving surveys distributed to 150 public sector accountants and qualitative

interviews with 15 key stakeholders. The study found that the implementation of forensic accounting significantly improved transparency and accountability, leading to a reduction in financial mismanagement. The sample size may not adequately represent all public sector organizations in Nigeria, limiting the generalizability of the findings.

Adebayo and Owolabi (2021) investigated the factors influencing the adoption of forensic accounting practices among small and medium-sized enterprises (SMEs) in Nigeria. A mixed-method approach, using both surveys of 120 SMEs and interviews with 10 SME owners. The study found that factors such as cost, lack of awareness, and inadequate training significantly hinder the adoption of forensic accounting practices in SMEs. The research may overlook the role of external auditors and consultants who could facilitate the adoption of these practices.

Ezeani and Ibe (2023) explored the perceptions of accountants regarding the effectiveness of forensic accounting in mitigating fraud in the Nigerian public sector. Qualitative research involving in-depth interviews with 20 accountants working in various public sector organizations. The findings revealed a general consensus that forensic accounting enhances fraud detection, though many accountants expressed concerns over insufficient resources and support for its implementation. The reliance on qualitative data may lead to biases based on personal opinions rather than quantifiable evidence.

Ojo and Adeyemi (2022) examined the relationship between forensic accounting and corporate governance in Nigeria. A quantitative analysis using survey data from 200 corporate executives and financial analysts. The study found a significant positive relationship between the use of forensic accounting and improved corporate governance practices, with firms using forensic techniques exhibiting fewer governance issues. The study may not have adequately considered the influence of other governance mechanisms, such as internal controls and audit committees.

Bello and Adewumi (2023) analyzed the impact of forensic accounting on financial performance in Nigerian corporations. A quantitative study involving data collection from 150 corporations through surveys and analysis of financial statements. The research indicated that companies employing forensic accounting practices experienced better financial performance and lower fraud-related losses. The study focused primarily on larger corporations, which may not reflect the experiences of smaller businesses in Nigeria.

3. Methodology

Population of the Study

This study focuses its attention on forensic accounting practices among professional accountants in Lagos. Large accounting firms with experienced professionals are mostly concentrated in Lagos, being the commercial nerve center of Nigerian economy. The list of the accounting firm that are licensed by Professional body, Institute of Chartered Accountants of Nigeria (ICAN) are in thousands but the study focused on active one that have recently renewed their license. This gives total population that is sampling frame for this study to be 250 accounting firms.

Sampling Size and Sample Technique

Using Krejcie and Morgan (1970) formula, at 95% confidence level, with population size of 250, our sample size was 152 professional accountants Sampling selected randomly to enhance representativeness of the elements in the population.

Sources and Method of Data Collection

As earlier said, latent nature of this study's variable informed also the use of primary data sourced from the respondents through a well-design questionnaire. Primary data was collected with the aid of questionnaire through mail survey.

Model Specification

This model was adapted as follows:

$FAP = \beta 0 + \beta 1PR + \beta 2IF + e$… ……..(1)

Where

FAP = Forensic Accounting Practices

PR = Professional Regulation

IF=institutional factors

$\beta 0$ = constant

$\beta 1, \beta 2, \beta 3, \beta 4$= regression coefficients/intercept

ε = error terms

The a-priori expectation of the model is a positive/negative relationship between FAP, dependent variable and independent variables

4. Results

Preliminary Analysis of quantitative data

The preliminary analysis of the quantitative data is presented in this chapter. The result on the analysis contains the diagnostic tests of the distribution of the data relating to the variables of interests and their relationship with one another.

Normality and Linearity Tests

Test of skewness and kurtosis was carried out to show the degree of normality of variables of interest. The results of these tests are presented in table 4.8..

Table 1: Normality Test

S/N	Construct	Mean	S. D.	Skewness	Kurtosis
1	Professional regulation	**3.24**	**0.7066**	**1.456**	**2.230**
2	institutional factors	2.30	0.70663	1.366	2.671

Sources: Author's computation (2024)

From the results, it is evident that the variables of interest are normally distributed, with score lying between the threshold of -3 to 3 for skewness and kurtosis.

Multicollinearity Test

Pearson correlation analysis was carried out to ensure and ascertain that two or more variables with a bivariate correlation are eliminated so as not to be entangled with the problem of multi-collinearity. The results of the pair-wise correlation analysis are presented in table 4.10 revealed, no perfect correlations among independent variables.

Table2: Pearson correlation matrixes for the independent variables

	Professional regulation	**Institutional factors**
Professional regulation	**1.000**	**0.625**
Institutional factors	**0.688**	**1.00**

Sources: Author's computation (2024)

Tolerance and variance inflation factor (VIF) was calculated in order to detect the problem of multicollinearity that may not be captured in the above correlation matrix. The result in table 2 showing tolerance of less than 10 and VIF score of not more than 10, for all the independent further strengthen our confidence of non-multi-collinearity of variables

Table3: VIF and Tolerance

S/N	Constructs	Items	Tolerance	VIF
1	Professional regulation	5	0.367	1.456
2	Institutional factors	9	0.336	2.975

Sources: Author's computation (2024)

Table 3 provides the results of the regression analysis used to examine the extent to which professional regulation and institutional influence forensic accounting practices. In the table, one out of the independent variables show significant positive influence on forensic accounting practices: institutional factors ($\beta = 0.276; P < 0.05$); while professional regulation no enough evidence to confirm the its degree of influence ($\beta = 0.200; P > 0.05$) on forensic accounting practices.

Table 4: Regression results of influencing factors of Fraud Investigation based Forensic Accounting Practices

Variable	Coefficient	standard errors	T-value	P-value
Intercept	1.178	0.104	11.342	.000
Professional regulation	0.200	0.250	0.800	0.321
Institutional factor	0.276	0.066	4.205	0.046
F-statistic	66.156			
P-value	0.000			
R-square	0.613			
Adjusted R-square	0.605			

Sources: Author's computation (2024)

5. Conclusion

Given the findings of this study, the study concludes that:

i. Various relevant institutional frameworks in the forms of various relevant laws across sectors can influence forensic accounting practice by professional accountants in Lagos State.

ii. For professional accountants to effectively provide forensic accounting services, cross examination, valuation of assets, loss quantification, financial investigation, synthesizing and expert witness skills are the first group of skills required.

Based on the findings and conclusions of this study, the following recommendations are suggested:

i. In order to move forensic accounting practices from infant stage, Nigerian government should strengthen laws that bear relevant to the practices of forensic accounting practices.

ii. Professional and academic regulatory bodies is advised to review accounting curriculum to reflect various skill requires to practice forensic accounting effectively.

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IMPACT OF BUDGET MANAGEMENT REFORM ON THE PERFORMANCE OF GOVERNMENT ENTITIES IN NIGERIA

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ABSTRACT

Budget management plays a pivotal role in the effective functioning of government entities. The need for reform arises from the challenges faced by traditional budgeting systems, and the Nigerian government's commitment to good governance and economic development. The main objective of this study therefore, was to investigate the impact of budget management reform (BMR) on the performance of government entities' in Nigeria. The study applied mixed method approach with a sample size of 306. Quantitative data was analysed using Partial Least Square-Structural Equation Model while qualitative data was analysed with thematic/NVIVO. Finding indicates that for every increase on the impact of Budget Management Reform there was an increment on the overall performance of government entities as a result of the effects on the reduction on budget infraction level in Nigeria. In line with the findings from this study,

it was concluded that positive relation exist between budget management reform and performance of government entities in Nigeria. The study therefore, recommends that government should universally implement budget management policies so as to curb practices that encourage infractions on budget implementations in Nigeria.

Key words; *Financial planning, allocation, oversight within government, organizational settings.*

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1. INTRODUCTION.

Budget management reform in Nigeria is a critical issue that has attracted significant attention from scholars and policymakers in recent years. Nigeria's budget management system has undergone several reforms aimed at improving transparency, accountability, and effectiveness in the use of public funds (Oji, Eze & Irohibe, 2021). These reforms include the introduction of the Medium-Term Expenditure Framework (MTEF) and the Fiscal Responsibility Act (FRA) in 2007. The MTEF was designed to improve the linkage between planning and budgeting, while the FRA was aimed at promoting prudent management of public resources (Olumuyiwa, 2017). Prior to gaining independence from British colonial rule in 1960, Nigeria's budget management was largely centralized and under British control. The colonial government controlled the finances, and there was limited fiscal autonomy for Nigeria (Falokun, 2013). After gaining independence, Nigeria developed its own budgeting and financial management system. During this period, the country experienced significant economic growth fueled by oil revenue. The budgeting process was however, relatively centralized and characterized by a heavy reliance on oil revenue (Ikejiofor, 2003).

In response to economic challenges, Nigeria implemented Structural Adjustment Programs (SAPs) in the 1980s and 1990s, which aimed to reform public financial management and reduce government expenditure. These programs led to significant changes in budget management practices (Olowa, 2016). Nigeria has however, undergone various budget reforms in the 21st century. Notable reforms include the introduction of the Medium-Term Expenditure Framework (MTEF) and the Fiscal Responsibility Act (FRA) in 2007. These reforms aimed to enhance transparency, accountability, and fiscal discipline in budget management (Federal Republic of Nigeria, 2007).

Research Objectives

The main objective of the study is to investigate the impact of Budget Management Reform on the performance of government entities' in Nigeria;

Scope of the Study

The geographical scope of this study is Nigeria Government Entities' with specific focus on 12 (Twelve) Entities' comprises of 7 (seven) entities' initially commissioned as "PILOT entities' under phase 1 (one) of the Public Sector Financial Management Reforms initiatives of federal government in Nigeria as well as 5 (Five) other critical stakeholders and participants in the reforms agenda (Torough, 2011; Salawu 2012).

2 LITERATURE REVIEW

Budget Management Reforms (BMRs)

Budgeting is a managerial process involving the planning, preparation, and control of budgets, guiding future-oriented actions rather than merely reporting (Kelly & Tobi, 2020; Ianna, 2018). It creates a spending plan to balance an entity's income and expenses, supporting financial readiness (Prachi, 2015). Unlike forecasting, which predicts likely future conditions, budgeting emphasizes detailed planning and actionable goals, acting as a control tool for managing resources (Matt, 2000; Adetayo, 2017; Mwaura, 2013).

In organizations, budgeting serves short-term financial goals and supports long-term objectives, breaking down income, expenditures, savings, and investments, often on a monthly basis (Malgwi & Unegbu, 2012). The budgeting process typically includes estimating income, expenses, and finalizing the budget, adjusting for potential cost-of-living changes (Kalimalwendo, 2005). For the public sector, frameworks like the Medium Term Sector Strategy (MTSS) and its revenue and expenditure components (MTRF and MTEF) enable planning and community engagement, which is essential for effectively addressing government programs and policies.

Financial Performance (FP)

Financial performance assesses how effectively a firm utilizes assets to generate revenue and overall financial health over time. This metric allows comparisons within industries or sectors. Common measures include revenue, operating income, cash flow, unit sales, productivity, and profit, as well as financial ratios like return on assets (Bessler, 2008; Loof, Hans & Heshmati, 2002; Business Dictionary, 2011).

From an accounting perspective, financial statements summarize a firm's financial and operational data annually, serving as diagnostic tools for management. Performance measurement often focuses on financial ratios—such as profitability, asset utilization, leverage, and liquidity ratios—which help assess a firm's capacity to maximize shareholder wealth and

profitability (Farah, Farrukh & Faizan, 2016). These ratios have shown varied impacts on financial outcomes, with return on investment (ROI) as a common indicator.

In the public sector, financial performance analysis often relies on profitability ratios and statements of financial performance (Profit and Loss Account) to understand resource efficiency and the generation of economic surplus, central to financial management (Mara & Nicoleta, 2019).

Related Theoretical

The impact of budget management reforms on Nigerian government entities is analyzed using the Principal-Agent Theory, which examines the relationship between the government (principal) and public officials or agencies (agents). This theory, formalized by Jensen and Meckling in 1976, highlights issues arising from information asymmetry and goal misalignment between principals and agents.

In Nigeria, the government often lacks complete information on the performance of agencies, which can lead to inefficiencies and misaligned goals, such as prioritizing agency objectives over public service goals (Ezeani & Nnadi, 2014; Oyetunji & Adejuwon, 2018). Budget reforms like performance-based budgeting aim to address these issues by improving monitoring, control, and accountability through performance indicators, financial reporting, and incentive structures (Ololube, 2013). Reforms also aim to reduce agency costs—expenses related to monitoring and controlling agents—by enhancing transparency (Jibrin & Khan, 2017).

Despite its utility, the theory faces criticism for oversimplifying human behavior, assuming rationality, and downplaying non-monetary incentives and organizational culture. Nonetheless, in Nigeria's context, marked by challenges in resource allocation and accountability, the Principal-Agent Theory remains a useful framework for understanding and guiding budget reforms to improve government performance, efficiency, and service delivery (Pfeffer, 1992; Hoskisson & Turk, 1990; Eisenhardt, 1989).

Empirical Discourse

Historically, public budgeting primarily focused on controlling public revenue and expenditure. However, mid-20th century economic shifts, influenced by Keynesian ideas, expanded the budget's role, positioning it as a tool for political, economic, and administrative management in the public sector. This broadened perspective led to interdisciplinary analysis of budgeting.

In a review of European public budgeting research, Anessi-Pessina, Barbera, Sicilia, and Steccolini (2016) identified three main research approaches: (i) qualitative empirical research (using non-standardized data to analyze text and images), (ii) quantitative empirical research (using standardized data for statistical analysis), and (iii) normative research (prescribing ideal budgetary features). Empirical studies were further categorized into descriptive and exploratory research (to illustrate or explore phenomena) and explanatory research (to understand causes and conditions of events).

The analysis in international academic journals on public-sector budgeting largely focuses on public administration, management, and public-sector accounting, often viewing budgeting as part of broader reform processes. This perspective, while sacrificing some detail, has enabled a cumulative understanding of reform in the Public Sector, refining theories and methods over time.

In a related study, Tatiana, Oleg, Alla, Veronica, and Denis (2016) proposed methods to align budgeting mechanisms with strategic development goals for companies in the Netherlands. Their research employed various theoretical, diagnostic, empirical, and statistical methods to expand budgeting as a type of financial planning. They introduced a budgeting technique based on asset turnover, sales profitability, and return on assets to measure company efficiency. These findings can aid in improving financial management and creating effective budgeting mechanisms in both development companies and Public Sector Entities.

Ajibolade and Oboh (2017) conducted an empirical review of Nigeria’s budgeting and public funds management (PSFM) practices, revealing significant issues in accountability, transparency, and fiscal effectiveness. They found that Nigeria’s annual budgeting process is flawed, failing to meet its fiscal goals, and that the nation’s economic development is not proportionate to its government spending. This study also touches on the origins of Nigeria's financial planning and budgeting reform efforts.

Similarly, Darge (2018) examined the budget and budgetary control systems in public organizations in Ethiopia’s East Wollega Zone. The study focused on three selected Finance and Economic Development Offices, surveying 150 employees. Using SPSS for analysis, it identified low levels of budget planning, monitoring, control, and participative budgeting, all of which were linked to reduced organizational effectiveness. These findings highlight challenges in budget management that impact public sector efficiency in both Nigeria and Ethiopia.

Nwokenkwo (2019) evaluated the effects of budgeting and budgetary control on construction project delivery in Nigeria, specifically examining the budgeting practices of clients, consultants, and contractors from project inception to completion. Using a structured survey with seventy respondents selected via stratified random sampling, the study found that poor budgetary control often led to time and cost overruns. However, since this study focused on the private sector, comparing its findings with public sector performance poses challenges.

Chen (2019) conducted a historical review of China's Budget Management System from 1949 to 2019. The study highlighted the system's evolution from a centralized, planned-economy model to a modern, transparent, and standardized budgeting framework, reflecting China's shift toward a market economy. While the reform achieved significant progress, Chen noted that China's current budgetary system still has gaps relative to the demands of modern governance, indicating areas for future improvement.

David and Ron (2020) analyzed the UK's budgetary response to COVID-19, examining how the pandemic affected public sector financial management. Using data from official sources on government receipts and expenditures, the study highlighted substantial fiscal shifts: a 12% drop in government receipts and a 36% rise in expenditures from April to June 2020, compared to the prior year. Government debt surged to £1,984 billion (99.6% of GDP), the highest since 1961, with projections indicating a potential deficit of £322 billion, raising debt further to £2,205 billion (104.1% of GDP).

The study noted that the UK's fiscal sustainability is at risk, with the pandemic stressing the importance of prompt financial reporting. Practical implications show an emphasis on statistical accounting and budgeting for quick data reporting and international comparability, marginalizing financial reporting temporarily. Social implications suggest that rising debt, coupled with potential interest rate hikes, could lead to austerity and increased centralization of fiscal power. This research offers an early structured analysis of COVID-19's impact on UK government finances, emphasizing both the immediate fiscal strain and long-term sustainability concerns.

Raya and Maria (2021) investigated the impact of budgetary control on the financial performance of Oman Telecommunications Company, focusing on the effectiveness of various budgetary control techniques and the role of top management support. Using questionnaires, interviews, and statistical analysis (including regression analysis and correlation), the study found a positive relationship between budgetary control and financial performance. The study

highlighted the effectiveness of variance analysis and accounting responsibility as key techniques used by the company, and it underscored the importance of management support in successful budget control.

Ijaiya, Sanni, Olabisi, and Dolapo (2021) examined budget management and control challenges in the Nigerian public sector, specifically in Kwara State's Ministry of Finance. Using questionnaires distributed to 64 respondents, the study identified issues such as non-compliance with regulations and unrealistic budget estimations. Despite these challenges, the study found that mechanisms for budget efficiency and effectiveness, tested through Chi-square and One Sample t-tests, were largely sound.

3 METHODOLOGY

Research Design.

This study employed a mixed-methods approach using a convergent parallel design, where both structured questionnaires (quantitative) and semi-structured interviews (qualitative) were used to collect primary data. This approach allowed the researcher to interact directly with respondents, gathering detailed insights into their perceptions, opinions, and experiences on the topic (Creswell, 2013; David, 2014).

Sampling Technique and Sample Size

A sample size of 306 was determined for the quantitative aspect using Krejcie & Morgan's (1970) sample size table, while purposive sampling was used to select 3 respondents for the qualitative interviews, based on the guidelines of Stephen, Jenn, and Ann (2005). These 3 key respondents, who were directly involved with the Government Integrated Financial Management Information System (GIFMIS) implementation, were selected using the researcher's experience and judgment to ensure that the responses provided would be fact-based and relevant to the study of IFMIS implementation and the performance of government entities in Nigeria (Kombo & Tromp, 2009).

Model Specification

The study adapted the model of Effiong et al (2017) to establish the relationship between TSA, IPPIS, IFMIS and fraud management in Public Sector (FMPS) in Nigeria with linear regression model stated as:-

$FMPS = b0+b1TSA+b2IPPIS + b3IFMIS + \mu$……3.1.

Where: FMPS = Fraud management in Public Sector

TSA = Treasury Single Account

IPPIS = Integrated Personnel & Payroll Information System

IFMS = Integrated Financial Management Information System

μ = Error Term

The model specified in equation (3.1) above, was modified in order to achieve the objectives of this study as stated below:

$GEP = \beta_0 + \beta_1 BMR_i + \mu$ ……..……... (3.2)

Where:

GEP = Government Entity Performance

BMR = Budget Management Reform

Decision Rule

If the observed probability is greater than preferred level of significance (0.05), Null Hypothesis is accepted, but if otherwise, reject null hypothesis.

4. DATA ANALYSIS AND PRESENTATION

Financial Performance: The respondents' views on financial performance are shown in Table 4.1 based on the questions from FP1 to FP7 (that is, research question one to seven). The mean score for Financial Performance ranges from 3.28 to 4.14, with standard deviations of 0.949 and 1.306, respectively.

Table 1 Descriptive Statistics for Financial Performance

Items	N	Minimum	Maximum	Mean	Standard Deviation
FP1	306	1	5	3.77	1.121
FP2	306	1	5	3.28	1.306
FP3	306	1	5	3.87	1.275
FP4	306	1	5	3.88	1.099
FP5	306	1	5	4.01	1.071
FP6	306	1	5	3.86	1.121
FP7	306	1	5	4.14	0.949

Source: Author's Computation, 2024

Table 1 shows the mean score between 3.28 and 4.14, with standard deviations of 0.949 and 1.306. This implies that government entities' have opportunities to request for sufficient budget appropriation, funds release and cash-backings as well as efficient budget implementation using the fiscal strategic guidelines is capable of enhancing capacity utilisation of funds.

Non-Financial Performance: The respondents' views on non-financial performance are shown in Table 4.2 based on questions from NFP1 to NFP6. The mean score ranges from 4.05 to 4.28, with standard deviations between 0.806 and 0.967, respectively.

Table 2 Descriptive Statistics for Non-Financial Performance

Items	N	Minimum	Maximum	Mean	Standard Deviation
NFP1	306	1	5	4.28	0.806
NFP2	306	1	5	4.13	0.928
NFP3	306	1	5	4.17	0.860
NFP4	306	1	5	4.16	0.879
NFP5	306	1	5	4.16	0.909
NFP6	306	1	5	4.05	0.967

Source: Author's Computation, 2024

Table 2 shows the mean score from 4.05 to 4.28, with standard deviations between 0.806 and 0.967 on non-financial performance which indicates as per NFP1 to NFP6 that government entities' have potentials for an overall strategy to achieve entities' objectives, motivated enhanced staff productivity as well as quality service delivery to citizenry.

Descriptive Statistics of Budget Management Reform (BMR): The respondents' views on budget management reform are shown in Table 4.3 based on questions from BMR1 to BMR14. The mean score ranges from 4.24 to 4.46, with standard deviations between 0.578 and 0.895, respectively.

Table 3 Descriptive Statistics for Budget Management Reform

Items	N	Minimum	Maximum	Mean	Standard Deviation
BMR1	306	1	5	4.24	0.895
BMR2	306	1	5	4.42	0.698
BMR3	306	1	5	4.25	0.644
BMR4	306	1	5	4.38	0.693
BMR5	306	1	5	4.22	0.688
BMR6	306	1	5	4.30	0.810
BMR7	306	1	5	4.36	0.773
BMR8	306	1	5	4.32	0.734
BMR9	306	1	5	4.34	0.815

BMR10	306	1	5	4.28	0.638
BMR11	306	1	5	4.45	0.637
BMR12	306	1	5	4.32	0.644
BMR13	306	1	5	4.23	0.821
BMR14	306	1	5	4.46	0.578

Source: Author's Computation, 2024

The result of the analysis indicates that government entities' need to adhere to the provision of fiscal responsibility Act, participatory budget practices with stakeholders and linkage to National Fiscal Strategies is high at the mean score of 4.46, with standard deviations of 0.895.

Normality Test

This test is typically used to determine whether the data collected for the study is normally distributed; thus, in this regard, the researcher used Skewness and Kurtosis statistics. As presented in table 4.4, all Skewness and Kurtosis values for each research variables ranges between -3.351 to +1.648 for skewness and +1.156 to +2.748 for kurtosis are within Kline's (1998) recommended range of -3 to +3. The scores on each variable are assumed to be normally distributed in many parametric statistics (in example, follow the shape of the normal curve). The findings in this investigation as shown in Table 4.9 indicates that results are fairly normally distributed.

Table 4 Test of Normality

	N	**Skewness**	**Kurtosis**
Budget Management Reform	306	1.648	1.927
Financial Performance	306	-1.217	1.156
Non-Financial Performance	306	-1.454	2.263

Source: Author's Computation, 2024

Structural Model: The second part of the assessment is the structural model, applied when the measurement model assessment is satisfactory. As described by Hair et al. (2016), five key criteria form the assessment for the structural model in PLS-SEM. These include examining the collinearity, coefficient of determination (R^2), effect sizes (f^2), the relevance of the path coefficients, the statistical significance, and the predictive relevance (Q^2 and PLS predict). Hair et al. (2016) recommended that it is essential to test for collinearity before proceeding with other structural relationship assessments. The Variance Inflation Factors

(VIF) was used to assess multicollinearity among the variables, and the result is shown in table 5. Therefore, it is established that collinearity issues do not exist among the constructs as all the values of the VIF are below the threshold of 3.3 (Hair et al., 2016).

Table 5 Result of the Collinearity Assessment (Variance Inflation Factor)

Constructs	Financial Performance	Non-Financial Performance
Budget Management Reforms	1.525	1.525

Author's computation, 2024

Path Coefficients Results for Model 1 (M1)

Model M1 is predicated upon the assumption that the budget management reform (BMR) does not predict the performance of government entities' in Nigeria. This assumption forms the basis for hypothesis H_{01} for the study. The hypothesis was tested using BMR role in budget management) as predictor variables and the government Entities performance (financial and non-financial performance) as the dependent variable in the PLS-SEM analysis. Figure 1 showed that BMR predicts FP and NFP The result as displayed in table 6 and Figure 4.3 showed that all relationships were significant. Specifically, BMR has a greater influence on non-financial performance ($\beta = 0.559$, $p < 0.001$). Also, BMR has a significant and positive influence on financial performance ($\beta = 0.469$, $p < 0.001$). The results imply that BMR plays greater roles in the management of government Entities budget management and performance in the area of resource allocations and expenditure control and management which is in tune with the philosophy of theory of the budget.

Table 6 Budget Management Reform (BMR); Model 1 (M1) Hypothesis Testing

					Confidence Interval	
	β	Std Error	T-Value	P Values	5.00%	95.00%
BMR -> FP	0.469	0.093	5.078	0.000	0.255	0.586
BMR -> NFP	0.559	0.113	4.952	0.000	0.287	0.693

Source: Author's Computation, 2024

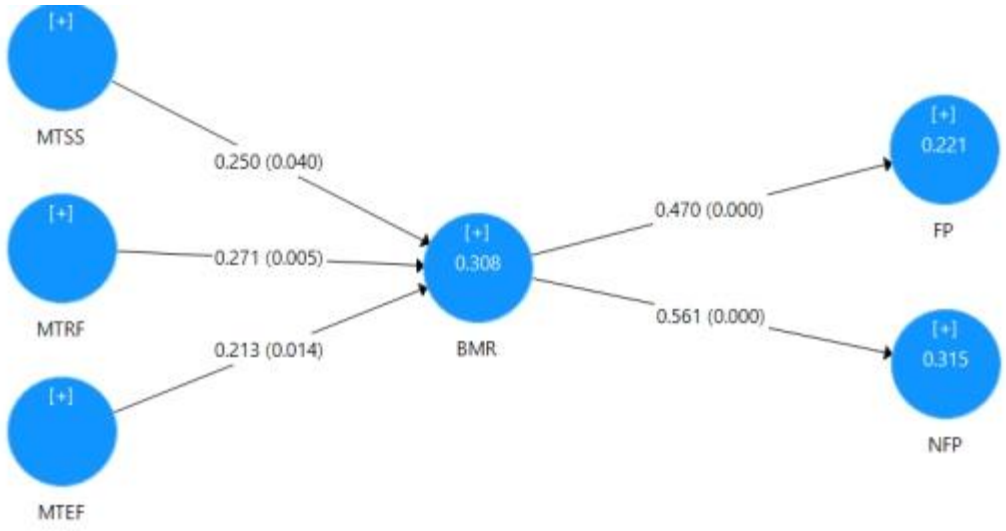


Figure 1 Structural Model for Model 1 (M1)

Source; Author's Conceptualisation, 2024

The analysis in figure 4.1 above display the authenticity of the result of the path coefficient of the structural model on table 6. The Beta (β) and P Value (P) are values on the lines while the Confidence Interval (CI) are the values on the circles. The figures indicated that all the tests were conducted through Smart PLS.

Qualitative Analysis

Theme: Budget Management Reform and Entities' Performance

Budget management reform is a theme that occurred through the interview. Most of the respondents agree that BMR is an effective reform that has been able to control the spending of the MDAs as well as minimize risks of budget non-performance. More so, the respondents underscored the importance of the reform process to expedite actions effectively and efficiently on budget preparations with minimal errors, limits excessive spending of the MDAs as well as control expenditures; these factors emerged as the sub-themes under BMR. Some of the respondents, such as respondent 2 agreed that BMR has reinforced the ability of the government to cut excessive spending and control revenue. Respondent 2 also agreed with the earlier position of respondent 1, and further added that BMR has reduced the cost of budgeting processes in the country and that BMR has also brought a centralized and uniform mode of budget preparation among the different MDAs, which is in contrast with previous mode of preparation. Respondent 3 agreed that 'I.'

Integrated Findings

The integration of both quantitative and qualitative findings in this study highlighted the comprehensive impact of Budget Management Reform (BMR) on the performance of government entities in Nigeria. The study revealed that BMR positively influenced key areas such as revenue stability, expenditure management, and fiscal discipline, contributing to improved performance indicators and more efficient resource allocation.

Overall, the results suggest that a well-designed and effectively managed BMR can significantly enhance the performance of government entities. By fostering fiscal discipline and promoting prudent financial management, BMR presents a promising approach to addressing fiscal challenges and supporting sustainable socio-economic development in Nigeria.

Discussion of Findings

The results of this study offer valuable insights into the impact of Budget Management Reform (BMR) on the performance of government entities in Nigeria. Both the quantitative analysis of financial data and the qualitative feedback from key stakeholders provide a comprehensive understanding of the BMR's effectiveness in achieving its objectives.

The quantitative results demonstrated a positive correlation between BMR implementation and improvements in government entity performance indicators. Entities that adhered to the Medium-Term Sector Strategy (MTSS) guidelines showed increased efficiency and effectiveness, emphasizing the importance of evidence-based policymaking. The study suggests that BMR can be a key tool for improving public service delivery outcomes.

Additionally, the study highlighted that BMR strengthened fiscal discipline in government entities through the "envelope style" budgeting approach, which set strong revenue targets and expenditure ceilings. The Medium-Term Revenue Framework (MTRF) fostered a more disciplined approach to budgeting and financial management, leading to reduced budget overruns and improved adherence to fiscal rules. These findings underscore the role of BMR in enhancing fiscal governance, mitigating fiscal risks, and promoting sustainable fiscal policies that contribute to macroeconomic stability in Nigeria.

5. Conclusion

This study examines the impact of Budget Management reform on the performance of government entities in Nigeria. The primary objective was to investigate how budget management reforms affect government performance. A mixed-method approach (quantitative and qualitative) was used to gather data. A structured questionnaire collected

quantitative data, which was analyzed using the model by Baid (2017) and Partial Least Squares Structural Equation Modeling (PLS-SEM). Qualitative data were gathered through interviews with senior officers in selected government entities and analyzed using narrative and thematic analysis with NVIVO.

The findings indicate that as the impact of Budget Management reform increases, there is a corresponding improvement in the performance of government entities, particularly in reducing budget infractions. The study concludes that a positive relationship exists between budget management reform and government performance in Nigeria. It recommends that the government should implement budget management policies universally to reduce infractions in budget implementation.

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THE EFFECT OF GOVERNMENT POLICIES ON PROPERTY TAX COMPLIANCE AMONG NIGERIAN LANDOWNERS

By

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ABSTRACT

This study examines the effect of government policies on property tax compliance among Nigerian landowners, with a focus on how regulatory, fiscal, and administrative policies influence taxpayer behavior. The research explores the role of technological innovations, such as data management and communication tools, in enhancing tax administration and compliance rates. Using a mixed-methods approach, primary data were collected through structured questionnaires administered to landowners, while secondary data from government tax reports were analyzed. The study employs descriptive and inferential statistics to assess the relationship between government policies, technological innovations, and property tax compliance. Findings reveal that while regulatory and fiscal policies establish a legal framework for property taxation, inconsistent implementation and perceived unfairness hinder compliance. Administrative policies, particularly in assessment and collection procedures, significantly impact compliance rates. Technological innovations, such as GIS applications and automated tax management systems, improve efficiency and transparency, enhancing taxpayer trust and voluntary compliance. However, challenges like inadequate taxpayer education and poor public perception of the tax system remain. The study concludes that effective government policies, complemented by technological innovations, are essential for achieving higher compliance rates and improved revenue generation. This research provides valuable insights for policymakers aiming to refine tax administration strategies and foster greater taxpayer engagement. It recommends enhanced public awareness programs and consistent policy implementation to address gaps in compliance. Future research could explore the long-term effects of policy changes and technology adoption on property tax revenues.

Keywords: *Government policies, property tax compliance, technological innovations, taxpayer perception, Nigeria*.

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1. INTRODUCTION

Tax compliance remains a crucial issue globally as governments struggle to balance revenue collection and enforcement mechanisms. Property tax is an essential source of income for many countries, particularly for funding local government services like infrastructure development, education, and healthcare. However, achieving optimal property tax compliance has been a persistent challenge, especially in developing economies. In Nigeria, non-compliance with property tax laws remains a significant impediment to revenue generation. This problem is further exacerbated by unclear and inconsistent government policies, corruption, and weak institutional frameworks (Ameyaw & Dzaka, 2020).

Globally, property tax systems vary, but common challenges include valuation inaccuracies, lack of political will, and inefficient tax administration. In developed countries like the United

States and the United Kingdom, property tax collection tends to be more effective due to established tax systems, better property records, and stricter enforcement mechanisms (Bird & Slack, 2017). In contrast, developing nations face problems such as poor property registration systems and weak enforcement frameworks. For example, in countries like Kenya and Ghana, efforts to increase property tax compliance have been hampered by corruption, inadequate infrastructure, and limited administrative capacity (Munene & Kyando, 2019).

Nigeria's experience is not an exception. Despite several reforms aimed at improving tax compliance, such as the National Tax Policy and the introduction of technology-based tax administration systems, compliance rates remain low. In particular, landowners in urban areas often underreport property values or fail to pay taxes altogether due to inefficiencies in the property tax system and widespread corruption (Odusola, 2016). Government policies on property tax in Nigeria are often not effectively communicated or enforced, leading to widespread tax evasion and under-collection. For instance, the Land Use Act of 1978, which governs land ownership and property taxation in Nigeria, has been criticized for its ambiguity and inefficiencies in ensuring proper tax collection (Omirin, 2017).

Several factors influence property tax compliance, including taxpayers' awareness of their tax obligations, the perceived fairness of the tax system, and the effectiveness of tax enforcement policies. In Nigeria, the government’s inability to create a transparent and efficient property tax system undermines the potential for property taxes to serve as a significant source of revenue for local governments (Aregbeyen & Fasanyan, 2017). Furthermore, property tax compliance is often linked to the quality of public services provided by the government. When taxpayers perceive that public services are inadequate, their willingness to comply with tax obligations diminishes (Nsofor & Eboh, 2019).

Property tax compliance is a significant concern across Africa due to its potential to serve as a major source of revenue for local governments. In many African countries, property taxes have been underutilized, contributing minimally to government revenue compared to their potential. Despite numerous reforms, compliance rates remain low, primarily due to weak institutional frameworks, inconsistent government policies, and poor enforcement mechanisms (Fjeldstad & Heggstad, 2016). Nigeria, being the most populous country in Africa, faces similar challenges, particularly among landowners in urban and peri-urban areas. This has made property tax reforms crucial in Nigeria's fiscal strategies to increase local government revenue (Omirin, 2017).

The property tax system in Nigeria is governed primarily by the Land Use Act of 1978. This Act vests ownership of land in the state, providing the government with the legal basis to impose property taxes on landowners. However, the implementation of property tax policies has been fraught with challenges. One major issue is the lack of proper valuation systems for land and properties. Inaccurate property valuations make it difficult to determine appropriate tax levels, leading to taxpayer dissatisfaction and evasion (Obeng-Odoom, 2015). Moreover, the administration of property taxes in Nigeria is further complicated by the dual governance structure of local and state governments, leading to overlaps in tax administration responsibilities and inconsistent enforcement (Nsofor & Eboh, 2019).

Across Africa, property tax compliance has been influenced by several factors, including taxpayer perceptions of fairness, transparency in tax administration, and the quality of public services provided in return for taxes paid. In Kenya and Tanzania, property tax reforms have been hampered by poor public infrastructure and ineffective communication between taxpayers and tax authorities, leading to low compliance rates (Franzsen & McCluskey, 2017). Similar trends are observed in Nigeria, where many landowners are reluctant to comply with property tax laws due to the lack of visible public services, such as road maintenance, security, and sanitation, that are expected to be funded by these taxes (Omirin, 2017).

Corruption is another critical issue affecting property tax compliance in Nigeria. Corrupt practices within tax administration agencies, including bribery and embezzlement, undermine the effectiveness of tax enforcement. Studies from other African countries, such as Uganda and Ghana, highlight how corruption leads to the misallocation of tax revenues and lowers public trust in government institutions, which subsequently results in reduced compliance (Fjeldstad & Heggstad, 2016). In Nigeria, the problem of corruption, combined with weak enforcement policies, means that many landowners either evade taxes altogether or underreport their property values (Omirin, 2017).

Furthermore, government policies aimed at enhancing property tax compliance have been inconsistent and poorly enforced. For example, while some Nigerian states have introduced technological innovations, such as Geographic Information Systems (GIS) for property valuation, these reforms have not been widely adopted across the country, limiting their impact on compliance (Udoekanem, 2020). In South Africa, technological innovations like GIS have been used effectively to improve property tax administration and compliance, showing that a

more comprehensive application of such technologies in Nigeria could yield positive results (Franzsen & McCluskey, 2017).

Property taxation is a critical revenue source for local governments in Nigeria, yet compliance among landowners remains a significant challenge. Government policies regarding property tax have faced multiple obstacles, including lack of awareness, corruption, inefficient tax administration, and inadequate enforcement mechanisms (Omirin, 2017). Property tax compliance in Nigeria is governed by the Land Use Act of 1978, which vests all land in the state governments. Despite this framework, government policies have struggled to achieve optimal compliance, limiting the ability of local governments to generate much-needed revenue for infrastructure and public services (Udoekanem, 2020).

In Nigeria, landowners often resist paying property taxes due to the perceived unfairness in the assessment of property values. In many instances, properties are undervalued or overvalued due to outdated or inaccurate valuation methods, leading to taxpayer dissatisfaction (Agba & Ayuba, 2022). For example, in Lagos State, which has the most developed property tax system in Nigeria, landowners have contested tax assessments due to inconsistencies between the market value of properties and government valuations (Obadire, 2018). This has made compliance difficult, as many landowners see the system as unjust and prone to manipulation. Government policies have also been hampered by weak enforcement and corruption within tax administration. Local government officials often lack the capacity to efficiently enforce property tax laws, and there are widespread reports of bribery and corruption in tax offices (FIRS, 2019). In some cases, landowners collude with tax officials to underreport property values or avoid taxes altogether. The absence of transparent and accountable tax administration has eroded public trust in the system, further discouraging compliance (Oluwole & Aluko, 2021).

In response to these challenges, several Nigerian states have introduced reforms to improve property tax compliance. Lagos State, for example, has implemented a more centralized property tax system known as the Land Use Charge (LUC), which consolidates various property-related taxes into a single charge. Despite its potential to streamline tax collection, the LUC has faced resistance from landowners who argue that the tax rates are too high and the policy lacks transparency (Oluwole & Aluko, 2021). Other states have introduced Geographic Information Systems (GIS) for property mapping and valuation, but these technologies have yet to be fully adopted nationwide due to financial and technical constraints

(Udoekanem, 2020).Another significant challenge is the lack of awareness and education among landowners regarding their tax obligations. Many Nigerians are unaware of the importance of property taxes and their role in funding local development. This has created a situation where landowners are either unwilling or unable to comply with tax policies due to ignorance or misunderstanding of the law (Nsofor &

1.3 Research Objectives

i. To assess the impact of government policies, including property valuation methods and the Land Use Charge (LUC), on property tax compliance among Nigerian landowners.

ii. To examine the role of technological innovations, such as Geographic Information Systems (GIS), in enhancing property tax administration and compliance in Nigeria.

2. LITERATURE REVIEW

2.1.1 Government Policies

Government policies refer to the principles and actions adopted by government authorities to regulate, guide, and manage various aspects of public and economic life. In the context of property taxation, these policies establish the legal framework for property assessment, valuation, and collection processes (FIRS, 2019).

Types of government policies include: Regulatory policies which is refer to the laws and regulations that govern property taxation, including the Land Use Act, which was established to regulate land ownership and taxation in Nigeria (Federal Republic of Nigeria, 1978). Fiscal policies, on the other hand, encompass strategies related to revenue generation and public expenditure, and they include important elements like tax rates and exemptions, which play a critical role in shaping the efficiency of property tax systems (Nsofor & Eboh, 2019). Moreover, administrative policies consist of the procedures and practices that dictate how tax assessments and collections are conducted, influencing the operational aspects of tax administration and compliance (Oluwole & Aluko, 2021). These policies work together to create a framework that impacts property tax collection, compliance, and enforcement.

Its classifications comprises of: Direct policies which have a direct impact on property tax assessments and compliance, particularly through the use of specific assessment methods that determine property values and the corresponding taxes (FIRS, 2019). In contrast, indirect policies influence property taxation by affecting the broader economic environment, such as through the implementation of economic incentives that encourage compliance or enhance

revenue generation (Agba & Ayuba, 2022). Together, these policies shape the effectiveness and efficiency of property tax systems.

Government policies enhance local government revenue generation for public services, which is crucial for funding essential community programs and infrastructure (Nsofor & Eboh, 2019). Additionally, these policies promote transparency and accountability in tax administration, ensuring that the processes are clear and that taxpayers can trust that their contributions are being managed effectively (Nsofor & Eboh, 2019). Together, these aspects contribute to a more efficient and equitable taxation system.

However, government policies can lead to resistance and non-compliance among taxpayers if they are perceived as unfair or inconsistent, creating challenges in property tax collection (Oluwole & Aluko, 2021). Furthermore, implementation challenges, such as corruption and inefficiencies in administration, can undermine the effectiveness of these policies, leading to reduced trust in the tax system and lower compliance rates (Agba & Ayuba, 2022). Addressing these limitations is essential for improving property tax compliance and ensuring the successful implementation of tax policies.

2.1.2 Technological Innovations

Technological innovations refer to the introduction and application of new technologies and tools that improve processes, efficiency, and effectiveness. In the context of property tax administration, this includes the use of systems such as Geographic Information Systems (GIS) for mapping and assessing properties (Udoekanem, 2020).

There are various types of technological innovations that play a crucial role in enhancing property tax administration. Information technology refers to software solutions designed to streamline tax administration processes, such as tax management systems that facilitate efficient tax collection and reporting (Nsofor & Eboh, 2019). Data management technologies encompass tools for analyzing and managing property data effectively, including Geographic Information Systems (GIS), which help in accurately assessing property values and improving tax planning

(Udoekanem, 2020). Furthermore, communication technologies are platforms that enhance taxpayer engagement and education, providing necessary information and support to promote compliance and understanding of tax obligations (Agba & Ayuba, 2022). Together, these technological innovations contribute to a more effective and efficient property tax system.

Technological innovations in property tax administration can be classified into two main categories: process innovations and product innovations. Process innovations are enhancements that improve operational efficiency within tax administration systems. An example of this is automated assessment systems, which streamline the evaluation of property values and reduce the time and resources required for tax assessments (Nsofor & Eboh, 2019). On the other hand, product innovations refer to new tools and technologies introduced to the market that enhance property tax processes. This includes Geographic Information Systems (GIS) applications, which provide valuable data visualization and analysis capabilities, allowing for more accurate property assessments and better tax planning (Udoekanem, 2020). Together, these classifications of innovations contribute significantly to improving the overall effectiveness and efficiency of property tax administration.

2.1.3 Property Tax Compliance

Property tax compliance refers to the extent to which landowners fulfill their tax obligations as mandated by property tax laws. This includes timely payment of taxes and accurate reporting of property values (FIRS, 2019).

Voluntary compliance occurs when landowners willingly pay their taxes without any coercion from tax authorities. This type of compliance is often seen as a positive indicator of taxpayer satisfaction and trust in the tax system, suggesting that individuals believe in the fairness and legitimacy of the tax obligations (Nsofor & Eboh, 2019).

On the other hand, involuntary compliance refers to compliance that occurs primarily due to enforcement measures or penalties imposed by tax authorities. This form of compliance may indicate a lack of trust or understanding of the tax system among taxpayers, as they may only comply to avoid penalties rather than out of a sense of civic duty (Agba & Ayuba, 2022).

Understanding these types of compliance is crucial for policymakers to develop strategies that encourage voluntary compliance while ensuring that enforcement mechanisms are fair and transparent.

Classifications of Compliance in property tax systems provide a clearer understanding of taxpayer behavior while highlighting areas for improvement in tax administration. Full compliance is defined as the timely and complete payment of owed taxes by landowners, which reflects a successful tax system where taxpayers fulfill their obligations promptly and accurately, thereby fostering trust in the governance of tax authorities (Oluwole & Aluko, 2021). Partial compliance refers to the payment of only a portion of owed taxes, and this

situation often arises from disputes or misunderstandings between taxpayers and tax authorities regarding the amount due. Partial compliance can indicate gaps in communication or education about tax obligations, as it underscores the need for better outreach efforts to clarify taxpayer responsibilities (Agba & Ayuba, 2022).

2.3.1 Evidence from Developed Countries

McCluskey and Franz (2022) explored the effects of fiscal policy on property tax compliance in Canada, focusing on the province of Ontario. A quantitative approach was utilized, analyzing data from property tax records and conducting statistical tests to assess the relationship between policy changes and compliance rates. The study found that property tax compliance improved significantly after the introduction of new fiscal policies aimed at enhancing transparency in tax administration. Critics pointed out that the study did not consider the potential impacts of local economic fluctuations that could also affect compliance rates.

Alabi and Oloyede (2022) explored the effects of tax administration reforms on compliance among corporate taxpayers in Nigeria. A quantitative approach was used, with data collected via questionnaires from 150 corporate taxpayers. Statistical tools such as ANOVA and regression analysis were employed for data analysis. The study found that recent reforms in tax administration positively impacted compliance levels among corporate taxpayers, particularly through improved service delivery and streamlined processes. However, respondents indicated that bureaucratic delays remained a significant concern. The study's findings may not be representative of the entire corporate sector, given the relatively small sample size and the focus on specific industries.

Auerbach and Hassett (2021) assessed the impact of tax policy changes on property tax compliance and revenue generation in the United States. The study employed a quantitative analysis of property tax revenue data before and after significant tax policy reforms using regression analysis. The study found that certain tax policy reforms led to a measurable increase in property tax compliance, with revenue rising by approximately 10% in jurisdictions that adopted more transparent assessment methods. Critics noted that the study did not account for external factors such as economic conditions that might have influenced compliance rates during the same period.

Hossain and Rahman (2020) evaluated the impact of fiscal policy reforms on property tax compliance in Bangladesh. The study employed a quantitative analysis using survey data from 300 property owners across major urban areas, analyzed through regression analysis. The

findings indicated that recent fiscal reforms, including clearer tax guidelines and improved service delivery, resulted in a significant increase in compliance rates. Some critics noted that the study did not consider socio-economic factors that might influence compliance behaviors, such as income levels and education.

2.5 Theoretical Framework

The Technology Acceptance Model (TAM), developed by Fred Davis in 1989, explains and predicts user acceptance of technology based on two main factors: perceived usefulness and perceived ease of use. TAM is relevant to this study's focus on government policies, technological innovations, compliance rates, and taxpayer awareness. Effective government policies that support training and ease of use can improve technology acceptance by increasing perceived usefulness, thereby boosting compliance (Udoekanem, 2020). Additionally, TAM highlights that when taxpayers find technological tools useful and user-friendly, such as tax management systems, they are more likely to comply with tax obligations (Agba & Ayuba, 2022; Oluwole & Aluko, 2021).

TAM also emphasizes the role of taxpayer awareness and education, suggesting that informed taxpayers are more likely to adopt technological innovations, leading to better compliance (Udoekanem, 2020). Unlike theories like public choice theory, which focus narrowly on self-interest, TAM provides a user-centric approach, making it especially applicable in tax administration studies where technology adoption is essential for compliance and taxpayer engagement.

3. Methodology

Sampling Size and Sample Technique

For this study, a stratified random sampling technique will be employed to select participants from the population of registered taxpayers within Nigeria's local government areas. This approach ensures that different segments of the population are represented, allowing for a comprehensive analysis of the factors influencing compliance with property taxation and the acceptance of technological innovations in tax administration.

The sample size will be determined using a formula for sample size estimation in survey research, which considers the desired confidence level, margin of error, and population size. Assuming a confidence level of 95% and a margin of error of 5%, the following formula will be applied:

$$N = \frac{Z2 \times p\,(1-p)}{e2n}$$

Where:

N = required sample size

Z = Z-value (1.96 for 95% confidence level)

p = estimated proportion of the population (assumed to be 0.5 for maximum variability)

e = margin of error (0.05)

Calculating the sample size using this formula will provide an adequate number of respondents to achieve reliable and valid results. After determining the overall sample size, participants will be stratified based on key characteristics such as location (urban vs. rural), property type (residential, commercial, industrial), and taxpayer category (individuals, SMEs, large corporations). This stratification will ensure that each subgroup is adequately represented in the final sample, thereby enhancing the study's generalizability.

Sources and Method of Data Collection

This study utilized both primary and secondary data to analyze the impact of government policies, technological innovations, and taxpayer awareness on compliance rates in Nigeria's property tax system. Primary data were collected through structured questionnaires distributed to selected taxpayers across Nigeria. These questionnaires were designed to gather relevant information on taxpayer attitudes toward government policies, the adoption of technological innovations in tax administration, and their awareness and compliance behaviors. Using questionnaires allowed the study to efficiently capture large amounts of data, providing insights into subjective perceptions and experiences related to tax compliance.

The questionnaires consisted of both closed-ended and Likert scale questions, ensuring quantitative responses while also allowing respondents to express opinions where necessary. They covered various aspects, including the perceived usefulness and ease of use of technological tools in tax administration, awareness and understanding of tax obligations, opinions on government tax policies, taxpayer experiences with property tax payment, and challenges in complying with property tax regulations. Both face-to-face and electronic (online) data collection methods were employed. In areas with limited digital access, physical questionnaires were distributed and collected through trained field officers, while in urban, tech-friendly areas, online surveys were sent via email and social media to boost participation.

Secondary data were obtained from credible sources, such as published academic articles, books, and reports on property tax compliance and technology adoption in Nigeria. Government documents, including reports from the Federal Inland Revenue Service (FIRS), local government property tax records, and relevant legal frameworks, were also consulted, along with data from reputable databases and statistical agencies like the National Bureau of Statistics (NBS) to provide insights into tax revenue performance, population statistics, and economic data.

Model Specification

The study will employ a regression model to analyze the relationships between the independent variables (government policies, technological innovations, and taxpayer awareness) and the dependent variable (tax compliance). The model specification is based on the Technology Acceptance Model (TAM) and aims to determine how these factors influence taxpayers' compliance behavior with respect to property tax payments in Nigeria.

The model can be specified as follows:

$$\mathbf{TC = \beta_0 + \beta_1 GP + \beta_2 TI + \beta_3 TA + \varepsilon}$$

Where:

TC = Tax Compliance (dependent variable)

GP = Government Policies

TI = Technological Innovations

TA = Taxpayer Awareness

$\boldsymbol{\beta_0}$ = Constant or intercept term

$\boldsymbol{\beta_1, \beta_2, \beta_3}$ = Coefficients of the independent variables, which measure the impact of each factor on tax compliance

$\boldsymbol{\varepsilon}$ = Error term, accounting for the variation in tax compliance not explained by the independent variables

4. Result and Discussion

Descriptive Statistics

Descriptive statistics are used to summarize and describe the basic features of the data collected. It provides insights into the distribution, central tendency, and variability of the dataset. For this study, the key variables include Government Policies (GP), Technological Innovations (TI), Taxpayer Awareness (TA), and Tax Compliance (TC). The table below presents the descriptive statistics for these variables.

Table 1: Descriptive Statistics

Variable	**Mean**	**Standard Deviation**	**Minimum**	**Maximum**	**Observations**
Government Policies (GP)	3.75	0.88	1.00	5.00	350
Technological Innovations (TI)	3.80	0.92	1.50	5.00	350
Tax Compliance (TC)	3.95	0.90	2.00	5.00	350

In the table 1, the mean value for Government Policies (3.75) indicates that respondents generally have a positive view of policy effectiveness in tax administration, with a moderate variability (standard deviation of 0.88) suggesting some differences in opinion. For Technological Innovations, the mean of 3.80 reflects a generally favorable perception, with a standard deviation of 0.92 showing some variability in views on technology's effectiveness in tax processes. Tax Compliance has a mean of 3.95, suggesting a positive perception of compliance levels among respondents. Its standard deviation of 0.90 points to moderate variation, indicating differing levels of compliance among respondents.

Table 2: Correlation Matrix

The correlation matrix below shows the relationship between the key variables: Government Policies (GP), Technological Innovations (TI) and Tax Compliance (TC). Correlation values range between -1 and +1,

Table 2: Correlation Matrix

Variables	**GP**	**TI**	**TC**
Government Policies (GP)	1.000	0.540	0.620
Technological Innovations (TI)	0.540	1.000	0.680
Tax Compliance (TC)	0.620	0.680	1.000

In table 2, there is a strong positive correlation (0.620) between Government Policies (GP) and Tax Compliance (TC), indicating that effective government policies enhance tax compliance by shaping taxpayer behavior. Technological Innovations (TI) also correlate strongly with Tax Compliance (0.680), suggesting that user-friendly and effective technologies encourage

taxpayers to comply with regulations. Additionally, there is a moderate positive correlation (0.540) between Government Policies and Technological Innovations, indicating that supportive policies can help drive the adoption of technology in tax administration.

Regression Analysis

In this section, we present the results of the regression analysis to examine the relationship between government policies, technological innovations, taxpayer awareness, and tax compliance.

Table 3: Regression Results

Variable	**Coefficient (β)**	**Standard Error**	**t-Statistic**	**p-Value**
Intercept	1.230	0.145	8.48	0.000
Government Policies	0.325	0.073	4.45	0.000
Technological Innovations	0.412	0.065	6.34	0.000
R-squared	0.710			
Adjusted R-squared	0.698			
F-statistic	59.42			0.000

Table 3 shows that the regression model demonstrates that government policies, technological innovations, and taxpayer awareness each significantly impact tax compliance, as indicated by their p-values being less than 0.05. Government policies have a coefficient of 0.325, showing that a one-unit improvement in policy effectiveness raises tax compliance by 0.325 units, with high statistical significance ($p = 0.000$). Technological innovations have the largest effect, with a coefficient of 0.412, meaning that a one-unit increase in technology use raises compliance by 0.412 units, also highly significant ($p = 0.000$). The model's R-squared value of 0.710 indicates these variables explain 71% of the variance in tax compliance, and the F-statistic (59.42, $p = 0.000$) confirms the model's strong significance.

Discussion of Findings

The regression analysis reveals that government policies (GP) and technological innovations (TI) significantly enhance tax compliance (TC), each showing a positive impact with p-values below 0.05. Government policies have a coefficient of 0.325, indicating their substantial role in fostering compliance by creating a fair, transparent, and enforceable tax system. This aligns with Oluwole and Aluko (2021), who argue that equitable policies increase taxpayer adherence.

Technological innovations (TI) hold the highest coefficient at 0.412, emphasizing their influence on compliance by improving ease and efficiency in tax processes. This supports the Technology Acceptance Model (TAM), which suggests that taxpayers adopt technologies that are perceived as useful and user-friendly, and resonates with Udoekanem (2020) and Agba and Ayuba (2022), who found that technology simplifies tax compliance. The model's R-squared value of 0.710 indicates that 71% of the variance in tax compliance is explained by GP, TI, and taxpayer awareness, highlighting these as key factors. The F-statistic of 59.42 and a p-value of 0.000 further confirm the model's validity, underscoring the critical role of policies, technology, and awareness in influencing compliance behavior.

5. Conclusion

This study has explored the critical factors influencing tax compliance in Nigeria, focusing on the roles of government policies and technological innovations. The findings indicate that both independent variables significantly impact tax compliance rates. Effective government policies, characterized by fairness and transparency, are essential in fostering a compliance-oriented environment, as they enhance taxpayer trust and willingness to fulfill their obligations. Based on the findings of this study, several recommendations can be made to enhance tax compliance in Nigeria:

i. Policymakers should focus on developing clear, fair, and transparent tax policies that are easily understandable to taxpayers. This can include regular reviews and updates to existing tax regulations to ensure they are relevant and equitable. Engaging stakeholders in the policy-making process can also foster trust and improve compliance.

ii. The government should invest in advanced technological solutions to streamline tax administration processes. Implementing user-friendly tax management systems and data analysis tools can facilitate compliance and make the tax payment process more accessible for taxpayers. iii. Additionally, ensuring that these technologies are integrated into existing systems will enhance efficiency.

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EFFECTS OF MONETARY POLICY ON BANKS STABILITY IN NIGERIA

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Abstracts

This study examines the effect of monetary policy on banking system stability in Nigeria. The main objective was to evaluate how monetary policy affected the banking system stability during the global financial crisis in Nigeria. Static and dynamic error correction models were estimated using monthly data from January 2007 to June 2013 and the error correction model was found most efficient. The banking system stability index was computed using banking soundness index, banking vulnerability index and economic Climate index. The results showed that increase in monetary policy rate, depreciation of nominal exchange rate and rising inflation rate negatively affected the banking system stability. However, similar increase in cash reserve requirement and banking reforms improved the banking system stability. Accordingly, the paper recommended that the CBN should be watchful of increase in MPR, depreciation of the Naira and rising inflation to ensure banking system stability. Also, increase in CRR and financial reforms can positively impact on the banking system stability in Nigeria. Overall, there is need for the Bank to identify appropriate adjustment in its instruments to achieve macroeconomic stability and banking system stability. The study also investigates the effect of monetary policy on banking sector stability in Nigeria, utilizing quarterly data for the period 2007 to 2021. The study employs the autoregressive distributed lag (ARDL) bounds testing approach to cointegration. Results show that a long run relationship exist between banking sector stability and monetary policy in Nigeria. Furthermore, monetary policy rate, liquidity ratio, and cash reserve ratio are found to enhance banking sector stability. The study recommends, among others, that cash reserve and liquidity ratios should be kept at levels that will prevent excess liquidity in the system.

INTRODUCTION

Monetary policy is one of the major economic stabilization weapons which involve measures designed to regulate or control the volume, cost, availability and direction of money and credit in an economy to achieve some specific macro-economic policy objective. It is a deliberate attempt by the monetary authority (Central Bank) to control the money supply and credit condition for the purpose of achieving certain broad economic objective (Onouorah, E. Oyathelemi, IO Shaib, 2011). Okpara (2010) defined monetary policy as a measure designed to influence the availability, volume and direction of money and credits to achieve the desired economic objectives.

Keeping an economy on track with respect to growth, employment, and price stability is a complicated business. Decisions of business leaders, labour leaders, and government officials, as well as the whims of nature and chance, all impact on the stability and efficiency of Nigeria's economic activity. Monetary policy is only one of the planks in the structure that houses our economic system, but it's an important one. The job of any economy is to transform available resources into products that are in demand, and a well-managed money supply plays a key role in making sure that this job is done smoothly.

The banking industries in any economy in the world are the most important sector because of their ability to mobilize funds from the savings to the deficit sector of the economy. They mobilize the largest amount of fund because of their ability to accept deposits of any kind from the public, government and its agencies as well as create credit through granting of loans, overdraft and project financing which are all element needs for economic performance to enhance economic growth and development (Onoh, 2002).

In recent time, there has been intense debate on the efficacy of monetary policy in ensuring financial system stability. This is because, prior to the 2007 to 2009 global financial crises, the overarching objective of monetary policy in almost all countries of the world was that of price stability. The rationale behind the focus of monetary policy on price stability was that its achievement could ensure macroeconomic stability (Mordi., 2007). It was a common belief that achieving price stability would lead to achievement of financial stability. In this regard, monetary policy mandate of price, and financial stability were best considered as being complementary to each other (Padoa-Schioppa, 2002; Issing, 2003). However, the collapse of some of the world's renowned financial systems brought about by the global financial crisis tend to underscore the fact that monetary policy aimed at price stability seemed not to have guaranteed financial system stability after all, thereby reigniting the debate on the role of central banks in ensuring financial sector stability through monetary policy both in normal and crisis periods (Gameiro, 2011). As a result, there have been arguments that central banks need to pursue their mandates beyond price stability to incorporate financial system stability as one of the mandates of monetary policy (International Monetary Fund [IMF, 2015]).

The 2007 Central Bank of Nigeria (CBN) Act mandates the apex bank as one of its objectives to promote financial system stability. The CBN ensures the safety and soundness of the financial system in Nigeria through banking sector reforms, improved access to finance, adequate institutional capacity building and implementation of good corporate governance practices (CBN, 2010). Ensuring financial and banking system stability is important because the failure of financial institutions, particularly banks, is capable of undermining public confidence, precipitate unanticipated contraction in money supply, reduce savings and investments, and induce payment system collapse with adverse effects on the real economy (Oboh, 2014). More so, the stability of the financial system is very imperative since its achievement ensures effective monetary policy transmission mechanism. As such, ensuring financial system stability will help monetary authorities in achieving the primary objective of price stability (Oboh, 2014).

To achieve financial and banking system stability, the CBN at different times had instituted various reforms aimed at ensuring effective performance of the banking sector. The liberalization of the financial system in 1986 as one of the major components of the Structural Adjustment Programme (SAP) marked a major effort at ensuring the stability of the financial system in Nigeria. Under the SAP initiative, the major reform in the financial sector was the deregulation of interest and exchange rates, implementation of market-based monetary policy, strengthening of regulatory and supervisory institutions, establishment of the Nigeria Deposit Insurance Corporation (NDIC) and granting of licenses to more banks (Ogujiuba & Obiechina, 2011). The interest rates deregulation mechanism, which was meant to stimulate savings and ensure efficient allocation of resources could not achieve its objectives as it rather led to increased lending rates and decreased savings deposit rate, resulting in a widened interest rate spread. With the persistent exchange rate volatility, coupled with public sector deficit financed by the CBN, there was soaring inflation (Ogujiuba & Obiechina, 2011). During the liberalization era, the country witnessed episodes of banking crises and instability

in the financial system. For instance, between 1989 and 1996, there was severe illiquidity and systemic distress in the banking sector, which led to an increase in the number of distressed banks from 8 to 52 (Iyede., 2018; Chete, 2001; Adeyemi, 2011). The situation worsened in the early 2000s as the banking sector was characterized by structural and operational weaknesses, persistent illiquidity, financial distress, and gross insider abuses, resulting in huge non-performing loans, poor asset base, weak management, and poor corporate governance (Soludo, 2004). The CBN embarked on the recapitalization policy which strengthened and increased the capital base of the banks in the system through mergers and acquisitions. Having stated all the fact above, this current study aim to examine the effect of monetary policy on the banking system stability in Nigeria.

LITERATURE REVIEW

Okoye and Udeh (2009) examine the effect of monetary policy on corporate profitability in the banking sector with a reflection on the Nigerian economy. The study employed regression analysis to carry out the investigations. The data for the study were secondary data. The study developed four models which are expected to serve the purpose of forecasting the future profit of the banks examined. The result of the findings indicated that monetary policy has constrained corporate profitability of banks in Nigeria. Owing to this, it was recommended, among others, that the monetary authorities should adopt strict adherence to deregulation. Government should adopt legal reserve ratio that is not too stringent, to avoid illiquidity and distress in the banks.

Amassoma, Wosa and Olaiya (2011) appraised monetary policy development in Nigeria and also examined the effect of monetary policy on macroeconomic variables in Nigeria for the period 1986 to 2009. Using the simplified Ordinary Least Squared technique conducted with the unit root and co-integration tests, they found that monetary policy have witnessed the implementation of various policy initiatives and has therefore experienced sustained improvement over the years. They also showed that monetary policy had a significant effect on exchange rate and money supply while monetary policy was observed to have an insignificant influence on price instability. The implication of their finding is that monetary policy has had a significant influence in maintaining price stability within the Nigeria economy and concluded that for monetary policy to achieve its other macroeconomic objective such as economy growth; there was the need to reduce the excessive expenditure of the government and align fiscal policy along with monetary policy measure.

Ajayi and Atanda, (2012) examined the effect of monetary policy instruments on banks performance with the view to determine the existence of long-run relation between 19780 and 2008. Using the Englegranger two step cointegration approach their empirical estimates indicated that bank rate, inflation rate and exchange rate are total credit enhancing, while liquidity ratio and cash reserves ratio exert negative effect on banks total credit. Although, it is only cash reserve ratio and exchange rate found to be significant at 5% critical value. However, the cointregration test indicated that the null hypothesis of no cointegration was accepted. They concluded that monetary policy instruments are not effective to stimulate credit in the long-run, while banks total credit is more responsive to cash reserve ratio and thus proffered that the monetary authority should moderate the minimum policy rate as a tool for regulating commercial banks operations and facilitating investment in the economy.

Akanbi and Ajagbe (2012) investigate analysis of monetary policy on commercial banks in Nigeria. The study employed three commercial banks in the Nigeria financial system, that is, the first generation banks. The employed data run through 1992 to 1999 and this was collected through various issues of central bank of Nigeria statistical bulletin and analysed with

the use of regression model. The results showed net profit, liquidity ratio, cash ratio and interest rate on savings which confirms to the prior expectation. This could be further explained with the regression estimate whereby an increase in interest rate will leads to a decrease in the lending rate while liquidity ratio and cash ratio were statistically significant to the profit of the selected banks.

Imoisi, Olatunji, and Ekpenyong (2013) examined the efficacy of monetary policy in achieving Balance of Payments stability in Nigeria. The research was conducted using an Ordinary Least Squares (OLS) technique of multiple regression models using statistical time series data from 1980-2010. The estimated result shows a positive relationship between the dependent variable (Balance of Payments) and the Independent variables (Money Supply, Exchange Rate and Interest Rate). Specifically, Money Supply and Interest Rate had significant relationship with Balance of Payments, whereas Exchange Rate was not statistically significant. It recommended that the government should promote the exportation of Nigerian products especially the Non oil products, as this will bring in more foreign exchange into the country, boost productive activities and improve the balance of payments position of the country.

Okoro (2013) examined the impact of monetary policy on Nigerian economic growth from 1970 - 2010. Using a time series data the study employed Augmented Dickey-Fuller (ADF) test, Philips-Perron Unit Test, Co-integration test and error correction model (ECM) techniques in the analysis of the data collected. The study result shows that there exists a long-run equilibrium relationship between monetary policy instruments and economic growth in Nigeria. From our result interest rate and inflation rate were negatively correlated with gross domestic product (GDP), while Exchange rate, money supply and Credit to the Economy were positively related to GDP, based on the long-run test. Theoretically we can infer that monetary policy instruments have contributed significantly to the positive economic growth of Nigeria. Therefore, we suggest that there is need for a suitable monetary supply policy through inflation targeting. In addition, the Central Bank of Nigeria should employ direct regulation of interest rates since the existence of high interest rate acts as an obstacle to the growth of both private and public investment in Nigeria.

Several studies exist outside Nigeria on the effect of monetary policy on financial stability. Applying the structural vector autoregressive (SVAR) technique, Cocris¸ and Nucu (2013) carried out a study on the impact of monetary policy on financial stability in Eastern and Central Europe, using monthly data from 2003 to 2012. Result of their study showed that monetary policy through money market interest rate has short term effect on financial stability in Czech Republic, Hungary, Poland and Romania, while money market interest rate did not enhance financial stability in Bulgaria and Lithuania. Using the structural vector autoregressive (SVAR) model, Ouhibi and Hammami (2015) investigated the linkage between monetary policy and financial stability among six (6) Southern Mediterranean countries (Tunisia, Egypt, Morocco, Turkey, Lebanon and Jordan), utilizing monthly data from 2006 to 2013. The result indicated that for countries that executed flexible exchange rate (such as Turkey, Tunisia, Egypt and Morocco), monetary policy strategy through short term interest rate influenced financial stability.

On the other hand, countries that executed a regime of fixed exchange rate (such as Lebanon and Jordan), monetary policy through short term interest rate did not have positive effect on financial stability. Tabak, (2013) investigated the role of monetary policy in ensuring financial stability in Brazil, using monthly data from 2003 to 2009. The fixed effect panel technique of estimation was used. Result showed a positive relationship between monetary

policy and financial stability in Brazil. Khataybeh and Al-Tarawneh (2016) empirically estimated the association between monetary policy and financial stability in Jordan, using monthly data from September, 1993 to December, 2012 and employing the vector autoregressive (VAR) technique. Results showed that changes in excess reserves and changes in domestic credit have positive effect on financial stability. Result of the granger causality test indicated that excess reserves and credit granger caused financial system stability. Ayomi, (2021) investigated the impact of monetary policy and bank competition on banking default in Indonesia from 2009 to 2019, adopting the generalized method of moment (GMM) technique. Result revealed that monetary policy through benchmark rate impacted positively on risk of banking stability, while credit interest rate impacted negatively on risk of banking stability.

In Nigeria, several studies have been carried out on the impact of monetary policy on financial stability. Oparah and James (2020) investigated the impact of monetary policy on financial stability of the banking sector in Nigeria, using quarterly data from 2008 to 2016 and employing the error correction model (ECM) technique. Result showed that monetary policy enhanced financial stability through open market operations and exchange rate. Hamilton, (2020) undertook a study on the effect of monetary policy on banking system distress in Nigeria from 1989 to 2018, employing the error correction model (ECM) technique. Results showed that monetary policy, represented by monetary policy rate exerted negative effect on banking distress in the long run and positive effect on banking distress in the short run. Also, exchange rate exerted positive effect on banking distress in Nigeria. Ajisafe, (2021) examined the effect of monetary policy on financial stability in Nigeria from 1986 to 2017, employing vector error correction method. Result showed that monetary policy has significant effect on financial stability in Nigeria, particularly through exchange rate.

Atoi (2018) investigated the drivers of non-performing loans and its effect on banking stability in Nigeria, from 2014 to 2017, employing the general method of moment (GMM) technique. The result showed that lending rate, exchange rate and liquidity ratio were drivers of non-performing loans and banking stability responded negatively to shocks in non-performing loans.

The review of empirical studies showed that several studies exist for Nigeria, investigating the impact of monetary policy on financial/banking stability. For instance, Hamilton, (2020) and Ajisafe, (2021) used annual time series data for their analysis, while Oparah and James (2020) employed quarterly time series on a relatively short time frame from 2008 to 2016. This study differs from Oparah and James (2020) by utilizing quarterly data on a longer scale (2007 to 2021). Also, unlike Oparah and James (2020) and Hamilton, (2020) that employed the error correction model (ECM) technique, this study employed the autoregressive distributed lag (ARDL) bounds testing approach to cointegration. The rationale behind the application of the ARDL technique is that it could be applied for a mixture of time series.

METHOD

Empirical equation for this study is anchored on the "leaning against the wind" theory. Based on the theoretical anchor, the equation for this study was built and specified. The dependent variable is banking sector stability, represented by the banking stability index which was constructed using the Z-score. The independent variable is monetary policy, captured by quantitative policy instruments such as monetary policy rate, open market operation, represented by treasury bills rate, liquidity ratio, cash reserve ratio and exchange rate. Monetary policy variables were derived from the leaning against the wind theory. The empirical model for this study as abstracted from previous studies such as Atoi (2018), Hamilton (2020), Oparah and James (2020), Ayomi (2021) and Ajisafe (2021) can be specified functionally as follows:

BSI = f(MPR, LQR,CRR, EXR
where: BSI = banking stability index,
MPR = monetary policy rate,

LQR = liquidity ratio,
CRR = cash reserve ratio,
EXR = exchange rate.

The econometric specification of equation (1) can be expressed in its explicit form as follows:

where: ω0,..., ω, are the parameters to be estimated and U*t* is the stochastic error term, assumed to be normally distributed. The theoretical expectations about the Coefficients of the regressors are stated as follows: ω1>0, ω2>0, ω3>0, ω4>0, ω5>0 Measuring banking system stability posed difficulty since there is no known aggregate indicator used by central banks to measure financial stability. As such, the process of constructing aggregate financial stability index is still ongoing and in experimental state (Gersl & Hermanek, 2008; Sere-Ejembi, 2014). The banking stability index for this study is constructed using Z-score for the four main variables of banking soundness indicators, namely capital adequacy ratio, asset quality, liquidity level and profitability level. The Z-score is purely an idiosyncratic measure of banking stability based on simple statistical principle, calculated using the formula:

$$Z = \frac{X - \mu}{\sigma}$$

where: Z = the $Z - score$ (that is, banking stability index), X = a particular banking stability/soundness indicator (capital adequacy ratio, asset quality, liquidity and returns on asset), μ = mean value of a particular banking stability/soundness indicator (capital adequacy ratio, asset quality, liquidity and profitability), and σ = standard deviation of a particular banking stability/soundness indicator (capital adequacy ratio, asset quality, liquidity and returns on asset). Thus, the banking stability (soundness) index based on the Z-score is computed as follows:

$$BSI = (MPR, LOR, CRR, EXR) \quad 1$$

$$BSI = MPR + LOR + CRR + EXR \quad 2$$

$$BSI = \emptyset_1 + \emptyset_2 MPR + \emptyset_3 LOR + \emptyset_4 CRR + \emptyset_4 EXR + \mu \quad 3$$

$$\begin{aligned}\Delta BSI = \emptyset_0 &+ \sum_{m=1}^{J} . \emptyset_{1m} \Delta BSI_{.t-n} + \sum_{m=1}^{J} . \emptyset_{1m} \Delta MPR_{.t-n} \\ &+ \sum_{m=0}^{J} . \emptyset_{2m} \Delta LOR_{.t-n} + \sum_{m=0}^{J} . \emptyset_{4m} \Delta CRR_{.t-n} \\ &+ \sum_{m=0}^{J} . \emptyset_{5m} \Delta EXR_{.t-n} + \partial_1 BSI_{t-1} \\ &+ \partial_2 MPR_{t-1} + \partial_3 LOR_{t-1} + \partial_4 CRR_{t-1} \\ &+ \partial_5 EXR_{t-1} + \mu\end{aligned}$$

$$\Delta BSI = \emptyset_0 + \sum_{m=1}^{J} . \emptyset_{1m} \Delta BSI_{.t-n} + \sum_{m=1}^{J} . \emptyset_{1m} \Delta MPR_{.t-n} + \sum_{m=0}^{J} . \emptyset_{2m} \Delta LOR_{.t-n} + \sum_{m=0}^{J} . \emptyset_{4m} \Delta CRR_{.t-n} + \sum_{m=0}^{J} . \emptyset_{5m} \Delta EXR_{.t-n} + \partial_1 BSI_{t-1} + \partial_2 MPR_{t-1} + \partial_3 LOR_{t-1} + \partial_4 CRR_{t-1} + \partial_5 EXR_{t-1} + \in ECT_{t-1} + \in_t \quad 5$$

RESULT and DISCUSSION

This chapter presents the data analysis of the study. Ordinary Least Square (OLS) multiple regression analytical method and technique is employed in obtaining the numerical estimates of the coefficients and the relationship between monetary policy rate, money supply, liquidity ratio, cash reserve ratio and banks loans and advances in Nigeria. The OLS method is chosen because it possesses some optimal properties; its computational procedure is fairly simple and it is also an essential component of most other estimation techniques.

In demonstrating the application of Ordinary Least Square method, the multiple linear regression analysis is used with banks loan and advances as the dependent variable while monetary policy rate, money supply, liquidity ratio, and cash reserve ratio are the explanatory variables. The method would be applied with the use of E-views (Econometrics views).

Descriptive Analysis

Descriptive analysis of the data collected are presented in the table 4.1 below, comprises of monetary policy rate, liquidity ratio, money supply and bank loans and advances. The table presents the minimum and maximum, with mean range of the variables from 1986 to 2013. It could be observed from the table that the minimum and maximum percentage of monetary policy rate from 1986 to 2013 is 6.13% and 26.00% respectively, while the mean (average) of MPR over the last 28 years is approximately 13.7%. Also, the minimum and maximum percentage of liquidity ratio over the same years is 25.50% and 64.10% respectively, while the mean average is approximately 44.55%. However, the mean average of cash reserve ratio over the last 28 years is approximately 6.32%, while the minimum and maximum percentage is 1.10% and 12.00% respectively from 1986 to 2013.

Table 4.1: Descriptive Statistics of Data from 1986 to 2013

	N	Range	Minimum	Maximum	Mean	Std. Deviation
MPR (%)	28	19.87	6.13	26.00	13.7118	4.02347
LQR (%)	28	38.60	25.50	64.10	44.5464	9.39892
MSP (%)	27	828.50	-91.64	736.85	4.2674	147.26252
LADV (%)	27	49.56	-54.28	-4.72	-21.7385	11.47101
CRR (%)	28	10.90	1.10	12.00	6.3214	3.63882

Unit Root Test

The statistical properties of the time series variables used in the estimation were determined. The essence is to determine whether these variables are stationary or not. This is because macroeconomic data often appear to possess stochastic trend that can be removed by difference the variables. This study employed the Augmented Dickey Fuller (ADF) to test the order of integration of the variables. The unit root tests results are presented in table 4.2. It is obvious that MPR, LQR and CRR are stationary at first difference, while MSP and LADV are both stationary after their second difference.

Table 4.2: Unit Root Test

Variable	Levels	1st Difference	2nd Difference	P-Value	Level of Integration
MPR	-0.609012	-6.730943	-	0.0000	I(1)
LQR	-0.302045	-5.947893	-	0.0000	I(1)
EXR	3.374448	-1.674028	-6.454851	0.0000	I(2)
LADV	5.042330	6.324565	-4.107975	0.0090	I(2)
CRR	0.112391	-4.925305	-	0.0000	I(1)

Table 4.3: Regression output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1172299.	1130328.	-1.037131	0.3105
MPR	61627.77	53455.05	1.152890	0.2608
EXR	1.017355	0.048790	20.85176	0.0000
LQR	-4112.229	20362.20	-0.201954	0.8417
CRR	-3181.503	57790.61	-0.055052	0.9566

R-squared	0.974342	Mean dependent var	2922303.
Adjusted R-squared	0.969879	S.D. dependent var	4712352.
S.E. of regression	817842.5	Akaike info criterion	30.22716
Sum squared resid	1.54E+13	Schwarz criterion	30.46505
Log likelihood	-418.1802	Hannan-Quinn criter.	30.29989
F-statistic	218.3490	Durbin-Watson stat	1.824822
Prob(F-statistic)	0.000000		

The results show that the adjusted R-squared value of 0.969879 implies that the explanatory variables jointly account for approximately 97% percentage changes in LADV. This means that the four independent variables {monetary policy rate (MPR), money supply (MSP), liquidity ratio (LQR), cash reserve ratio (CRR)} explained about 97% of the systematic variations in banks‟ loan and advances (LADV) during the period under study. The Durbin Watson test of serial correlation indicates absence of serial correlation as indicated by Durbin-Watson stat of 1.824822. The Fstatistic of 218.3490 is significant at the 5% level confidence. Thus, the statement of a significant linear relationship of the overall regression is validated. Therefore, we accept that monetary policy influences bank credit in Nigeria.

In examining the relationship between each of the independent variables and bank loan and advances (bank credit in Nigeria), it could be observed that banks total loans and advances is negatively related to LQR and CRR but positively related to MPR and MSP. This implies that when LQR and CRR decrease, banks loans and advances increase. And when MSP and MPR increases, banks loans and advances increases. For instance, a percentage decrease in liquidity ratio (LQR) and cash reserve ratio (CRR), bank credit (LADV) will increase by 4112.229 and 3181.503 (#‟million) respectively.

However, the estimation results show that the variables- monetary policy rate (MPR), liquidity ratio (LQR), cash reserve ratio (CRR) are not statistically significant (p- value > 0.10 level of significance) in explaining changes in banks loan and advances, while money supply (MSP) is statistically significant (p-value < 0.01 level of significance) in explaining changes in banks loan and advances.

The results of the Johansen trace and maximum eigen value tests, with a linear deterministic trend indicated that each of the test has one co-integrating equation at the 5.0 percent level of significance. This condition is necessary for the estimation of error correction model. The static model results indicated that only nominal exchange rate, CRR and financial reforms influenced banking system stability. Inflation and MPR were not significant. In addition, the explanatory power (Adj. R^2) of 48.0 per cent was low with presence of serial correlation. The residual was tested for unit root and was found stationary at level, at 5.0 per cent level of significance.

Table: 4.4 ECM output

Static Model			Dynamic Error Correction Model		
Variable	Coefficient	P-Value	Variable	Coefficient	P-Value
C	1.6753	0.0093	C	1.4861	0.0001
MPR	-00428	0.1239	MPR(-1)	-0.0606	0.0003
CRR	0.0989	0.0000	EXCH(-1)	-0.0088	0.0009
EXCH	-0.0136	0.0018	CRR(-1)	0.0976	0.0000
INF	0.0047	0.7475	INF(-1)	-0.0180	0.0493
D65	0.2843	0.0008	D65	0.1876	0.0004
			ECM(-1)	-0.8341	0.0000
Adj. R2	48.86		Adj.R2	81.58	
Prob(F-Stat)	0.0000		Prob(F-Stat)	0.0000	
AIC	0.44		AIC	-0.6138	
DW	0.45		DW	2.07	

The dynamic error correction model results in table 2 above indicated that rising MPR was likely to reduce banking system stability, indicating that, tight monetary policy may negatively affect banking system stability. On the contrary, increase in CRR was expected to increase banking system stability probably because banks will be able to build buffer and pay special attention to risks and portfolio management. The result also showed that increase in inflation and depreciation of the naira may make banks to become less stable. The one period lagged ECM is with negative sign and significant at 1.0 per cent. The ecm (-1) of -0.8342, shows that the banking system corrects its previous period instability at a speed of 83.4 per cent monthly. Thus, Nigerian banking system returns to steady state at a very high speed, which enables the Nigerian banking system to remain resilient.

In order to confirm the reliability and appropriateness of the estimated error correction model, various diagnostic tests were conducted including normality, serial

correlation LM and Heteroscedasticity tests. Others included recursive residual and CUSUM of squares tests. The Jarque-Bera test statistic confirm acceptance of hypothesis of normality (Table 5). Also, the result of Breusch Godfrey serial correlation test and Heteroscedasticity test indicate that the model has no serial correlation and is homoscedastic. The recursive residual test showed no evidence of serial correction as the distribution was within the plus/minus 2 standard deviation but between 2007 and 2009, it was outside the bound indicating instability which corresponds to the period of the global financial crisis of 2008/2009. Similar situation was evidenced in the graph of the banking system stability index discussed under the stylised facts.

Finally, the structural stability test using CUSUM of squares test revealed that the model was well specified and stable because the CUSUM lies within the 5.0 per cent significance bound.

Conclusion

Banks in Nigeria are the principal depositories of the public's financial savings, the nerve centre of the payment system, the vessel endowed with the ability of money creation and allocation of financial resources and conduit through which monetary and credit policies are implemented. Thus, as a result of the importance of credit in an economy, its availability and cost to the economy is influenced through monetary policy. It was observed that monetary policy instruments are used at various intervals in order to ensure that it does not hamper economic growth since excess credit leads to excess money in circulation and as such induces high inflation rate.

From the findings of this study, we conclude that monetary policy instruments influences bank credit performance when combined but less effective as single instrument of regulating credit to the Nigerian economy. While loans and advances is non-responsive to liquidity ratio, cash reserve ratio, and monetary policy rate, it is however responsive to money supply. The study showed that interest rate charged by the Central Bank whether low or high do not seriously deter commercial banks from lending.

Recommendation

The findings revealed that raising monetary policy rate (MPR) by the CBN was likely to make banking system less stable. This required the Bank to know how far monetary policy rate (MPR) could go to avoid the anticipated negative effect on the banking system stability. Similarly, increase in inflation rate and depreciation of the naira were expected to negatively affect banking system stability. On the positive side, financial reforms and increase in cash reserve ratio (CRR) were likely to make the banking system more stable.

In line with the results of the model, we recommend that the CBN:

1. Should continue to use CRR, MPR and exchange rate to ensure effective monetary management and stable banking system in Nigeria. However, there should be serious caution on how far tight monetary policy can go and by how much the naira should be allowed to depreciate to avoid fueling banking system instability as revealed by the paper.
2. CRR can continue to be used as macro-prudential instrument to ensure banking system stability.
3. Should endeavour to achieve its inflation objective as this would improve the banking system stability.
4. Should sustain financial reforms of the banking system in order to engender stability. Overall, should try to balance the objective of macroeconomic stability with the objective of banking system stability to achieve sustainable economic growth in Nigeria.

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BUSINESS ADMINISTRATION

EFFECT OF ENTREPRENEURIAL CONSTRAINTS ON SMEs GROWTH: EMPIRICAL EVIDENCE FROM NIGERIA

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Abstract

This study examines the constraints hindering the growth of Small and Medium Enterprises (SMEs) in Abuja, Nigeria, focusing on four key entrepreneurial challenges: financial constraints (FC), infrastructural deficiencies (IDF), regulatory inconsistencies (RI), and socio-cultural barriers (SCB). The study employed 350 respondents obtained through a structured questionnaire, the study employs descriptive statistics, correlation analysis, and multiple regression to explore the impact of these constraints on SME growth. The findings reveal that financial constraints are the most significant obstacle, followed by socio-cultural barriers, infrastructural deficiencies, and regulatory inconsistencies. The results demonstrate that socio-cultural barriers exert the largest negative influence, underscoring the importance of cultural sensitivity in business practices. The study also contributes to theoretical understanding by supporting the financial constraint theory and resource-based view (RBV), while extending institutional theory on the role of regulatory frameworks. Policy recommendations include improving access to finance, enhancing infrastructure, stabilizing regulations, and fostering cultural competence among SMEs. These findings provide valuable insights for policymakers, financial institutions, and business owners, highlighting the need for targeted interventions to mitigate the challenges faced by SMEs in developing economies such as Nigeria.

Keywords: Entrepreneurial constraints, financial constraint, Infrastructural deficiencies, regulatory inconsistencies, SMEs Growth, Nigeria

1. Introduction

Globally, entrepreneurial small and medium-sized enterprises (SMEs) play a crucial role in driving national economies. Numerous studies highlight the significant contributions of these enterprises to social and economic development (Bayati & Taghavi, 2007; Sarwar *et al.*, 2021;

Adeosun, & Shittu, 2021; Khan, 2022). SMEs are widely recognized for their essential role in fostering GDP growth, innovation, and job creation. A vibrant entrepreneurial SME sector not only boosts a nation's economy by contributing to GDP but also helps alleviate poverty and reduce unemployment, further advancing national development (Sarwar *et al.*, 2021; Khan, 2022). While the importance of SMEs is acknowledged worldwide, their impact is particularly vital in developing countries such as Nigeria (Karadag, 2016). Despite the recognized contributions of SMEs to economic development, entrepreneurs face numerous challenges that hinder the survival and growth of their businesses. Research indicates that the failure rate of SMEs is higher in developing economies than in developed ones (Arinaitwe, 2006). Beck *et al.*, (2005) emphasized the role of entrepreneurial SMEs in supporting the transformation of transitional economies. Similarly, Khan (2022) identified key obstacles to SME growth in Pakistan, including financial, economic, infrastructural, management, and corruption-related challenges.

In Nigeria, entrepreneurial activities encounter similar constraints, limiting their growth and sustainability. Access to finance is a major hurdle, as many SMEs struggle to secure funding from financial institutions. High-interest rates, stringent collateral requirements, and the absence of financial products tailored for SMEs create significant barriers to expansion. In a developing economy such as Nigeria, where financial markets are still maturing, insufficient access to financing remains one of the primary challenges to entrepreneurship and SME growth (NBS, 2022). Furthermore, the study of Khan, (2022) has also opined that non-financial constraints equally play important roles in limiting the success of SMEs. Such non-financial constraints within the context of the Nigerian economy includes infrastructural deficiencies, regulatory inconsistencies, and socio-cultural barriers which have limited the survival of SMEs in Nigeria. Moreover, infrastructural deficiencies play a significant role in stunting SME growth in Nigeria. This manifest to various other constraints such as inadequate power supply, poor road networks, and unreliable communication systems are among the most pressing infrastructural challenges faced by SMEs. These deficiencies lead to increased operational costs and reduced productivity, making it difficult for SMEs to compete in the market. For instance, the reliance on alternative energy sources due to frequent power outages significantly increases the cost of doing business for SMEs, while poor transportation infrastructure limits market access. In a similar vein, socio-cultural barriers, such as gender discrimination and

societal expectations, further hinder SME growth in Nigeria. Certain cultural norms restrict the involvement of women and marginalized groups in entrepreneurship, limiting the diversity of the SME sector. In addition, societal attitudes toward risk-taking and entrepreneurship also play a role in discouraging potential entrepreneurs from starting and growing businesses. On the other hand, **r**egulatory constraints also constitute a major obstacle to SME growth in Nigeria. Complex business registration processes, excessive bureaucracy, and an unpredictable regulatory environment create significant challenges for SMEs. The cost and time required to navigate these regulatory hurdles discourage many entrepreneurs from formalizing their businesses, thereby limiting their ability to access government support and financial services. Moreover, high taxation and compliance costs further erode the profitability of SMEs, making it difficult for them to reinvest in their businesses (Nkwunonwo, 2020). In light of the numerous challenges faced by SMEs in Abuja, this study seeks to contribute to the existing literature by providing empirical evidence on the specific entrepreneurial constraints affecting SMEs in the region. Since SMEs have the potential to drive inclusive economic growth, create employment opportunities, and reduce poverty, particularly in urban centre's such as Abuja. However, without addressing the key barriers to SME growth, the sector will continue to underperform, undermining its potential to contribute to national development. Hence, the present study aims to provide a nuanced understanding of the challenges impeding SME growth and offer practical recommendations for overcoming these barriers. This study addresses a topic of immense importance to the development of the entrepreneurial SME sector in developing economies such as Nigeria: it focuses on the determinants of SMEs' financial and non-financial constraints and investigates the factors that limit the growth of SMEs in Nigeria. Section 1 provides an introduction, followed by Section 2 which presents a literature review and hypotheses development. Section 3 outlines the research methodology, while Section 4 presents the results and discussion. Finally, Section 5 explores the theoretical and managerial implications, as well as the limitations of the study, its contribution, implications for future research, and concludes the paper.

2. Literature review and hypotheses development

Entrepreneurial constraints refer to the various barriers, limitations, or challenges that entrepreneurs face in starting, growing, and sustaining their businesses. These constraints can manifest in several forms, including financial limitations, infrastructural deficiencies,

regulatory burdens, socio-cultural barriers, and access to markets. They play a significant role in shaping the entrepreneurial landscape, influencing not only the success of individual ventures but also the broader economic development of a country or region (Herrera and Kouame, 2017). The RBV was formalized by Jay Barney (1991), who emphasized that firms gain a sustainable competitive advantage by owning resources that are valuable, rare, inimitable, and non-substitutable (VRIN). This theory was based on the assumption that firms are bundles of heterogeneous resources. They also opined that sustained competitive advantage arises when resources meet the VRIN criteria. Not all firms can acquire or imitate these strategic resources, leading to differing levels of performance. Also, the financial constraint theory by Fazzari, Hubbard, and Petersen (1988), who explored the relationship between financing and corporate investment. The theory focused on the impact of limited financial resources on firm performance. The theory was built on the following assumptions that firms with internal financing constraints face difficulty in securing external funding, and the information asymmetry between borrowers and lenders leads to credit rationing. These further shows that SMEs, often considered high-risk, struggle to obtain loans, limiting investment and growth. Furthermore, institutional theory was developed by John Meyer and Brian Rowan (1977), with further work by DiMaggio and Powell (1983). The theory focused on how institutions influence business behaviour through norms, rules, and values. The theory was built on the assumption that organizations operate in environments shaped by social norms and institutional frameworks, and these firms seek legitimacy by conforming to institutional norms.

H1: Financial constraint has a significant relationship on SMEs Growth in Nigeria

The growth of entrepreneurial SMEs heavily depends on financial resources, essential for expansion, yet many face significant financing challenges such as lack of capital and high transaction costs (Beck and Demirguc-Kunt, 2006; Wang, 2016; Mohammed and Bunyaminu, 2021). SMEs struggle to secure loans due to high transaction costs, insufficient information, and inadequate assets for collateral (Beck et al., 2005). Financial literacy and lower monetary costs have been shown to benefit SME growth (Hussain *et al.,* 2018). Moreover, lack of detailed financial records often results in SMEs being viewed as riskier than larger firms (Mishra *et al.,* 2014). In transition economies, SMEs frequently rely on internal funding due to underdeveloped financial systems (Hutchinson and Xavier, 2006; Khan *et al.,* 2020). Large firms, however, benefit from environments favorable to external financing (Fisman and Love,

2004). In developing countries, limited access to finance remains the primary barrier for SME growth (Bilal et al., 2016). For example, only 24% of SMEs in Keyser *et al.,* (2000) study received a startup loan, and start-up capital was positively linked to business success (Koop *et al.,* 2000). Consequently, SMEs often fail to meet commercial loan requirements due to insufficient collateral (Gray *et al.,* 1997), leading to the hypothesis that financial constraints significantly affect SME growth in Nigeria.

H2: Infrastructure constraint have a significant relationship on SMEs' Growth

Infrastructure significantly influences firm performance, with essential elements like roads, electricity, and telecommunications being vital for SME growth (Džafic *et al.,* 2011; Stam, 2015; Spigel, 2017; Ur Rehman *et al.,* 2019). Poor infrastructure adversely impacts SME profitability (Obokoh and Goldman, 2016), and is particularly challenging in rural areas, where inadequate conditions raise input and shipping costs (Kubíckova *et al.,* 2017). In Pakistan, for example, power and transport deficiencies cost around 6% of GDP and increase business costs for SMEs. This evidence supports the hypothesis that infrastructure constraints significantly affect SME growth.

H3: Regulatory inconsistencies have a significant relationship on SMEs' growth in Nigeria

Regulatory inconsistencies increase compliance costs for businesses, impacting SMEs more heavily as they often lack the resources of larger firms to manage frequent regulatory changes (Brunetti *et al.,* 1998). Unstable regulations deter both domestic and foreign investment by creating uncertainty, reducing market entry, and raising risks, especially for multinational corporations in developing economies (Henisz, 2000; World Bank, 2020). Regulatory unpredictability also stifles innovation, as businesses hesitate to invest in new products or technologies under uncertain regulatory impacts, slowing economic growth (Graham, 2013). Moreover, frequent regulatory changes erode trust between businesses and governments, reducing collaboration and impeding investment attraction (Brunetti *et al.,* 1998). Thus, the hypothesis that regulatory inconsistencies significantly affect SME growth has been proposed.

H4: Socio-cultural barriers have a significant relationship on SMEs' growth

Socio-cultural barriers impact both customer and employee relations. In diverse workplaces, sensitivity to employees' cultural values is essential; failure to respect these differences can result in tension, low morale, and high turnover (Trompenaars & Hampden-Turner, 1997). Similarly, businesses that overlook cultural differences with customers may struggle to build loyalty and trust. Overcoming these barriers often requires adaptation strategies like localizing products, culturally sensitive marketing, and employee cultural training, though these can increase costs and affect profitability (Kanter, 1995). Ignoring socio-cultural factors risks cultural missteps that could damage a business's reputation, such as culturally insensitive advertisements, leading to backlash and loss of market share (Hall, 1976). This supports the hypothesis that socio-cultural barriers significantly affect SME growth.

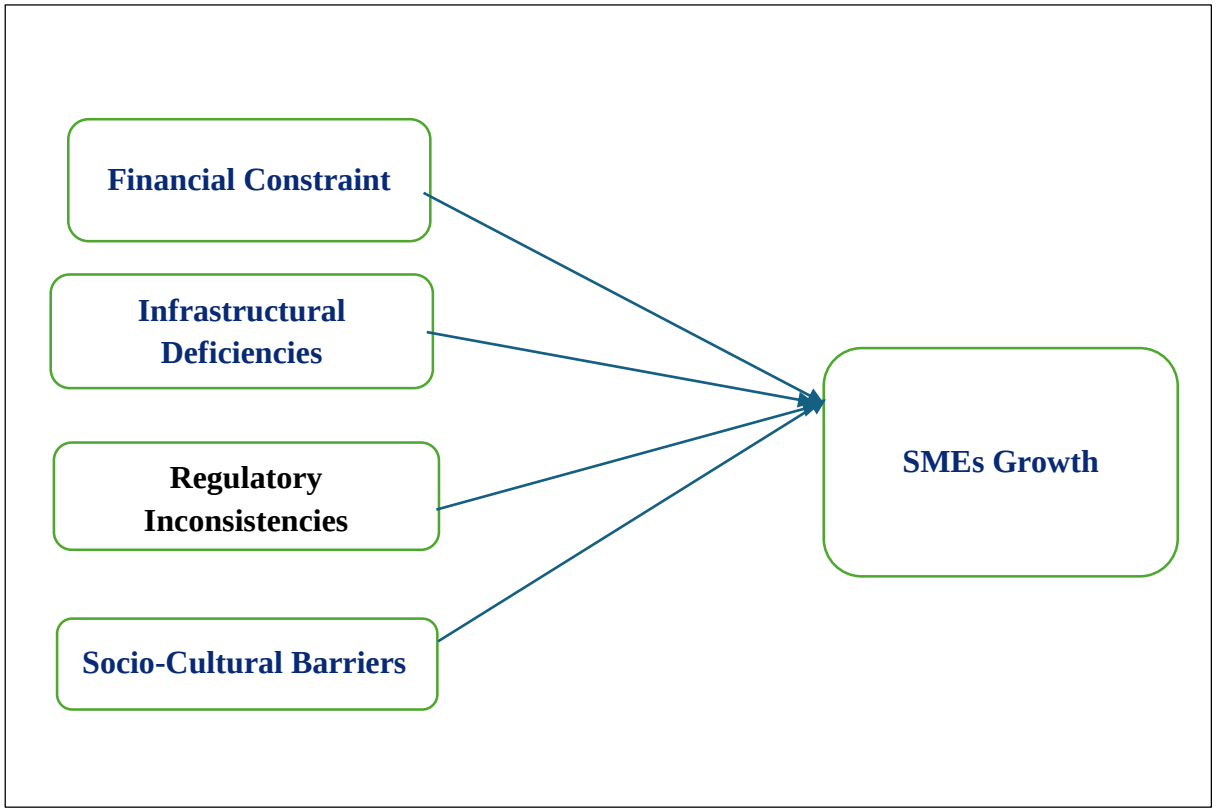
3. Research design and method

3.1 Research Design

The conceptual framework used for this study is based on various studies already conducted (Ansoff, 1965; Van Eeden *et al.*, 2004; Harris and Gibson, 2006; Okpara and Wynn, 2007; Khan, 2022). The framework was used for types of decisions needed by SMEs to start a business and maintain it successfully and also to study problems faced by the entrepreneur. Ansoff (1965) classified constraints into different types, such as administrative, strategic, operating and exogenous. Administrative obstacles concern the organisation's structure and ability to develop and maintain resources. These obstacles are financial, personal and management issues. Strategic obstacles concern the ability of the firm owner or manager to provide the goods and services that meet the demands of the customer. Operating obstacles concern the issues of effective and efficient resource allocation so as to attain organisational goals. The core resource allocation may be operation, marketing or inventory management. The other problems faced by entrepreneurial SMEs in Pakistan are exogenous obstacles, namely, corruption issues, infrastructure issues and the tax system (Figure 1).

Conceptual Framework

Figure 1



Source: Adapted and remodified from Khan, (2022)

3.2 Methodology

To explore the various constraints impacting SMEs' growth, a questionnaire-based study was conducted. Data were collected from key decision-makers, including owners and managers, within entrepreneurial SMEs located in the Abuja metropolis. A random sampling technique was employed to select the respondents, with a total sample size of 350 participants. The questionnaire utilized a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was divided into three sections: the first section captured the demographic characteristics of the SMEs, while the second section focused on identifying the

challenges faced by SMEs in Nigeria, while the third section focused on SMEs growth. The measurement scale for these constraints was adapted from previous studies, including Okpara and Wynn (2007), Olawale and Garwe (2010), and Khan (2022). Specifically, four items assessed financial constraints, four addressed infrastructural deficiencies, four examined regulatory inconsistencies and socio-cultural barriers, and five items measured SME growth. The reliability of the questionnaire, as indicated by a Cronbach's alpha of 0.78, confirmed its consistency. Additionally, the validity of all items exceeded the threshold of 0.70, ensuring the appropriateness of the measurement instruments used in the study.

4. Results of Empirical Findings

4.1 Descriptive Statistics

Table 1: Demographic Information of Respondents

Variable	Item	No. of Response	Frequency (%)
Gender	Male	190	54%
	Female	160	56%
	Total	350	100%
Age	20-30	50	14%
	31-40	100	29%
	40 above	200	57%
	Total	350	100%
Marital Status	Single	100	29%
	Married	250	71%
	Total	350	100%
Educational Qualification	HND/B.Sc	200	57%
	M.Sc/MBA	100	29%

	PhD	**50**	**14%**
	Total	**350**	**100%**
Working Experience	**1-5years**	**50**	**14%**
	5-10years	**200**	**57%**
	10 and above years	**100**	**29%**
	Total	**350**	**100%**

Source: Author's Computation, (2024)

Table 1 above provides the demographic information of respondents. This information provides insights into the composition of the respondents based on gender, age, marital status, educational qualification, and working experience. This information is essential as it helps contextualize the findings by offering an understanding of the respondents' backgrounds. The information on gender shows that out of the 350 respondents, 190 are male (54%), and 160 are female (46%). The fairly balanced gender representation ensures that the perspectives from both male and female respondents are well-represented, which strengthens the study's inclusivity and generalizability across genders. On the age of respondents, the age distribution shows that the largest group of respondents (57%) are aged 40 and above, followed by those aged 31-40 years (29%), and the smallest group is the 20-30 age range (14%). This age distribution indicates a primarily composed of more experienced individuals, which could suggest that respondents have a substantial amount of experience that may influence their insights on the subject of entrepreneurial constraints. On the marital Status, a significant majority of respondents (71%) are married, while 29% are single. The high proportion of married respondents could imply that many respondents might have additional family responsibilities, which could impact their perceptions of entrepreneurial constraints. Furthermore, on the educational qualification of the respondents, it was found that educational

qualifications reveal that most respondents hold HND/B.Sc degrees (57%), followed by M.Sc/MBA holders (29%), and Ph.D. holders (14%). This diversity in educational backgrounds suggests a well-qualified respondent pool, which can offer informed opinions and insights regarding entrepreneurial constraints. The predominance of undergraduate degree holders indicates a generally high level of education, which is valuable for understanding entrepreneurship-related issues. Finally, the information on working experience revealed that majority (57%) of respondents have between 5-10 years of experience, while 29% have over 10 years of experience, and 14% have between 1-5 years of experience. This distribution suggests that a large proportion of respondents are relatively experienced, which could enhance the reliability of their responses, particularly in understanding and identifying constraints faced by entrepreneurs.

4.2 Correlational Matrix

Table 2

Correlation Probability	FC	IDF	RI	SCB	SMEs Growth
FC	1000				
IDF	0.297	1000			
RI	0.133	0.133	1000		

SCB	**-0.080**	**0.120**	**0.302**	**1000**	
SMEs Growth	**0.007**	**0.297**	**0.133**	**-0.080**	**1000**

Source: Author's Computation, (2024)

Table 2 shows the correlation matrix on the relationship between the independent and dependent variables. Financial Constraints (FC) and SMEs Growth: The correlation coefficient of 1.00 suggests a perfect positive relationship, meaning that financial constraints fully predict SMEs growth in this model. IDF (Infrastructure Deficiency) and SMEs Growth: A correlation of 0.297 suggests a moderate positive relationship. SCB (Socio-cultural Barriers) and SMEs Growth: The negative correlation (-0.080) suggests a weak negative relationship between these variables. Studies show that access to infrastructure is critical for SME growth. Adeola and Evans (2017) found that improved infrastructure positively influences SMEs' performance in sub-Saharan Africa.

Table 3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.449[a]	0.843	.833	.809	1.77

a. Predictors: (Constant), FI, IDF, DI, SCB

Source: Authors' Computation, (2024)

Table 3 shows the results of R-squared 0.843 indicates that 84.3% of the variance in SMEs Growth is explained by the model. This is a high value, suggesting that the model is well-fitted to the data. Also, the Durbin-Waston value of 1.77 falls within the generally acceptable range (1.5 to 2.5), indicating that autocorrelation is not likely a severe issue. This means the assumption of uncorrelated residuals is mostly met, allowing the use of standard inference methods in OLS regression.

Table 4 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	107.65	5	22.98	22.98	.000[b]
	Residual	476.88	345	1.35		
	Total	584.53	350			

a. Dependent Variable: Sales Growth

b. Predictors: (Constant), FI, IDF, DI, SCB

Source: Authors' Computation, (2024)

Table 4 shows the ANOVA results where the F-Statistic value of 22.98 is statistically significant at 5% level of significance, this implies that the regression model is highly significant. The residual sum of squares (476.88) reflects the unexplained variation in the model. The ANOVA results indicate that the model significantly predicts SME growth. Studies by Fowowe (2017) confirm that well-constructed models incorporating finance and infrastructure issues can explain a large portion of the variance in SME performance in African countries.

4.3 Multiple Regression Coefficient

Table 5 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	-1.707	5.5e-16	-3.101	0.002
	FC	-1.000	8.57e-17	1.170	0.000
	IDF	-1.504	8.54e-17	1.758	0.002
	RI	-2.429	9.05e-17	0.268	0.001
	SCB	-4.597	8.87e-17	0.518	0.005

a. Dependent Variable: Sale growth

Source: Authors' Computation, (2024)

4.4 Interpretation of Empirical Results

Table 5 shows the relationship between entrepreneurship constraints financial constraints (FC), infrastructural deficiencies (IDF), regulatory inconsistencies (RI), and socio-cultural barriers (SCB) and sales growth as a measure of SME growth. With a coefficient of -1.000 (p = 0.000), financial constraint (FC) has a strong, statistically significant negative impact on sales growth. This implies that limited financial resources restrict SMEs' ability to expand, reducing their output and overall performance, supporting Fatoki's (2014) findings on finance as a barrier to SME growth in South Africa. Also, infrastructural deficiencies (IDF), has a coefficient of -1.504 (p = 0.002), indicating a significant negative effect on SME growth. SMEs rely on infrastructure for efficiency, and deficiencies increase operational costs and reduce productivity. Poor infrastructure also restricts market access, aligning with Adeola & Evans's (2017) findings that infrastructure access is critical for SME growth in sub-Saharan Africa. On the other hand, the coefficient for regulatory inconsistencies (RI) is -2.429 (p = 0.001), showing a significant and more pronounced negative impact on SME growth. Regulatory instability creates uncertainty, disrupts long-term planning, and increases operational costs, making it challenging for SMEs to adapt. This aligns with findings that stable regulations are vital for business growth. Lastly, socio-cultural barriers (SCB), has the largest negative impact, with a coefficient of -4.597 (p = 0.005). Cultural barriers limit SMEs' market reach, affecting customer alignment and communication. In culturally diverse regions, language and traditional values can hinder SME growth by limiting customer acquisition and market competitiveness.

4.5 Discussion of Results

On the role of financial constraints on SME growth, research consistently identifies financial constraints as one of the major barriers mitigating SME growth in Nigeria. In Nigeria, financing limitations prevent SMEs from reaching their potential this result is in consonance with the study of (Gbandi & Amissah, 2014), and (Fowowe, 2017), which found that access to finance significantly impact productivity. Infrastructural deficiencies also hinder SME profitability and performance, with adequate infrastructure essential for growth, this result also support the study of (Adeola & Evans, 2017). These deficiencies increase operational costs, reduce productivity, and slow production, leading to reduced growth. Regulatory inconsistencies present another challenge, as policy instability raises compliance costs and affects competitiveness, underscoring the need for stable policies to support long-term planning. Additionally, socio-cultural barriers in diverse cultural settings such as Nigeria can restrict market reach if business offerings do not align with local traditions. Addressing these challenges requires understanding local preferences and adapting products accordingly. The study found that financial, infrastructural, regulatory, and socio-cultural barriers significantly limit SME growth in Abuja, Nigeria, highlighting the need for supportive policies, improved infrastructure, and financial inclusion.

5. Conclusion

The study concluded that SMEs in Abuja face multifaceted constraints that severely hinder their growth potential. Financial constraints were identified as the most significant barrier, reflecting the critical need for better access to finance. Infrastructural deficiencies also posed substantial challenges, particularly in areas such as epileptic power supply, inefficient transportation services, and water supply. Regulatory inconsistencies created an unpredictable business environment, further compounding the difficulties SMEs encounter. Lastly, socio-cultural barriers, driven by Nigeria's diverse cultural and religious landscape, limit market access and customer acceptance for SMEs.

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PERCEIVED VALUE AND CUSTOMER SATISFACTION IN THE NIGERIAN AIRLINE BUSINESSES

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Abstract

Due to the nature of consumers as being price conscious and their attitude in evaluating if the services rendered by service providers can meet their needs and aspirations, airline service providers need to understand the perceived value of their esteemed customers to ensure that the services rendered are satisfying and can ultimately lead to loyalty. This study investigated the influence of customer perceived value proxy with customer experience and service quality in building satisfaction in the Nigerian Airline business. The study employed a quantitative research design through a survey to collect primary data from domestic customers of the chosen airlines. The sample size of 246 was determined using Godden's (2024) model, considering the nature of the population, and multistage sampling techniques were also used. 150 copies of questionnaires were finally gathered for data analysis as Standard multiple regression was employed to analyze the data. The findings indicated that customer experience showed a significant relationship with customer satisfaction and loyalty ($\beta = .253$, $t = 3.502$, $p < .001$), and service quality also exhibited a positive and significant association with customer satisfaction and loyalty (β .192, $t = 2.529$, $p = .012$). The study concluded that customer value can appreciably influence a company's brand reputation as high customer value often enhances customer satisfaction and loyalty, which can develop in positive word-of-mouth and customer advocacy. The study recommended that airline service providers try to work on how positive customer experience can generate customer satisfaction and inevitably influence customer loyalty by using technology, customer journey mapping, and personalizing the customer offering to create breakthroughs in customer experience.

Keywords: Customer Experience, Customer Perceived Value, Customer Satisfaction, Customer Loyalty, Service Quality

Introduction

Airline business is one of the critical transportation business sectors in Nigeria as it represents a significant portion of the country's transportation revenue, although it contributes a smaller percentage to GDP compared to the road subsector, typically ranging from 6% to 7% annually (Daramola, 2019). According to Phillips Consulting (2015), the airline sector supports 255,500 jobs in Nigeria and contributes approximately US$941 million (N186.7 billion) to the Gross Domestic Product. This underscores the industry's economic impact, with a substantial portion of revenues derived directly from airports, airlines, and ground services and additional contributions from indirect sources like the supply chain. Including tourism-related earnings, the total contribution rises significantly, demonstrating the industry's potential to further boost Nigeria's economy through increased foreign currency earnings and maintenance capabilities.

Furthermore, according to the Nigeria Agenda 2050 report, the Nigerian airline sector has chronicled milestone achievements in the five years to 2020 with particular allusion to air safety excellence of service delivery and optimistic influence on economic growth. The sector contributed a noteworthy marginal growth to GDP from 0.06% in 2010 to 0.121% in 2019, and its role as a percentage of total transport increased from 4.7% to 7.88% over the same period. The sector also attracted over 17.5 million passengers in 2019, an increase of 7.4% from 2018. The passenger handling capacity of the twenty-one (21) airports is estimated to increase to more than 45 million passengers in the medium term. The cargo handling capacity, currently at 208,424 tons, is projected to increase to more than 276,848 tons upon completing the cargo terminals under construction (World Bank Annual Report, 2020).

As customer expectations evolve, the airline sector within the broader aviation industry becomes more enticing and fiercely competitive. Hence, airline service providers continually seek innovative approaches to meet customer needs that enhance customer attraction,

satisfaction, and loyalty by thoroughly understanding the perceived customer value in the service rendered. Due to the escalating competition and the complexity of the Nigerian business environment, the airline service providers need to understand that customer evaluates their purchase intention to ascertain if they were able to meet their wants or needs and compare the price they paid for the services as this would determine whether the service is satisfying and can lead to loyalty.

The concept of perceived value has been considered a crucial requirement for business sustainability, especially in this turbulent business environment characterized by severe competition, change in consumer taste, and economic quagmire. According to research, value is an abstract concept that the buyer perceives; hence, the buyer determines the value of a service or product (Vargo & Lusch, 2004). There are several ways to look at customer value; according to Lee (2010), one way is to compare consumers' benefits to the overall expenses. According to Jobber and Ellis-Chadwick (2024), customer value is influenced by how consumers view the product's advantages and the sacrifices associated with buying it. It claimed that using customer-perceived value ensures more happy consumers and has a more substantial and unwavering impact on customer loyalty and repurchase intention (Lin et al., 2005).

To retain customers from defecting to another business, part of the considerations that need to be enhanced by an organisation is customer perceived value. One of the variables that helps create client loyalty is how customers perceive the value (Hafidz & Huriyahnuryi, 2023). Consumer value is perceived from how the consumer is happy with the product and service and how the customer's fulfillment is likely to be turned into loyalty. To ensure a competitive edge over the long term, marketers focus on how their consumers perceive the value they get from a product or service (Tankovic & Benazic, 2018).

Customer satisfaction has become a fundamental consideration for businesses and organisations in their attempts to perk up product and service quality and sustain customer loyalty in an exceedingly competitive marketplace (Tung, 2013). Customer satisfaction is significant for customer-oriented businesses as it is useful in identifying prospective market opportunities (Jawaad et al., 2019). Customer satisfaction has been overtly considered as an assessment of the success of an organisation, irrespective of the success or failure of the organisation (Felix, 2017). Customer satisfaction is acknowledged as an essential

consideration in the accomplishment of any business organisation. Contemporary enterprises must be customer-oriented, and customer satisfaction should be paramount to a business organisation's excellence (Sendawula et al., 2018). In essence, satisfying the desire of an organisation to esteem customers is the justification for the existence of a customer-oriented business organisation. Satisfied customers benefit the company because they do not easily defect to rivals (Harzaviona & Syah, 2020).

Literature Review

Customer Perceived Value

The concept of value has been the subject of research for many years and was originally developed in economic terms influenced by Adam Smith, David Ricardo, and Karl Marx. The conceptualization of perceived customer value has been difficult due to scholars' lack of general agreement. The divergent of thought can be observed from two main standpoints of perceived value: the unidimensional and multi-dimensional (Sanchez-Fernandez & Iniesta-Bonillo, 2007). However, most researchers contend that perceived value should be considered a multi-dimensional construct, adding that the carpers among the researchers have affirmed that multi-dimensional constructs are theoretically vague, the measurements discussed are less inconsistent, and the associations between the measurements and other constructs in some way are startled.

According to Kotler and Keller (2021), value is the sum of a product's quality, service, and price as perceived by the target market. According to Ulfah and Jatmiko (2020), a product or service is considered valuable if it has a stronger emotional connection to its buyers than competing options. A product or service's perceived value is the consumer's assessment of its utility in proportion to the overall impression it gives off. This reveals the nature of the link between perceived usefulness and risks. According to this view, the price of a product or service is directly proportional to the level of danger or risk it poses.

In contrast, the product's usefulness, satisfaction, and advantages are all linked to the extent to which it is useful in practice (Gan & Wang, 2017). Designing customer-perceived value is crucial for all marketing efforts (Wu, 2014). Hermantoro and Albari (2022) found that businesses and customers are strongly influenced by customer-perceived value, which is influenced by price, convenience, and quality. According to the academics above, perceived

customer value is crucial to a company's bottom line in the long run. This is because satisfied customers are more likely to endorse the company's goods and services to others and are more likely to buy from them again.

However, this lack of unanimity does not mean that perceived value is not conceptualized in the actual sense; Suratno et al. (2016) conceived customer perceived value as the customer's understanding of the value in which the company must reflect on the value in producing goods and services so that it is in sync with the customer expectation. Service quality and value for customers may generate trust in consumers; this indicates that building trust, particularly confidence, should be a basic component of marketing strategies designed to establish a real customer connection.

As a result, the customer considers worth to be the anticipated advantages minus the anticipated costs. In this framework, the perceived advantages are the feelings of contentment customers report after purchasing. The common understanding of customer perceived value is the sum of a customer's evaluations of the product or service's perceived quality and affordability relative to the price (Zeithaml, 2000).

According to Zeithaml (2000), all costs that are important to customers, whether monetary or non-monetary (such as time and effort) should be included in perceived costs. Perceived quality and other intrinsic and extrinsic characteristics should be included in perceived value. According to Muturi et al. (2014), clients evaluate important factors, including perceived pricing and perceived service quality, when choosing a service provider. Rather than the degree of satisfaction offered by service providers, what drives consumers to make repeat purchases is the perceived value they obtain from the product or service, claims Liu (2006). According to Yang and Peterson (2004), increasing consumer pleasure and providing valuable, high-quality goods or services may boost loyalty. Brand and customer loyalty are strongly influenced by factors such as service quality and consumer perceived value, according to Khajeheian and Ebrahimi (2021). Perceived value and service quality are precursors to customer satisfaction, leading to loyalty (Tams, 2010). According to Wang et al. (2004), service providers can enhance their profitability by offering value-added services to their customers. This strategy helps with customer acquisition, retention, and improvement of loyalty.

Service Quality

Mosahab et al. (2010) found that quality has several facets. Therefore, it is not worthwhile to think about improving the service quality by making it longer without distinguishing between the main parts of quality. Output technical quality, service performance quality, and the organisation's mental image are the three aspects of service quality mentioned by Gronroos (2000). Furthermore, Harrison (2000) has hinted at three aspects of service quality: physical quality, interaction equality, and organisational quality. According to Liu et al. (2020), service quality is best understood as the extent to which actual or perceived service meets or exceeds customer expectations. Like Liu et al. (2020), Khajeheian and Ebrahimi (2021) argue that a company's service quality is determined by how well it satisfies consumers' expectations.

Quality has always piqued the interest of academics and business leaders, but mainly in the early stages of the industrial industry. It has been acknowledged in the literature since the 1980s that quality significantly influences several aspects of company performance, particularly in the retail sector (Nguyen et al., 2018). This is particularly true in the service industry. Leaving the consumer out of the definition of quality is crucial when working with service contexts, even though quality encompasses everything a consumer perceives as a product's or service's capacity to fulfill or surpass their expectations (Saneva & Chortoseva, 2021).

The term "service quality" is defined differently by different academics and in different contexts. It has been observed that in order to create and maintain connections with clients, service quality is both a necessary condition and a competitive differentiator. Using technology to improve service quality and collect consumer demand is how organisations may get a competitive edge, according to Parasuraman et al. (1994). They went on to say that when customers compare the services they got to what they anticipated, that's when service quality is determined. According to Zeithaml and Berry et al. (2018), comparing actual results to customer expectations is one way to gauge service quality.

Customer Experience

Designing essential customer experience, converting it into a customer experience journey, and embedding outstanding service quality strategy is one of the greatest considerations in today's business environment (Lemon & Verhoef, 2016; AbdulKhader & Madhavi, 2017). Enhancing customer experience can be the solution for many businesses to attract attention among their rivals as they contend in competitive environments with rising customer expectations.

Interactions and relationship development between a company and a client over time constitute what is known as the customer experience. Attraction, awareness, discovery, nurturing, advocacy, and purchasing and using products and services are all parts of this connection with the client. It is evaluated by comparing the individual's expectations and experience across all touchpoints.

According to Peppers and Rogers (2005), the most crucial factor for organisations of all sizes to succeed is the customer experience. According to their definition, customer experience management (CEM or CXM) is how a company tailors its services to each client's unique requirements. The value of the customer experience should be a central priority for customer-centric company philosophies. A consumer's exposure, engagement, and transaction with a firm, brand, or service across all channels is managed holistically via customer experience management (CEM) (Peppers & Rogers 2005).

Customer Experience Management aims to understand a company's clientele in-depth. This information allows businesses to create and provide consumers with tailored experiences, increasing customer loyalty and word-of-mouth advertising. Sensory, emotional, cognitive, bodily, and social-identity experiences are identified by Lemon and Verhoef (2016), who use a multi-dimensional perspective. From the standpoint of service marketing, Verhoef (2016) explicitly defined customer experience as a multi-dimensional construct. He said this holistic construct encompasses the customer's mental, emotional, social, and physical reactions to service providers.

Customer Satisfaction

The term "customer satisfaction" is often used in business and marketing. Organisations nowadays must contend with fierce competition from other businesses. Marketing academics often claim that companies may outperform their rivals if they can go from a goods/service and sales perspective to the customer's interest as the service providers' primary priority. The secret is to satisfy and fulfill client demands in a way that is both better and advantageous. Diverse authorities and intellectuals have reached a consensus in their conceptual explanation of consumer satisfaction.

According to Singh et al. (2023), customer satisfaction is the insight of the customer's prospect being met due to the goods or services received. It examines the magnitude of satisfaction or pleasure a customer goes through after relating to a business. Fulfilled customers feel that their needs and wishes have been met or exceeded, and they recognize value in the products or services purchased. Juni et al. (2023) posit fulfilled customers will have a high magnitude and velocity of loyalty to the products and services provided compared to discontented customers. A happy consumer is more likely to become a devoted customer, repurchase goods, favourably participate in recommending items to other customers, and be less price sensitive. Customers are more persuaded to switch with a brand or product if they are happy with it and are also more likely to tell others about it or repurchase it rather than try other brands.

Permana et al. (2020) assert that the main solution to please the hearts of customers is to provide the most favourable impact and satisfaction to customers so that the effect will build loyalty, emphasising that these expectations are crucial and extend beyond mere enjoyment. According to Kotler (2016), customer satisfaction is assessed based on how well a product's perceived performance aligns with a customer's expectations. They further explain that customers will be dissatisfied if the product performance drops short of expectations, whereas meeting or surpassing expectations leads to satisfaction. Jobber and Ellis-Chadwick (2024) corroborate this by noting that customers experience satisfaction when the perceived performance meets or exceeds their expectations.

Businesses are cautioned not to overstate advertising claims to create unrealistic customer expectations, as highlighted by Adebayo (2023), as this can result in dissatisfaction when performance fails to meet these expectations. Various factors, including discussions with others, post-purchase experiences, and marketing efforts from the supplier, shape expectations.

Methodology

This study employs a quantitative (survey) method to examine perceived customer value's influence on customer satisfaction within selected airline companies in Lagos state. The research focuses on the domestic clientele of selected airlines (Air Peace, Arik Air, Dana Air, and Azman Air) in Lagos state. Considering the nature of the unknown population, the study's

sample size, which arrived at 246, was determined using the Godden (2004) model. A survey method was employed, utilizing a self-administered questionnaire and a multistage sampling approach involving multiple sampling procedures at various phases to select sample participants. The analysis was finally carried out on 150 questionnaires retrieved using SPSS software.

Model for the Hypothesis

$CS = f(CPV)$ 3.1

$CPV = CE + SQ + e$.....3.2

Substituting (3.2) into (3.1)

$CS = f\{CE + SQ\}$ …….....3.3

$CS_i = \alpha + \beta_1 ed_i + \beta_2 rd_i + u_i$…… 3.4

Where:

CS= Customer Satisfaction

CPV= Customer Perceived Value

CE= Customer Experience

SQ= Service Quality

α=Constant term;

β_1, = coefficient value

U_i = Error term

Table 1: Validity

	Constructs	KMO	Bartlett's Test	Sig.
i.	Customer Experience	.735	77.221	.000
ii.	Service Quality	.757	60.026	.000

iii.	Customers Satisfaction	.656	58.441	.000

Source: Author's Computation, 2024

Table 2: Reliability Test

Variables	Cronbach's Alpha Coefficients
i. Customer Experience	.853
ii. Service Quality	.818
iii. Customer Perceived value	.711

Source: Author's Computation, 2024

Table 3: Mean and SD of the Constructs

Constructs	N	Min.	Max.	Mean	SD.
Customer Satisfaction	150	1.41	5.00	3.8793	.92295
Customer Experience	150	1.04	5.00	3.8553	.96582
Service Quality	150	1.41	5.00	4.0681	1.01647

Source: Author's Computation, 2024

Table 4: Multi-collinearity Test

		Collinearity Sta.	
Constructs	**Items**	**Tolerance**	**VIF**
Customer Experience	5	.189	1.052

Service Quality	5	.178	1.052

Source: Author's Computation, 2024

Table 5: Normality Test

Constructs	N	Skewness	Kurtosis
Customer Experience	150	-1.123	0.265
Service Quality	150	-1.383	1.181
Customer Satisfaction	150	-1.631	1.379

Source: Author's Computation, 2024

Test of Hypothesis

In order to determine the relationship between perceived customer value (customer experience and service quality) and customer satisfaction of selected airline firms in Lagos State, multiple regression analysis was used.

Table 6: Model Summary[b]

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
1	.726[a]	.582	.472	.84048	1.520

a. Predictors: (Constant), customer experience, service quality

b. DV: Customer Satisfaction

Sources: Researcher's survey, 2024

The model summary in Table 6 indicates an R^2 of 0.582, signifying that 58.2% of the variation in the DV (Customer Satisfaction) is elucidated by perceived customer value (customer

experience and service quality). The remaining 41.8% is attributable to other variables not incorporated in the model. This indicates that the stated regression model is effective for generating predictions.

Table 7: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.075	2	12.537	16.331	.000[b]
	Residual	243.848	147	.706		
	Total	226.023	149			

a. DV: Customer Satisfaction

b. Predictors: (Constant), customer experience, service quality

Sources: Researcher's survey, 2024

Table 7 above summarises the analysis findings of variance in customer satisfaction, indicating a substantial regression sum of squares (23.075) relative to the residual sum of squares (243.848). The results demonstrated that the model effectively accounted for a significant portion of the variability in operational customer satisfaction. The calculated F-value (16.331) shows a significance value of 0.000, less than 0.05. The whole perceived customer value may collectively impact customer satisfaction and loyalty.

Table 8: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.139	.315		6.781	.000

	customer experience	.253	.072	.291	3.502	.001
	service quality	.192	.076	.210	2.529	.012

a. Dependent Variable: Customer satisfaction

Sources: Researcher's survey, 2024

The dependent variable in Table 8 clarifies the influence of perceived customer value (customer experience and service quality) on customer satisfaction. This served as a benchmark to assess the relationship between the two independent variables. Hypothesis Hb posited that customer experience is positively correlated with customer satisfaction. The results suggested that shop layout had a significant positive link with customer satisfaction ($\beta = 0.192$, $t = 2.529$, $p = .012$). The findings indicated that customer experience would ultimately be the key factor in customer satisfaction. Consequently, Hypothesis Hb is corroborated.

The hypothesis Ha posits that service quality is positively correlated with customer pleasure. The results demonstrated a positive and substantial correlation between service quality and customer satisfaction ($\beta = 0.253$, $t = 3.502$, $p = .001$). Consequently, the hypothesis Ha is affirmed at a 5% significance level. The regression study indicates that the coefficient of service quality significantly affects customer satisfaction in selected airline enterprises in Lagos State. This indicates that the null hypothesis was rejected; hence, the alternative hypothesis was accepted. Consequently, service quality significantly impacts customer satisfaction in chosen airline companies in Lagos State. The analysis results corroborated the empirical findings of Javed and Cheema (2017) and Habibi and Zakipour (2023), revealing positive correlations between customer perceived value and customer satisfaction, with customer perceived value identified as a crucial factor in fostering customer loyalty.

Conclusion

The study has discovered that customer perceived value is probably one of the essential factors in building customer satisfaction in the airline business through the creation of positive customer experience and quality service by devising modern technology, effective mapping of

the customer journey, and personalization of customer offering to ensure that the customers enjoy the value of their money in airline services. At the same time, the service providers will also use the opportunity to build relationships and satisfy the customers profitably.

Recommendations

The study recommends that airline businesses should endeavour to place much emphasis on ways of improving customer satisfaction and loyalty with a proper understanding of the value customers perceive in aviation products and services before patronage. Thorough understanding of the customers' perceived value by using technology, customer journey mapping, and personalizing the customer offering to create a breakthrough in customer experiences by the service providers. The relationship would be established with the customer as this would lead to customer satisfaction that would lead to continuous customer patronage and reduce customer defection to other rival firms.

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ENTREPRENEURSHIP DEVELOPMENT AND EMPLOYMENT GENERATION AMONG SMES IN ILESHA WEST LOCAL GOVERNMENT AREA, OSUN STATE

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Abstract

Entrepreneurial development plays an important role in a country's economy. The high unemployment rate in developing countries of the world necessitates the development of entrepreneurship. This study examines entrepreneurial development and employment generation in selected small businesses in Ilesha West, Local Government Area, Osun State, Nigeria. This study used a research design. The target population was 297 SMEs located in Ilesha West LGA and purposive sampling technique was used. Copies of questionnaire were used to collect information from the respondents. The data collected were analyzed using descriptive and inferential statistics. The study revealed that entrepreneurship development positively and significantly has relationship with employment generation. Also, the study revealed that access to finance and skill acquisition have a significant positive relationship with employment generation among SMEs in Ilesha West LGA.

Key words: Development, Entrepreneurship, Employment generation, Finance and Skill acquisition

Introduction

Employment generation is essential for economic stability and well-being of society, which acts as a foundation for sustainable development in any economy. Creating jobs is one of the most important factors for driving economic growth and ensuring socio-economic stability (Gokhool, 2023). In a rapidly changing world marked by significant demographic shifts and labor market changes, the challenge of providing sufficient employment opportunities is a top priority for both policymakers and businesses (Sumberg, 2021). Among the various

contributors, entrepreneurship stands out as a key driver of job creation. This process of starting, developing, and managing a business venture opens up vast opportunities for generating employment by establishing new industries, markets, and innovations. Indeed, the link between entrepreneurship development and job creation has become a focal point for research in both academic and policy circles, as economies strive for sustainable methods to reduce unemployment and promote inclusive growth (Eni et al. 2023).

Entrepreneurship development refers to organized efforts aimed at improving and fostering a supportive environment for businesses (Mathew & Victor, 2018; Lukeš, Longo & Zouhar, 2019). In practical terms, this involves creating and promoting policies that support entrepreneurship, ensuring access to financial and technical resources, and cultivating a culture where innovation and risk-taking are embraced. The link between entrepreneurship and job creation is particularly significant in developing economies, where traditional employment sectors like agriculture or public service may struggle to accommodate a rapidly growing workforce. The ILO estimates that over 40 million new jobs are needed each year to keep up with global population growth. Therefore, promoting entrepreneurship is often viewed as a key solution to the employment challenges faced today.

The development of entrepreneurship is widely recognized as a crucial means of creating employment and fostering innovation, which in turn supports sustainable economic growth.

Small and medium-sized enterprises (SMEs) play a significant role in providing employment across the globe, particularly in developing nations (Ogunjimi, 2021). The World Bank (2020) reports that SMEs account for approximately 90% of all businesses worldwide and contribute over 50% of job opportunities, making them essential drivers of economic activity and employment.

According to Ekechi et.al (2024) access to finance is a serious driver of employment generation as it directly influences the capacity of entrepreneurs, SMEs, and also, creates and sustain employments. Which, also promote business expansions.

Also, skill acquisitions is a dynamic element in employment generation as it furnishes entrepreneurs with the capabilities and skill needed to access, create, and sustain jobs. It also enhance employability and promote entrepreneurship (Usman et.al, 2024).

Therefore, entrepreneurship is an important determinant for the economic development and innovation of a country; however, some of the critical factors, if not addressed, could hinder this potential. Access to finance is among the hardest challenges for any startup or small and

medium enterprise Also, lack of entrepreneurship skill development on the part of the entrepreneur limits the growth of such enterprises and imposes a competitive limitation. Regardless of the various government's intervention entrepreneurial programmes initiated in Nigeria, unemployment continues to be a significant barrier to the development process of the Nigerian economy. According to Adenike, (2021), Olubusoye et al. (2023). Peculiarly, high unemployment leads to the most egregious types of social ills in the emergent economies, particularly Nigeria; such as armed robbery, cybercrime, people's kidnapping, terrorism, prostitution, violence in politics and so on, and they are extremely criminal and horrible.

But it would seem the appropriate way to curb or to eliminate such a problem in this country is the one of entrepreneurship development. Although, the process looks full of issues, that shows in the field of limited access to finance and limited access to skill acquired by entrepreneurs. The aim of the study is, therefore, to examine entrepreneurship development and employment generation.

Objective of the study

The main objective of the study is to determine the effect of Entrepreneurship development and Employment generation among SMEs in Ilesha, Osun State and the specific objectives are: Investigate the relationship between access to finance and employment generation among SMEs in Ilesha, Osun State.

Examine the impact of skill acquisition on employment generation among SMEs in Ilesha, Osun State

Research Hypotheses

There is no significant relationship between access to finance and employment generation among SMEs in Ilesha, Osun State

There is no significant relationship between skill acquisitions and employment generation among SMEs in Ilesha, Osun State

Related Literature

Concept of Entrepreneurship Development

Adelekan and Tijani (2017) noticed that the development of entrepreneurship is the quality of being able to foresee and plan the route for the creation of a new company. Entrepreneurship development has been said to take on a milestone role in contemporary economies, since it is largely responsible for economic recovery, the advent of new businesses, and the creation of additional job positions. Entrepreneurship is subject to a number of factors, including the

culture and economy of the country or region where it is being practiced. Inspired by the soaring unemployment rates encountered by most countries of the world, there has been an urgent necessity to put a greater emphasis on entrepreneurial development in developing countries where unemployment is a lingering problem. The UNDP considers the development of entrepreneurship as a process of enlarging the development is concerned about the person who is going to start or extend a business. Apart from that, entrepreneurship development is more oriented to skills in some cases creativity. Ezenwakweluet et.al (2019) hyperlinks to the fact that personal development is the leadership skill that inspires entrepreneurial skills through training the entrepreneurs and capacity building of institutions.

Concept of Employment Generation

In essence, employment generation is the process of creating work and employment possibilities in an economy in order to help people use their time more productively and to lower unemployment and underemployment. This is one of the most important components of the development process and is frequently linked to higher living standards and lower rates of poverty, especially in the world's developing countries. It covers a range of job-creation tactics, such as promoting entrepreneurship, investing in industries, forming public-private partnerships, and implementing policies pertaining to labor-intensive industries including manufacturing, services, and agriculture.

In order to create respectable and long-lasting jobs, the employment generation concept also aims to focus on job quality (Abisuga-Oyekunle 2020). The International Labour Organization defines decent work as productive labor that is fairly compensated and earns a respectable wage—enough to cover social protection and security. Addressing the issue of decent work frequently leads to a situation in which governments and policymakers prioritize job creation in national development plans in an effort to promote inclusivity and lessen income disparities. Additionally, the majority of effective job creation programs focus on industries with strong growth potential, like infrastructure development, renewable energy, and technology (World Bank, 2020)

Theoretical Review

According to Simpeh (2011), the theory of human capital development is focused on education, creativity and experience which invariably leads to entrepreneurial development and employment sustainability (as cited in Gary Becker, 1975). The theory postulates that human

capital theory engages the ability to recognize and exploit opportunities to be used to the advantage of an entrepreneur.

Human Capital

Human capital theory was developed through the work of Gary Baker and Theodore Schultz in the early 1960s. Theodore Schultz introduced the concept in his 1960 article "Investing in Human Capital," stating that education and training are approaches to Investing in people that increases their productivity. He further empasised that education and training are ways to invest in people that increase their productivity. The theory assumes that people's knowledge, skills, and abilities are capital that can generate economic benefits, such as physical capital. Therefore, the theory is based on the assumption that the success of entrepreneurial ventures is determined by knowledge, skills and the experience of the entrepreneur that the entrepreneur has what is called human capital. Because this is the case the most successful people are able to grow their businesses more efficiently. Therefore, more jobs are created. Entrepreneurship require special resources like finances, human resources, and knowledge, these special resources facilitate business growth and job creation (Ngele 2020,).

Empirical Review

Eni et al. (2023) study delves into entrepreneurship development: implications on employment creation. The findings reveal a positive relationship between entrepreneurial development and job creation in Awka, highlighting the need to strengthen the growth of entrepreneurial activities in the country to provide employment to Unemployed.

Fauziyya (2022), submits that entrepreneurs have recruited one or more people which implies that entrepreneurship development has been able to decrease unemployment rate and also manifest that innovation, education and start-up capital have positive and significant impact of development on enterprises. Oluremi research delves into the development of entrepreneurship as the creation of the so needed jobs in Nigeria. The study highlighted that there is a strong positive relationship between entrepreneurship development and employment generation in Nigeria

Other study by Okeke et al. (2020) slowly shifted their focus to entrepreneurship development intending to enhance the employment level in the manufacturing industry. It was found that factors such as entrepreneurial risk-taking, creativity and employment generation had a positive effect. This study has thus supported the fact that in Nigeria, values of entrepreneurship are also positively towards job creation as well as economic development. Ngele's work, 2020,

entrepreneurship education and entrepreneurship financing were sought as determinants of youth employment in Nigeria. It has been established that, youth in Nigeria have greatly embraced financial independence due to the various skills infused in them such as formal business, farming as a business, retail, and many more. The finding supports the essence of targeted educational programmes in developing entrepreneurial activities that will reduce unemployment

Cho and Lee (2020) employed important data from Gangwon, South Korea, to study how entrepreneurial development affects the jobs creation. Their findings showed that a rise in entrepreneurship has led to a decline in unemployment. Additionally, they contend that start-up funding, education, and innovation all positively and significantly impact the growth of businesses.

Yoshikoet al. (2022) also explore the creation of jobs and the growth of entrepreneurship. The results indicated that entrepreneurship activities in Japan had increased employment in the region and demonstrated the critical role that entrepreneurial development plays in job creation.

Nwangwu and Ojukwu (2023) investigated the role of entrepreneurship in increasing employment generation in a developing society. The study's findings indicated that entrepreneurship increased employment creation in the study area and that government policies significantly impacted employment in the study area.

Methodology

This study used descriptive survey design, the population of the study comprises of 297 SMEs in Ilesa West Local Government Area, in Osun State. The study used Taro Yamane to determine the sample size, which was 138 SMEs. The retrieved data were analysed using statistical Package for Social Sciences (SPSS).

Test for Hypothesis 1

H_{01} there is no significant relationship between access to finance and employment generation among entrepreneurs in Ilesha West Local Government, Osun State

Table 1 Model Summary

Model	R	R Square	Adjusted R square	Std. Error of the Estimate

	.683[a]	.466	.465	1.166

a. Predicators: (Constant) Finance

the model summary as indicated in table1 shows that R Square is 0.465; this implies that 46.5%of variation in the dependent variable Employment generation of small business in Ilesa West Local Government, Osun State were explained by the independent variables (Access to finance) while the remaining 53.5% is due to other variables that are not included in the model. This mean that the regression (model formulated) is useful for making predictions since the value of R2 is close to

Table 2 ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	410.890	1	410.890	302.148	.000[b]
Residual	470.524	124	1.360		
Total	881.414	125			

a. Dependent Variable: Employment generation of SMEs in Ilesa West Local Government, Osun State

b. Predicators: Access to Finance

The table above summarized the results of an analysis of variation in the dependent variable with large value of regression sum of squares (410.890) in comparison to the residual sum of squares with value of 470.524 (this value indicated that the model does not fail to explain a lot of the variation in the dependent variables. However, the estimated F-value (302.148) as given in the table above with significance value of 0.000, which is less than p-value of 0.05 ($p<0.05$) which means that the explanatory variable elements as a whole can jointly influence change in the dependent variable (Employment generation of SMEs in Ilesa West Local Government, Osun State).

Table: 3 Co efficient

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.660	.153		4.314	.000
	Skill acquisition	.750	.043	.683	17.382	.000

Dependent Variable: Employment generation of SMEs in Ilesa West Local Government, Osun State

Interpretation

The dependent variable as shown in the table 3 was Employment generation of SME in Ilesa West Local Government, Osun State. This was used as a determinant to examine the effects Skill acquisition has on employment generation of small business in Ilesa West Local Government, Osun State. The predictors is access to finance, as depicted in table 4.4.2.3, it is obvious that there is a direct affiliation between access to finance and employment generation of SMEs in Ilesa West Local Government, Osun State. According to the result in the table above access to finance t-test coefficient is 17.382 since the P-value is 0.000 which is less than 0.05 (i.e. <0.05). This means that these variables are statistically significance at 5% significant level. The overall summary of this regression outcome in relationship to the coefficient of access to finance is that implementation of access to finance increase employment generated by SMEs in Ilesa West Local Government, Osun State.

Decision Rule: As a result of the outcome, the Null Hypothesis (HO) is rejected on the basis that the p-value is less 0.05. Hence the alternative hypothesis is accepted, that is there is relationship between access to finance and employment generation of small business in Ilesa West Local Government, Osun State. Looking at the study from a holistic approach to these

concepts, some connections and relationships exist between access to finance and employment generation of SMEs in Ilesa West Local Government, Osun State.

Hypothesis Two

Test for Hypothesis 2

$H_{02:}$ there is no significant relationship between skill acquisitions and employment generation among SMEs in Ilesa West, Osun State

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.967[a]	.934	.934	.22555

1 Predictors: (Constant), Skill acquisition

The model summary as indicated in table 4 above shows that R Square is 0.93; this implies that 93% of variation in the dependent variable (employment generation of SMEs in Ilesa West Local Government, Osun State) were explained by the independent variable (skill acquisition) while the remaining 7% is due to other variables that are not included in the model. This mean that the regression (model formulated) is useful for making predictions since the value of R2 is close to 1

Table 5 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	65.073	1	65.073	1279.091	.000[b]
	Residual	4.579	124	.051		
	Total	69.652	125			

a. Dependent Variable: Employment generation

Predictors: (Constant), Skill acquisition

The table 5 above summarized the results of an analysis of variation in the dependent variable with large value of regression sum of squares (65.073) in comparison to the residual sum of squares with value of 4.579 (this value indicated that the model does not fail to explain a lot of the variation in the dependent variables. However, the estimated F-value (1279.091) as given in the table above with significance value of 0.000, which is less than p-value of 0.05 ($p<0.05$) which means that the explanatory variable elements as a whole can jointly influence change in the dependent variable (Employment generation of SMEs in Ilesa West Local Government, Osun State).

Table 6 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.789	.099		7.990	.000
	Access to Finance	.830	.023	.967	35.764	.000

a. Dependent Variable: Employment generation of SMEs in Ilesa West Local Government, Osun State

The result in the table above skill acquisition t-test coefficient is 35.764 and the P-value is 0.000 which is less than 0.05 (i.e. $P<0.05$). This means that these variables are statistically significant at 5% significant level.

Discussion of findings

This study investigates the impact of entrepreneurship development on employment generation among SMEs. The research study mainly captures the case of entrepreneurship development on employment generation. The results though revealed a positive correlation between variables used to measure the two constructs after testing the two hypotheses which implies

that entrepreneurship development is one of the key sectors when it comes to employment generated.

Conclusion

The study found out that entrepreneurship development is crucial in job creation, particularly in Ilesa West Local Government, Osun State. The research implies a straight and strong relation between entrepreneurship development and employment generation in the area. Nevertheless, entrepreneurship development has made some improvement in the areas of unemployment issues, it has not completely reduced the high rate of unemployment. This challenge persists primarily because many respondents reported being able to hire only a limited number of workers due to their low capital base. Therefore, there remains a significant need for enhanced support mechanisms to facilitate more substantial job creation through entrepreneurship.

Recommendations

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

Ease of Access to Finance: The Osun State government should roll out policies aimed at inclusion of an increased number of citizens in finance sector. Measure such as establishing loan programme with lower interest rate and improving repayment terms to enable entrepreneurs to grow their businesses and hire more employees.

Increase skills acquisition programmes: Local entrepreneurs need comprehensive training and skills programmes to suit their needs. These programmes should focus on business management skills. technical skills and innovations needed to help entrepreneurs manage and expand their businesses efficiently.

Policy support for Entrepreneurship Development Programmes: The Osun State Government should strengthen the existing Entrepreneurship Development Programmes to ensure that they are adequately resourced and aimed at promoting sustainable SMEs growth. This may include collaborating

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ECONOMICS

FINANCIALIZATION AND INDUSTRIALIZATION IN WEST AFRICA: MODERATING EFFECT OF ENVIRONMENTAL REGULATION

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Abstract

Environmental regulation has been a debate for scholars in looking at the effect of the environmental impact on the industrialization can be effectively manage to attain and maintain the modern economy in west Africa, it a crucial factor influencing financialization and industrialization in West Africa, presenting a complex interaction of opportunities and challenges that warrant rigorous examination within economic discourse. This study aims to articulate the multifaceted impacts of environmental regulation on industrial development, highlighting both its positive contributions and the inherent challenges it poses. The concerns regarding moderating environmental impact on industrialization in West Africa highlight several critical challenges, which are vital for innovation, job creation, and economic diversification. Environmental regulation further complicate the relationship between financialization and industrialization in West Africa. This research address all the problems and enhance the benefits of the moderating effect of environmental regulation between financailization and industrialization. The study employed the following methodologies; descriptive statistics, correlation analysis, Pearwise Correlational Test, Cross-Sectional Dependence Series Test, Panel Unit Root Test, Panel Cointegration Test, Panel ARDL, fixed and random effect, multicollinearity test, autocorrelation test, heteroscedasticity test, and non-normality of the residuals test. The result will show how environmental regulation influences the relationship between financialization and industrialization in West Africa

Keywords: Environmental Regulation, Financialization and Industrialization

1. Introduction

Over time, financialization has significantly influenced industrialization, both positively and negatively. Despite the challenges posed by financialization, it has also positively impacted industrialization in West Africa by providing access to capital, encouraging technological innovation, and facilitating infrastructure development. Environmental regulation also plays a moderating role in the relationship between financialization and industrialization. Robust environmental regulations, when effectively enforced and combined with financial resources, can mitigate the negative effects of rapid industrialization and promote sustainable development (Bhattacharya et al., 2012). Conversely, weak regulatory frameworks can lead to significant environmental degradation, which in turn amplify the negative impacts of financialization on industrialization. For example, a 2023 ECOWAS report highlighted that regions with high financial activity but weak environmental regulations experienced accelerated environmental degradation (ECOWAS, 2023). These findings underline the need for integrated policies that address both financial and environmental challenges in the pursuit of industrial growth.

Given the critical role that financialization plays in shaping industrialization outcomes, focused research is essential to inform policy decisions that will drive sustainable economic development in West Africa. The region's long-term economic prospects depend on finding a balance between leveraging financial resources and ensuring these resources are channeled into productive and environmentally sustainable. Understanding the complex interactions between financialization, industrialization and environmental regulation will be crucial in crafting policies that promote inclusive and sustainable growth. As West Africa continues to navigate the twin challenges of financialization and industrialization, research must guide the development of strategies that support the region's industrial transformation and overall economic resilience. The objective of the study is to examine if environmental regulation moderates the effect of financialization on industrialization in West African. The scope of this study examines the complex relationship between financialization and industrialization within the West African context spanning the period from 1990 to 2023 the studies. Over this extensive timeframe, the study aims to analyze the evolving dynamics of financial markets and

industrial sectors across various West African economies, taking into account the significant socio-economic changes and policy reforms that have shaped the region's economic landscape.

2. Literature Review

Concept of Environmental Regulation

The concept of environmental regulations refers to a set of rules, standards, and policies implemented by governments and international bodies to protect the environment from the adverse effects of industrial, commercial, and other human activities. These regulations are designed to control pollution, manage natural resources sustainably, and mitigate the impacts of environmental degradation on ecosystems and human health. Environmental regulations encompass various mechanisms such as emissions limits, waste management protocols, and environmental impact assessments (EIAs), all of which aim to ensure that economic development does not compromise environmental sustainability (UNEP, 2020). Effective environmental regulations are essential for harmonizing industrial growth with ecological conservation, and they are fundamental to promoting sustainable development. Recent studies highlight the importance of these regulations in mitigating environmental degradation while supporting long-term economic goals (Dasgupta & Wheeler, 2018; Wang et al., 2021).

The interaction between the environment, financialization, and industrialization in West Africa is crucial for understanding sustainable development in the region. Industrialization, while essential for economic growth and poverty alleviation, often leads to significant environmental degradation, including pollution, deforestation, and biodiversity loss (Sachs, 2015). Financialization, characterized by the increasing influence of financial markets in economic activities, further complicates this relationship by influencing how resources are allocated, often prioritizing short-term financial gains over long-term environmental sustainability (Storm, 2018). This dynamic poses a critical challenge for West African countries, where industrial activities frequently occur in fragile environmental contexts.

Neoclassical Growth Theories on Industrialization

Neoclassical growth theory has been a dominant framework in economic growth and development studies since the mid-20th century, integrating insights from classical economics and microeconomic theory to understand the factors driving long-term economic growth,

particularly through industrialization. This theory emphasizes capital accumulation, labor, and technological progress as key determinants of growth, often relying on assumptions of perfect markets, constant returns to scale, and exogenous technological change. While it provides a useful structure for analyzing how economies transition from agrarian to industrial structures, critics argue that its oversimplified assumptions neglect market imperfections and institutional factors that significantly influence economic dynamics (Kaldor, 2020; Acemoglu & Robinson, 2022

Empirical Review

Elfaki and Heriqbaldi (2023) investigated the Environmental Kuznets Curve (EKC) hypothesis in Indonesia, focusing on how industrialization moderates the relationship between economic growth and environmental quality from 1983 to 2018 using the Autoregressive Distributed Lag (ARDL) approach. The study analyzed indicators such as per capita GDP, industry value added as a percentage of GDP, domestic credit to the private sector, and per capita primary energy consumption. The findings indicate that industrialization positively impacts environmental regulation, suggesting that economic growth driven by industrialization can promote the adoption of green technologies and less energy-intensive production methods, challenging traditional EKC assumptions. However, the study's focus on a single country and specific timeframe limits its generalizability. To address this gap, the researcher will explore how financialization interact with industrialization to influence environmental regulation and sustainability. By expanding the analysis to include multiple countries and updating the timeframe to 2023, the research aims to provide a more comprehensive understanding of how economic development, financial practices, and technological advancements impact environmental policies and practices, thereby informing more effective sustainable economic strategies.

Usman and Balsalobre-Lorente's (2022) looked at the relationship between financial development, natural resources, renewable energy, and their effects on total reserves and ecological footprint in Newly Industrialized Countries (NICs), with a focus on China and Spain. Using a cross-sectional dependence test over the period from 1990 to 2019, the research examines industrial value-added, natural resources, financial development, total reserves, and renewable energy in relation to the ecological footprint. The study highlights the critical need

for cleaner energy sources and the promotion of alternatives such as wind, hydro, solar power, and bioenergy to ensure sustainability in NICs. While the study makes valuable contributions by emphasizing the importance of transitioning to renewable energy, it overlooks several areas, including the influence of institutional activities and cultural factors on the ecological footprint. The research does not address the Environmental Kuznets Curve (EKC) or Pollution Halo and Heaven (PHH) hypotheses, which could provide a more complete understanding of the environmental impacts of financial and industrial activities. Additionally, limitations such as data availability issues and the lack of demographic variables like gender classification and household data further constrain the study. The researcher will address these gaps by incorporating environmental regulation into the analysis, enhancing the exploration of how financialization affects industrialization and environmental outcomes, and extending the findings to include broader comparisons across different economic contexts.

Wang et al. (2018) investigated the decoupling of economic growth from carbon emissions in China and India from 1980 to 2014 using the Tapio index decoupling model and co-integration methods. The study analyzed indicators such as GDP, urbanization, industrial value added as a percentage of GDP, and carbon emission intensity. Their findings indicate that reducing carbon intensity is essential for effective decoupling, suggesting that both countries can achieve sustainable economic growth with lower environmental impact by promoting energy technology innovations and cleaner energy technologies. However, the study does not consider the roles of financialization or environmental regulations in this decoupling process. Addressing this gap could enhance understanding of how financial development influences industrial practices and how regulatory frameworks impact carbon emissions. By incorporating these elements, the research aims to provide a more comprehensive view of how financial and regulatory factors contribute to sustainable industrialization, improving policy formulation for sustainable growth in broader economic contexts.

Gaps in the Literature

West Africa is a diverse region with significant spatial variations in terms of economic development, infrastructure, and access to financial services. This study will address how environmental policies might affect the financialization and industrialization. By incorporating these dimensions, the study will fill a crucial gap, offering a more holistic view of how

financialization interacts with industrialization in the context of environmental and technological factors.

3. Methodology

3.1 Theoretical Framework

The theoretical foundation of growth of GDP per capita (i.e., economic growth) equation can be found in neoclassical growth model which is widely used in empirical studies.

Dornbusch et al. (2011), the derivation of growth accounting equation goes thus:

3.2 Model Specification

This section specifies all the models suggested by the objectives of the study and it is divided into sections, postulated determinants of industrialization, the model for which is specified in Equation

Model to Analyse the Effect of Financialization on the industrialization interacting it with environmental regulation

To achieve the Objective of the study, the neoclassical growth model in Equation 3.11 was re-specified. This is done by inserting the expression in Equation 3.10 in Equation 3.11 and transforming the result into an econometric model of industrialization by replacing total industrial output growth with industrialization and adding intercept $\boldsymbol{\beta_0}$, and interacting environmental regulation with financialization, time and country subscripts (t and i) and the stochastic error term (U).

$$\left(\frac{\Delta y_{ig}}{y_{ig}}\right)_{it} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}\mathbf{FIN_{it}} + \boldsymbol{\beta_2}\mathbf{ER_{it}} + \boldsymbol{\beta_3}\boldsymbol{FIN} * \boldsymbol{ER_{it}} + \boldsymbol{\beta_4}\boldsymbol{GDPG_{it}} + \boldsymbol{\beta_5}\mathbf{TO_{it}} + \boldsymbol{\beta_6}\mathbf{HC_{it}} + \boldsymbol{\beta_7}\mathbf{IQ_{it}} + \boldsymbol{U_{it}} \quad 3.12$$

FIN: financialization used some of the indicators of financialization and the reason for picking few of the indicators is for the study to be free from multicollinearity since there measurement are related in one way or the other

$\boldsymbol{\beta_0}, \boldsymbol{\beta_1}, \boldsymbol{\beta_2}, \boldsymbol{\beta_3}, \boldsymbol{\beta_4}, \boldsymbol{\beta_5}, \boldsymbol{\beta_6}$, and , $\boldsymbol{\beta_7}$ represent parameters for estimate.

$U_{it,}$= Stochastic error term.

3.3 Estimation Techniques

This part is divided into five, contains the panel descriptive statistics. Describes the pre-test analysis including: correlation analysis, trending analysis, cross-sectional dependence test, panel unit-root test and panel cointegration test. The panel estimators that will be used for estimation in this study, and the tests used in selecting the best estimator, explores the panel causality test and lastly, describes the diagnostics and post estimation tests.

3.4 Panel Unit Root Test

This test provides relevant guides to the estimation procedure. Random effect (RE) method was used for the estimation since the effect of the country variables does not rely on each other that is there was no long term relationship between the countries of observation. The unit test suggests that all variables are not stationary i.e. I(1) or a mixture of I(0) and I(1), it is inappropriate to estimate the equation with simple pooled OLS, FE and RE and it required a further panel cointegration testing.

3.4.1 Panel Cointegration Test

The presence of a non-stationary variable among the variables included in a model has a serious consequence for the results such model would generate, if it is the OLS method that is employed. Specifically, the results may be spurious, i.e. showing significant relationship when indeed there is none. This necessitates conducting a further test to establish whether or not a long run relationship (or cointegration) exists among the variables of the model.

3.4.2 Panel Autoregressive Distributive Lag Estimation Methods

As pointed out earlier, some techniques such as FE, RE and pooled OLS will be discarded if series are strictly integrated at order one i.e. I(0) even without testing for the long relationship. Though in the present study, we expect our data sets to exhibit the combination I(0) and I(1) because majority of economic variables are varies over time and across units. Therefore, here,

the three alternatives that are applicable to adoption of ARDL estimation method to panel data, which are Mean Group (MG), Pooled Mean Group (PMG) and Dynamic Fixed Effect (DFE), are examined. These are as respectively discussed below in Paragraphs (a), (b), (c) while how to select among the three is discussed in Paragraph (d).

3.4.3 Diagnostic Tests

This part consists of four diagnostic tests which will be used to test the validity of the regression model, to determine if they actually violate the assumptions underlying OLS method. The diagnostic tests are multicollinearity test, autocorrelation test, heteroscedasticity test, and non-normality of the residuals test and they are discussed below respectively.

3.4.3.1 Multicollinearity Test

The multicollinearity problem can be detected using several methods such as correlation/covariance matrix, variance inflation factor, running of auxiliary regressions, tolerance etc. But, since VIF is mostly used by various studies, the present study too will use Tolerance (TOL) test for the presence of multicollinearity in order to follow the path of previous studies. The formula for Tolerance (TOL) is shown below:

$$\boldsymbol{VIF_j = \frac{1}{1-R_j^2}} \quad \text{.....3.15}$$

$$\boldsymbol{TOLj = \frac{1}{VIF_j} = 1 - R_j^2} \quad \text{.....3.16}$$

In Equation 3.15, R_j^2measures the R^2 from a regression of X_j on the other X variables. The decision rule is that if R_j^2 =1 and TOL_j = 0, it means that there is perfect collinearity while if R_j^2 = 0 and TOL_j = 1 indicates no collinearity. However, the general rule of thumb is that if TOL < 0.1, then serious multicollinearity problem exists (Gujarati, 1995).

4. Result and Discussion of Findings

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ER	544	40.069	8.709	5.6	74.4
GE	544	-.811	.435	-1.81	.34
TO	544	59.082	17.681	26.099	131.485

GDPG	544	4.053	7.568	-51.031	106.28
IND	544	8.829	4.243	1.533	21.587
FIN	544	25.251	16.839	.023	117.192
HC	544	6.142	4.33	.592	21.79

Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) ER	1.000						
(2) GE	0.240	1.000					
(3) TO	-0.011	0.252	1.000				
(4) GDPG	0.050	0.078	0.082	1.000			
(5) IND	-0.072	0.233	-0.050	0.024	1.000		
(6) FIN	0.249	0.501	0.457	0.077	0.021	1.000	
(7) HC	0.139	0.158	0.290	0.034	0.157	0.377	1.000

Average correlation coefficients & Pesaran (2004) CD test
Variables series tested: ER GE TO GDPG IND FIN
Group variable: Countryid
Number of groups: 16
Average # of observations: 36.27
Panel is: unbalanced

Variable	CD-test	p-value	corr	abs(corr)
ER	-1.830	0.067	-0.029	0.293
GE	-1.230	0.219	-0.019	0.350
TO	5.260	0.000	0.082	0.328
GDPG	5.030	0.000	0.079	0.149
IND	0.260	0.797	0.004	0.439
FIN	29.060	0.000	0.455	0.583

Notes: Under the null hypothesis of cross-section independence CD ~ N(0,1)

Random effects

Random-effects GLS regression Number of obs = 544

Group variable: Countryid Number of groups = 16

R-sq: Obs per group:

within = 0.0473 min = 34

between = 0.0346 avg = 34.0

overall = 0.0399 max = 34

Wald chi2(6) = 26.35

corr(u_i, X) = 0 (assumed) Prob > chi2 = 0.0002

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Exploring the role of Government in the Climate Change-Crop production nexus in Nigeria

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Abstract

Climate change is adversely affecting many sectors of the economy especially the agricultural sector. This study explored the role of government in the climate change-crop production nexus in Nigeria. Variables used to capture climate change include temperature, precipitation and ecological footprint. The introduction of the ecological footprint was a novel idea because previous studies often made use of carbon emissions (CO_2) but now, we see that the ecological footprint is a better variable to capture the impact of climate change. For crop production, this study specifically utilized cereals production. Using data from, 1961-2022, an ARDL model was employed to study the short and long run relationship between climate change and cereals production in Nigeria. The findings revealed that ecological footprint and temperature have significant negative effect on cereal production. Though an increase in government expenditure on agriculture is associated with an increase in cereal production, such gains are wiped away due to climate change. The results indicated that while 1 unit rise in government expenditure boosts cereal production by 340 metric tons, 1 unit increase in ecological footprint leads to a loss of 6 million metric tons. This brings to the fore the need for government to not only review its expenditure on agriculture upwards but to also channel funds specifically towards technologies and strategies that will mitigate the adverse effect of climate change. Climate smart agricultural practices and technologies should be embraced and adapted.

Keywords: Climate Change, Cereal Production, Government, Ecological footprint, ARDL

1. Introduction

The adverse effect of climate change is being felt across the globe. According to the sixth assessment report of the Intergovernmental Panel on Climate Change (IPCC) climate change is affecting fishery, livestock and crops negatively. There are predictions that with temperature rising and rainfall becoming unpredictable, this already sad state of affairs may deteriorate. Many sectors of the economy have been feeling its devastating impact, however, the agricultural sector remains the worst hit due to its susceptible nature to flooding, drought, rainfall and heat. It is suggested that climate change will pose a threat to food production in various parts of the world, in various ways and to various extents. Different nations shall address climate change in various ways due to their capabilities and resources (Mbow et al. 2019, Mirzabaev et al. 2023). While climate change affects food production negatively, it is important to note that world food production also contributes to climate change because 30% of total greenhouse gas emissions comes from it (World Bank, 2023).

Nigeria is classified as one of the ten most vulnerable countries to the impact of climate change and natural hazards. Nigeria experienced a double shock of severe drought in the northeast and widespread flooding that affected nearly the entire country in 2012. The floods caused nearly $17 billion in damages and losses in the 12 most affected states. The country is regularly affected by multiple hazards such as floods and droughts. Furthermore, low-income households are the most vulnerable to weather-related natural disasters. Agriculture, which is heavily impacted by flooding and drought, serves as the main source of income for 80% of the rural poor. The rapid rise of urbanization and urban poverty also increases potential flood risk. An estimated 24% of Nigeria's population (approximately 41 million people) are living in high climate exposure areas. Some of the highest overall exposure is concentrated in the coastal states, including the coastal areas of Lagos, Delta and Rivers states, where large population concentrations live in the cities of Lagos, Warri and Port Harcourt, where poorer households and slum areas are at risk from flooding and storm surges (World Bank, 2020).

An estimated 27 to 53 million people may need to be relocated due to a 0.5 meter increase in sea level, which is projected for Nigeria by end of the century. In addition, ongoing coastal erosion, rising seas and oil pollution are destroying the Delta's mangrove forest — a major buffer against storm surge from the sea. Increased food insecurity is also of specific concern following disasters which result in land and infrastructure degradation due to erosion, direct crop failure due to floods and heavy rains, and possible nutrient leaching, and fungal growth due to increased humidity. Water availability will be affected by possible periods of drought. Given the dependency of Nigeria's economy on climate-sensitive industries (agriculture, forestry, oil, and gas extraction), climate change inaction could cost Nigeria between 6%–30% by 2050, equivalent to a loss of US$100–460 billion. There have been global calls for governments to take action in order to reduce the effect of climate change (Climate risk profile, 2021).

The main objective of this study is to explore the role(s) of government in mitigating the adverse effect of climate change on crop production, specifically, cereals production in Nigeria. One novel thing about this study is the use of the ecological footprint as one of the variables to capture climate change. Unlike previous studies that have used carbon emissions to measure climate change and environmental sustainability, this study takes a step further and contributes to knowledge with the introduction of the ecological footprint, a variable that is more encompassing and informative. In addition, we extend the scope of study to 62 years. The rest of this paper is as follows: section 1 gave the introduction, section 2 presents the literature review while section 3 talks about the methodology. Results are discussed in section 4 and section 5 concludes the paper.

2. Literature Review

2.1 Conceptual and Theoretical Framework

Africa has different climatic zones and they include equatorial climate, tropical wet and dry climate, tropical monsoon, semi-arid, desert, humid subtropical and subtropical highland climate. In the literature, we observe that there are different variables used as proxy for climate change. Some of them include annual mean temperature, precipitation and carbon emissions (CO_2). The most recent of all this is the ecological footprint. Ecological footprint is defined as the impact of a person or community on the environment, expressed as the amount of land required to sustain their use of natural resources.

2.2 Empirical Review

Onyeneke et al. (2024) assessed the effect of climate change on six major crops in Nigeria using six different ARDL models. The results showed that credit to agriculture, land and rainfall had a positive impact, but temperature had a negative impact on the crops. The study concluded that government should provide more credit to the sector. For East African nations that are reliant on agriculture, Abdi et al. (2023) investigated the impact of climate change on cereal crop production for 9 East African countries. Using carbon emissions CO_2, they found out that rainfall, carbon emission, cultivated land area and rural population all positively affect cereal crop output while temperature has a negative effect.

Unlike other studies, Pickson and Boateng (2022) decided to study the impact of climate change on food security for 15 African countries. They observed that rain is vital to food security. Also, temperature had no significant impact on food security in the long run. Lastly, they found bidirectional causality between food security and temperature. One country that has been worst hit by climate change is Ethiopia. It has witnessed drought and floods (Burnett, 2013). Between 1988 and 2006, six major floods hit the nation (Bizuneh, 2013). In the 1980s, the country suffered seven severe droughts. Five out of these droughts created food shortages (World Bank, 2010). Different countries, given their different levels of environmental, political, social and economic development, do exhibit various levels of vulnerability to climate change largely due to their various levels of exposure and adaptation.

Attiaoui and Boufateh (2019) assessed the impact of temperature and rainfall on the production of cereals in Tunisia using the panel pooled mean group estimator (PMG). They found evidence to show that rainfall positively affects cereals while rising temperature negatively affects it. Livestock have not been spared of the adverse effects of climate change. The production and growth of animals, their welfare, behaviour and food intake have all been negatively affected (Gauly & Ammer, 2020; Filipe et al., 2020). Rising heat waves and cases of drought have lowered livestock productivity and reproduction, reduced water and animal feed, spread of animal diseases (Mbow et al., 2019). CO2 can aid the growth of grasses during the raining season (Mirzabaev et al., 2019) but in arid areas, the reverse is the case (Boone et al., 2018). Fish population has reduced by about 4 % due to the impact of climate change (Free et al., 2019). Every 1°C increase in global warming was projected to decrease mean global animal biomass in the oceans by 5% (Lotze et al., 2019), as well as redistributing fish populations away from sub-tropical and tropical seas towards poleward areas (Oremus et al., 2020). Springmann et al. (2016) predicts that by 2050, getting nutritious meals that will also be within the reach of the masses will be a challenge.

Ali et al. (2024) carried out an impact analysis on Nigeria's public sector budget, climate change finance and climate indicators. The study concluded that climate finance comes from both private and public organizations. Onyimadu and Uche (2021) used a budget analysis and climate budget tagging framework to assess the financial resources utilized in its adaptation strategies as contained in the 2011 National adaptation strategy and plan of action on climate change. Their findings revealed that the Nigerian government's expenditure focused more on mitigation than adaptation. Also, the results indicated areas such as telecommunication, industry, commerce and transport sectors were neglected. Meanwhile, Kanayo and Abraham (2012), investigated the effect of public expenditure on climate change mitigation and adaptation. What they found out was that government expenditure on economic services could help reduce the effect of climate change. At the end of the literature review, there was no

previous research that had explored the role of government expenditure in the context of climate change-crop production nexus for Nigeria. This paper comes to fill that gap. In addition, we make use of the ecological footprint as a proxy for climate change unlike previous studies that often use carbon emissions. The ecological footprint is a better variable because it's all encompassing and more informative.

3. Methodology

3.1 Nature and sources of data

The variables used and the sources of data are presented in Table 1. Data from 1961-2022 was utilized. The choice of years was informed by the availability of data.

Table 1: Nature and sources of the data used

Variables	**Unit of Measurement**	**Source of Data**
Cereal Production	**Metric tons**	**World Bank World Development Indicators**
Ecological footprint	**Global hectares**	**Data footprint Network,**
Temperature	**Degree Celsius**	**World Bank Climate Knowledge Portal**
Precipitation	**Mm**	**World Bank Climate Knowledge Portal**
Government Expenditure on agriculture	**Billions of Naira**	**Central Bank of Nigeria Statistical Bulletin**
Population Growth	**Annual Percentage**	**World Bank World Development Indicators**
Fertilizer	**Kilograms per hectare of arable land**	**World Bank World Development Indicators**
Land under cultivation for cereal	**Hectares**	**World Bank World Development Indicators**

Source: Author's compilation, 2024.

3.2 Model Specification

Following the works of Ahsan et al. (2020) and Abdi et al (2023), but with slight modification, we specify the model for this study as:

Cereal Production = F(ecological footprint, annual precipitation, temperature, government expenditure on agriculture, fertilizer, land under cereal cultivation, population growth).

$$CP = \beta_0 + \beta_1 EF + \beta_2 RA + \beta_3 TE + \beta_4 GE + \beta_5 PG + \beta_6 FE + \beta_7 LA + \varepsilon --(1)$$

where CP is cereal production in Nigeria, EF is ecological footprint, RA is precipitation, TE is temperature, GE is government expenditure on agriculture, PG is population growth, FE is fertilizer consumed and LA is land cultivated for cereals. All variables included in the model are justified based on the literature and are also in line with theoretical reasoning. The slight modification made is the introduction of government expenditure. This is done in order to be able to assess the role of government in the relationship between climate change and cereals production in Nigeria.

4. Results

We present the findings of this study beginning with the summary statistics of the variables used.

Table 2: Summary Statistics of the variables used

Variables	Units	Mean	Maximum	Minimum	Std dev.
Cereal Production	**Metric tons**	**17,207,875**	**30,645,842**	**5,809,000**	**8,391,824**
Ecological footprint	**Global hectares**	**1.00**	**1.2**	**0.80**	**0.10**
Temperature	**^{0}C**	**27.06**	**27.86**	**26.27**	**0.40**
Precipitation	**mm**	**1174.55**	**1356.45**	**888.06**	**90.56**
Government Expenditure	**Billions of ₦**	**2478.63**	**23431.21**	**0.16**	**5134.73**
Population Growth	**%**	**2.55**	**3.06**	**2.04**	**0.30**
Fertilizer	**Kg per hectare**	**7.08**	**20.30**	**0.06**	**5.68**
Land under cereal cultivation	**Hectares**	**13,967,746**	**19,410,000**	**4,864,500**	**4271257**
No. of observations		**62**			

Source: Author's computation, 2024.

The ordinary ADF unit root test does not account for structural breaks hence the reason why we used the break point unit root test.

Table 3: ADF Unit root test result with structural breaks

Variable	ADF statistic at levels	ADF statistic at 1st difference	Order of integration
CP	**-2.296**	**-5.152*****	**I(1)**
EF	**-3.031**	**-9.906*****	**I(1)**
TE	**-3.369**	**-12.111*****	**I(1)**
RA	**-6.036*****	**----------**	**I(0)**
GE	**0.749**	**-22.445*****	**I(1)**
PG	**-4.567****	**----------**	**I(0)**
FE	**-2.480**	**-10.922*****	**I(1)**
LA	**-3.629**	**-9.689*****	**I(1)**

Source: Author's computation, 2024. ***, ** and * represent 1%, 5% and 10% levels of significance respectively.

The unit root test results revealed that the variables are a combination of I(0) and I(1) hence the decision to proceed with Autoregressive distribute lag ARDL-Bounds test for cointegration. The choice of this test is due to its ability to accommodate series that are both I(0) and I(1). This is in line with Onyeneke et al. (2024).

Table 4: ARDL Bounds cointegration test result

Significance	I(0) Bound	I(1) Bound
5%	**2.17**	**3.21**
10%	**1.92**	**2.89**
F statistic	**3.4209**	

Source: Author's computation, 2024.

The result of the ARDL-Bounds cointegration test indicated the presence of cointegration amongst the variables since the F-statistic was greater than the I(1) bound at the 5% level of significance. It means that there is a long run relationship amongst the variables. The next step was to estimate a short run error correction model and a long run model. The results are presented in table 5.

Table 5:ARDL Short run and Long run estimates for the impact of climate change on cereals production in Nigeria

Variables		
Short-run estimates		
	Coefficient	**Standard error**

ΔCP(-1)	**0.393535*** **	**0.132578**
ΔCP(-1)	**0.645468*** **	**0.110870**
ΔEF	**4495210*** **	**3033383.5**
ΔEF(-1)	**-8245985*** **	**3290703.2**
ΔEF(-2)	**-7717864*** **	**3279897.1**
ΔEF(-3)	**-6916156*** **	**3279897.1**
ΔF	**211691.1*** **	**66700.2**
ΔFE(-1)	**-43252.5**	**71928.5**
ΔFE(-2)	**154781.1** **	**63980.2**
ΔGE	**340.8** **	**143.2**
ΔTE	**112180.1**	**576729.4**
ΔTE(-1)	**-616903**	**734015.7**
ΔTE(-2)	**365983.5**	**665101.1**
ΔTE(-3)	**-1559253** **	**626594.9**
ΔLA	**0.86*** **	**0.119**
ΔLA(-1)	**-0.316**	**0.174**
ΔLA(-2)	**-0.500*** **	**0.147**
ΔPO	**1446329*** **	**2013403.6**
ΔPO(-1)	**-8526635*** **	**2572688.5**
ΔPO(-2)	**-3163201*** **	**2188928.7**
ΔPO(-3)	**-3842426*** **	**2397594.3**
ΔRA	**-1148.5**	**1468.97**
ECT(-1)	**-0.858571*** **	**0.137980**
Long-run Estimates		
	Coefficient	**Standard Error**
EF	**6758824**	**5696879**
FE	**-30532.2**	**112729.8**

GE	**449.3*** **	**106.5**
TE	**1505723**	**2089083.2**
LA	**1.5*** **	**0.12**
PO	**8205463*** **	**2098887.8**
RA	**-2056.3**	**3041.9**
C	**-7074404**	**52109479**
R^2	**0.99**	
Adjusted R^2	**0.98**	

Source: Author's computation, 2024. ***, ** and * represent 1%, 5% and 10% levels of significance respectively.

4.1 Discussion of result

The key variables of interest are ecological footprint, temperature, precipitation and government expenditure and how they affect cereal production in Nigeria. Table 5 presents the short run and run estimates of the impact of climate change on cereal production. The error correction term had a negative value and significant at 1% level. The implication of this is that the speed of adjustment from the short run to the long run equilibrium is approximately 86%. It would take approximately (1/0.86) 1 year for disruptions in cereal production (CP) to fade out. This is similar to the findings of Onyeneke et al. (2024). The first difference of ecological footprint (EF) had a positive and significant impact on cereal output. However, the first, second and third lags of the first difference of EF had a negative and significant impact on cereal production. A 1 unit increase in EF leads to a fall of between 6 and 8 million metric tons of cereals in the short run. In the long run, EF has no statistically significant impact on cereal production. For temperature (TE), in the short run, there was no significant impact until the third lag of the first difference. It had a significant negative effect of output. A one unit rise in temperature leads to a decline of 1.5 million metric tons. In the long run, the effect of temperature is insignificant.

Looking at the effect of ecological footprint on cereal production, it becomes imperative for the Nigerian government to take urgent steps at mitigating the adverse effects of climate change. According to the sixth report of the IPCC (2023), various mitigation and adaptation measures can be used to address the issues. First and foremost, funding for adaptation and mitigation as well as enhancing technology innovation systems needs to be increased while fostering international cooperation. Between $2.6 trillion and $2.8 trillion is needed by 2030 to implement the African continent's climate action ambitions as expressed in Nationally Determined Contributions (NDCs) submitted by April 2023. Put annually, this comes to between $234.5 billion and $250 billion. This highlights the fact that there is a climate finance gap. To close this gap by 2030, private climate finance in Africa would therefore need to increase by about 36 percent a year (AfDB, 2023). The funds should trickle down to every farmer in the community and rural areas. Monitoring as well as evaluation need to be carried

out to make sure that the aims of the funds are being met. Furthermore, adequate training and support should be given to farmers on how to use the technology.

Interestingly, precipitation (RA) turned out not to be significant in explaining variations in output of cereals (CP), both in the short and long run. This could be as a result of the availability of irrigation facilities. What impact does government expenditure on agriculture (GE) have on CP? Evidence suggests that an increase in government expenditure (GE) would lead to an increase in CP both in the short run and long run. A 1 unit rise in GE leads to a rise of about 340 metric tons and 449 metric tons in the short and long run of CP respectively. One major implication of this finding is that, as government spends, climate change seems to be washing it away in manifolds. Government must increase its expenditure on food production. More importantly, more money must be spent on tools, technology and strategies that would help mitigate the effect of climate change. This study suggests that the Nigerian government should adopt green fiscal policy. Green fiscal policy is a set of budgetary and fiscal tools that help address environmental challenges. It includes environmental taxes, budgetary reforms, fiscal incentives for private sector green investments and proposing legislation on clean and renewable energy, pollution, plastic and soil management.

Meanwhile, control variables such as Land (LA), Fertilizer (FE) and population growth (PO) all have positive significant impact on cereal production in the short run which is similar to Onyeneke et al. (2024). However, in the long run, fertilizer ceases to be significant in explaining variations in CP.

Diagnostic tests for serial correlation and structural stability of the model were carried out. The results observed provided evidence to show that the model was stable (see Figures 1 and 2) and did not suffer from serial correlation (see Table 6).

Table 6: Breusch-Godfrey Serial correlation LM test

F Statistic	**0.836545**	**Prob. F(3, 26)**	**0.4861**
Obs*R squared	**5.105601**	**Prob. Chi Square(3)**	**0.1642**

Source: Author's computation, 2024.

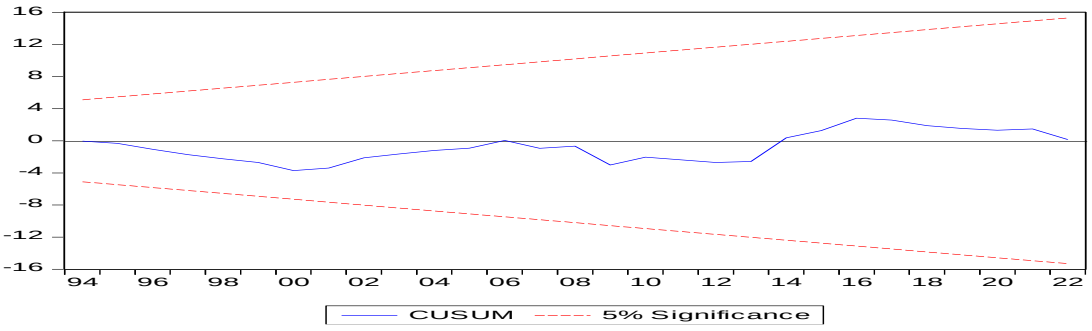


Figure 1: Stability test of the model using CUSUM

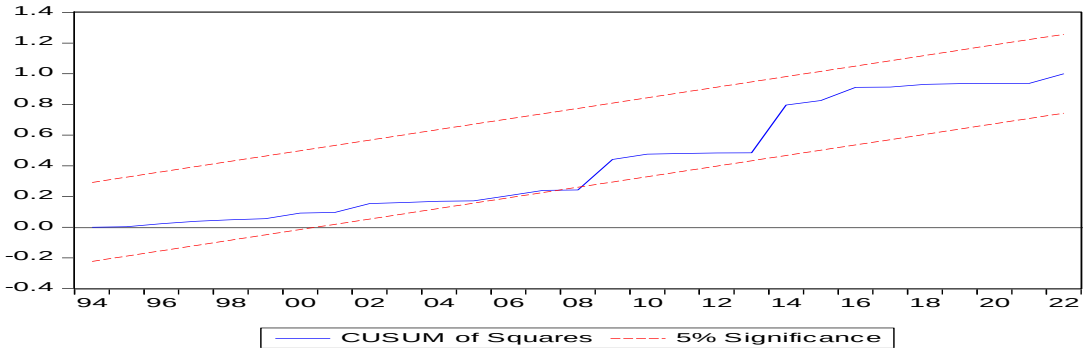


Figure 2: Stability test of the model using CUSUM of squares

5. Conclusion

This study explored the role of government in the climate change-crop production nexus for Nigeria. Variables used to capture climate change include temperature, precipitation and ecological footprint. The introduction of the ecological footprint was a novel idea because previous studies often made use of carbon emissions (CO_2) but now, we see that the ecological footprint is a better variable to capture the impact of climate change. For crop production, this study specifically utilized cereals production. Using data from, 1961-2022, an ARDL model was employed to study the short and long run relationship between climate change and cereals production in Nigeria. The findings revealed that ecological footprint and temperature have significant negative effect on cereal production. Though an increase in government expenditure is associated with an increase in cereal production, such gains are wiped away due to climate change. The results indicated that while 1 unit rise in government expenditure on agriculture boosts cereal production by 340 metric tons, 1 unit increase in ecological footprint leads to a loss of 6 million metric tons. This brings to the fore the need for government to not only review its expenditure on agriculture upwards but to also channel funds specifically towards technologies and strategies that will mitigate the adverse effect of climate change. Climate smart agricultural practices and technologies should be embraced. This study recommends that the Nigerian government adopt and implement green fiscal policy. It would include environmental taxes, budgetary reforms, fiscal incentives for private sector green investments and proposing legislation on clean and renewable energy, pollution, plastic and soil management.

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IMPACT OF FOOD SECURITY ON ECONOMIC GROWTH IN NIGERIA : ENVIRONMENTAL FACTOR

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Abstract

Environmental factor is a crucial aspect of the economy because it is posed with trading off between protecting the environment and increasing the overall economic growth especially in the developing countries which Nigeria is not an exemption, agriculture is an essential aspect of every economy which if it is properly handle there won't be shortage of food and will lead to having a secured future of a country in terms of food. This study aimed to examine environmental factors that can affect food security and economic growth positively and negatively. The study will use the following method of analysis, Time series analysis; Unit Root Test, Cointegration test, Error Correction Model (ECM), Granger Causality Test using VECM, Autoregressive Distributive Lag Model (ARDL), multicollinearity test, autocorrelation test, heteroscedasticity test, normality test, and non-normality of distribution of the residuals test. The result of the test will show the positive and negative impact of the environment on food security and economic growth in Nigeria, The study will recommend based on the result on how environmental factor influences food security and economic growth in Nigeria.

Key words: Environmental Factor, Food Security,Economic Growth.

1.Introduction

Environmental degradation presents another challenge. Nigeria's agricultural sector is highly vulnerable to climate change, with erratic rainfall, deforestation, and desertification undermining crop yields. According to Ogundipe et al. (2020), a 100% increase in environmental degradation results in a 22.6% decline in food production. Additionally, most Nigerian agriculture relies on rain-fed systems, making it particularly susceptible to climate-induced disruptions such as droughts in the northern regions (Kavallari et al., 2014). These climatic challenges create a cycle of poverty and food insecurity, as lower yields reduce farmers' income, hindering their ability to invest in improved farming techniques or adapt to changing environmental conditions.

Furthermore, population growth and environmental degradation are critical variables that must be considered in understanding food security in Nigeria. As the population continues to rise, the demand for food outpaces supply, putting further strain on the already fragile agricultural system. At the same time, environmental factors such as climate change exacerbate this issue

by reducing agricultural productivity. Both of these factors are therefore key considerations in the intended research, as they provide a broader context for the challenges facing Nigeria's agricultural sector and its potential role in economic growth.

The link between food security and economic growth in Nigeria is vital for identifying solutions to mitigate these challenges. By exploring how population growth and environmental degradation impact this relationship, the contribution of this study to the development of more effective strategies that can lead to sustainable food security and economic stability.

The study cover a period of 33 years spanning from 1990 to 2023, and it has been a great debates for scholars especially in the this period of economic downturn.

1. Literature review

The moderating role of environmental factors in the relationship between food security and economic growth has increasingly highlighted the impacts of environmental degradation and climate variability. In the context of Ukraine and Italy, Burkovska et al. (2021) analyzed how factors like agricultural practices and environmental pollution influence sustainable agricultural development. Using correlation analysis, they demonstrated that anthropogenic influences significantly alter the ecological balance, stressing that sustainable agricultural practices are vital for food security while maintaining environmental integrity. This study underscores the need to consider environmental quality as a moderating factor that can either support or hinder agricultural productivity and, by extension, food security and economic growth.

In Nigeria, Ogundipe et al. (2020) explored how environmental degradation directly impacts food production, discovering a significant inverse relationship. Their findings showed that a 100% increase in environmental degradation could lead to a 22.6% decrease in food production, highlighting environmental health as a critical moderating variable in food security. The study advocates for strategies that mitigate environmental degradation, which can stabilize food production levels, thus promoting economic resilience in the agricultural sector. They emphasized the need to address climate variability and land management, which are essential components in maintaining productivity amid environmental challenges.

Similarly, Mahrous (2019) examined how climate change factors like temperature and precipitation affect food security in the East African Community (EAC). Utilizing a fixed effects model, Mahrous found that rising temperatures harm food security, while increased precipitation and cereal cultivation land positively impact it. This research suggests that

environmental factors act as moderating variables by either enhancing or limiting food security outcomes. Mahrous argued that without climate-resilient agricultural practices, food security in the EAC could be compromised, which in turn impacts economic growth due to the region's reliance on agriculture.

In examining the relationship between climate change and agricultural productivity, Idumah et al. (2016) assessed how temperature, rainfall, and humidity fluctuations impact crop yields in Nigeria. They found that adverse climate conditions negatively affect agricultural output, implying that food security and economic growth are vulnerable to climate-induced disruptions. By recommending irrigation systems and drought-resistant crops, the study highlights the role of adaptive agricultural practices as a means to mitigate climate impacts and stabilize food production, thus protecting food security and supporting economic growth.

Gohar and Cashman (2016) offered a methodological framework for evaluating the impacts of climate variability on food security in Egypt, stressing the need for climate-sensitive policy frameworks. Their work highlighted how water scarcity and temperature changes influence food availability and economic welfare, suggesting that water management and climate adaptation measures are essential to maintaining food security. By integrating environmental factors within policy-making processes, their study presents a case for how these factors moderate food security outcomes and influence economic growth, particularly in arid regions with limited water resources.

Finally, Kavallari et al. (2014) explored the effect of global economic cycles on food security, noting that economic downturns tend to reduce commodity prices, which paradoxically affects food security in developing countries. The study observed that global economic shifts and environmental factors, such as climate change, jointly affect food security outcomes, especially for import-dependent nations like Nigeria. This insight underscores the need for food security strategies that address both environmental resilience and economic stability, particularly for nations with agricultural economies vulnerable to external environmental and economic shocks.

Methodology

This section of the chapter focuses on the methodology of the study. It contains the theoretical framework, model specification, estimation techniques, as well as the measurement and sources of data.

3.1 Theoretical Framework

Human Capital Theory

The theoretical framework of this study is drawn from Human Capital Theory suggests that investments in education, health, and skills development enhance productivity, directly supporting economic growth. In Nigeria, where food security remains a significant concern, the development of human capital plays a crucial role in improving agricultural productivity, which in turn drives economic growth. Ensuring food security is essential for maintaining a healthy, productive workforce capable of adopting improved agricultural practices, leading to increased economic output.

Model Specification

The model specification in this study is drawn from the theoretical framework discussed in section and the work of Manap & Ismail (2019), with some modifications. One of the modifications is that the present study extend the time frame of the data for the period 1990-2023 while and Manap & Ismail (2019) were of the short data period.

Estimation Techniques

This section explains the different techniques employed to achieve the predetermined objectives of this study. These techniques includes the unit root test, cointegration test, the autoregressive distributive lags model, as well as the granger causality test. These are all discussed as below.

3.3.1 Unit Root Test

In time series econometrics research, the first stage of investigation is to check for the stationarity of all the variables either at level or at first difference. Time series has a rootkit called Non-stationary time series, for a period, when the mean, the variance and the total time is not constant, thus the time series data must be stationary in order to avoid spurious or false regression results. According to Engle and Granger (1987) position on unit root, they said that a series is non-stationary if it exhibit an integrated level order of ‘’d’’i.e. X~ I (d). Granger (1986) and Engle and Granger (1987) therefore discuss the main differences between processes that are 1(0) and 1(1). They point out that an 1(0) series: (i) has finite variance which does not depend on time, (ii) has only a limited memory of its. past behaviour (i.e. the effects of a particular random innovation are only transitory), (iii) tends to fluctuate around the mean (which may include a deterministic trend), and (iv) has autocorrelations that decline rapidly as the lag increases.

a. ***Augmented Dickey-Fuller (ADF)*** using a time series Yt is:

Where Yt denotes the particular variable in the model Δ stand for differencing operator, t is the specified period for the research, m symbolize the lag length while ε stand for error term or white noise. Mackinnon (1998), state that null hypothesis should be rejected when t-test is less than the critical value under ADF. The lag length is chosen sequentially on the basis of likelihood ratio test statistics.

Cointegration Test

Cointegration test is steered to testing whether a long run relationship existed among the variables selected for the study (that is, the dependent variable and the independent variable). Study on the integration of the long-term relationship of the theory of evolution changes the economic time series as well as most of the speculation about long-term behaviour of economic systems.

Error Correction Model (ECM)

In the model, the short run dynamics are examined by the individual coefficients of the lagged terms and the long run causality is found in error correction term (ECT). Short run causality is proved through significant lagged explanatory variable while a negative and statistically significant ECT proves long run causality.

Granger Causality Test using VECM

Granger Causality can be best described as a test to analyze the causal relationship between the variables. Causality can subsist in at least in one direction if the variables under consideration comprises of the cointegrating vector.

Autoregressive Distributive Lag Model (ARDL)

Pesaran and Shin (1995) and Pesaran et al. (2001) recommended Autoregressive Distributed Lag (ARDL) bounds testing approach to cointegration. ARDL technique has resolved the endogeneity problem. Appropriate number of lags is estimated in ARDL that solves both the problems of endogeneity and autocorrelation (Pesaran and Shin, 1995). In ARDL approach both long-run and short-run coefficients are estimated simultaneously, and all the variables are considered endogenous (Khan et al. 2005). Pesaran and Shin (1999) have shown that the ARDL method can distinguish between dependent and explanatory variables and this implies that, the estimation is possible even when the explanatory variables are endogenous (Pesaran and Pesaran, 1997; Pesaran et al. 2001). Since we may have a mix of I (0) and I (1) variables amongst the variables of observation, this is an advantage for this study to compared to the

conventional Granger causality test of which it requires all the variable to be stationary in first difference form only.

Two stages are involved in ARDL. The first stage involves investigating the existence of the long-run relationship between the variables by computing the F-statistic to test the significance of the lagged levels of the variables in the error correction form of the underlying ARDL model. The second stage is pursued only if the first stage is satisfied i.e. that there is long run relationship between the variables. The second stage in this study involves estimating the long run model by selecting the orders of ARDL model using Akaike Information Criteria (AIC) and estimating an Error Correction Model (ECM) using the long-run estimates. This enables the speed of adjustment of the dependent variable to independent variables to be estimated. A value of zero indicates non-existence of long-run relationships whilst a value of between (1) and (0) indicates existence of partial adjustment. A value smaller than (1) indicates the model over adjusts in the current period and a positive value indicates the system moves away from equilibrium in the long run.

As a result of the focus of this study and the underlying data, ARDL techniques is beneficial because it does not require the classification of a specific order. This study adopted autoregressive distributed lag (ARDL) framework also known as bounds testing approach suggested by Pesaran and Shin (1995, 1999), Pesaran et al. (1996) and Pesaran (1997) to establish cointegration and hence the direction of causation between variables. According to Narayan and Smyth (2005), there are several reasons to select this method. First, it can fulfil the objectives to find the causality relationship between the variables. Second, it can be applied irrespective of whether the variables are stationary or non-stationary and also has better small sample properties. In addition, a simple linear transformation allows a dynamic error correction model (ECM) to be derived from ARDL (Banerjee et al, 1993). The ECM integrates the short-run dynamics with the long-run equilibrium without losing long-run information (Pesaran and Chin, 1999). Furthermore, the endogeneity is less a problem in ARDL framework because it is free of residual correlation.

Diagnostic Tests

This sub-section discusses the diagnostic tests which are used to test the validity of the regression model and to validate the actuality of the ordinary least squares assumptions. The diagnostic tests are multicollinearity test, autocorrelation test, heteroscedasticity test, chow test

for normality, and non-normality of distribution of the residuals test, which are discussed in the below sub-sections.

The formula for computing the VIF statistic is shown below:

$VIF_j = \frac{1}{1-R_j^2}$ .....

R_j^2 in equation (3.19) measures the R^2 from a regression of X_j on the other explanatory variables. The rule of the thumb is premised on the fact that, if $R_j^2 = 1$, it means that there is perfect collinearity while if $R_j^2 = 0$ indicates a total absence of collinearity. However, the general rule of thumb is that if VIF > 10, then there is the existence of serious multicollinearity problem (Gujarati, 1999).

Nature, Measurement, and Sources of Data

The data used in this study are annual time series data spanning from 1990 to 2023. The choice of the time period for this study is motivated by availability of data, and to meet up with the time series characteristics of thirty years minimum. Annual data on variables such as, inflation rates, interest rate, exchange rate, GDP growth, will be sourced from the central bank of Nigeria, statistical bulletin. While variables such as Food availability, food accessibility, food utilization will be sourced from Food and Agriculture Organization (FAO) for the period under study. .

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THE ROLE OF TRADE OPENNESS, FINANCIAL DEVELOPMENT AND INSTITUTIONAL QUALITY ON ENVIRONMENTAL PERFORMANCE IN A DEVELOPING COUNTRY: EVIDENCE FROM NIGERIA

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ABSTRACT

Nigeria's natural resources have been under increasing strain from deforestation, pollution, resource extraction, and land degradation. These challenges, compounded by climate change, highlight the urgent need to improve the quality of the environment to ensure a sustainable development. Therefore, there is a need to identify factors that influence environmental performance to forestall further strain on the resources. It is against this backdrop that this study examines the impact of economic growth, population growth, trade openness, financial development and governance on environmental performance in Nigeria. Utilizing annual time series data from 1995 to 2022 and employing the Autoregressive Distributed Lag (ARDL) approach, the findings revealed that in the short run, economic growth and trade openness had a positive relationship with the environmental performance. Similarly, financial development showed a positive but insignificant effect on environmental performance. Institutional quality shows a delayed positive impact, emphasizing the importance of governance improvements in achieving consistent environmental outcomes. Conversely, population growth negatively impacts EPI in the short run, as a 1% increase in population results in 35.5% decline in environmental performance. In the long run, financial development and institutional quality significantly enhanced environmental performance, with 1% increase in financial development resulting in a 0.63% rise in EPI while a unit increase in institutional quality increases environmental performance by 23%. However, economic growth exhibits a negative effect on environmental performance. These findings suggest that Nigeria should prioritize enhancing financial development and institutional frameworks to promote sustainable environmental outcomes while managing population growth to mitigate its adverse effects.

Keywords: Environmental Performance, Economic Growth, Governance, Trade Openness, Sustainable Environmental Outcomes

1.Introduction

Environmental performance refers to a measurement of how well an organization, country, or system maintains ecological balance while managing its environmental impact, including factors like air quality, water resources, biodiversity, and climate action. The concept often considers indicators such as emissions, resource use, and sustainable practices to assess efforts in preserving and restoring the environment (Sachs et al., 2022). One prominent measure is the Environmental Performance Index (EPI), which ranks countries based on their commitment to

sustainability and effective environmental policies, covering various factors like ecosystem vitality and environmental health (Hsu & Zomer, 2014). This assessment is important because it provides a standardised framework for comparing environmental progress and identifies areas needing improvement, fostering accountability in meeting global environmental goals (Esty, 2008).

Environmental performance has emerged as a critical global issue as countries balance economic growth with the preservation of ecosystems and natural resources. According to Jahanger et al. (2024), the dual challenge of achieving economic development without sacrificing environmental quality represents a primary obstacle for many economies. For Nigeria, this challenge is particularly pressing due to its rapidly growing population, urbanization, and expanding industrial activities, all of which place significant pressure on the environment (Akadiri et al., 2022). These factors have contributed to a range of environmental issues, including deforestation, water pollution, and land degradation, compounded by the effects of climate change (Ogundipe, 2020).

The pursuit of sustainable development in Nigeria requires a multifaceted approach that considers not only greenhouse gas emissions but also broader indicators of environmental health. Commonly used indicators, such as carbon dioxide emissions and the ecological footprint, provide valuable insights into environmental impact but are limited in their scope. For example, while carbon emissions data have been the focus of numerous studies (Aiyetan & Olomola, 2017; Lin et al., 2015; Ogundipe et al., 2020; Onifade, 2023; Rafindadi, 2016), these indicators do not fully capture the demand on and availability of natural resources. Similarly, the ecological footprint focuses predominantly on consumption without adequately addressing the supply side of environmental resources (Dam & Sakodie, 2023). To provide a more comprehensive analysis, this study utilises the Environmental Performance Index (EPI), a composite index that ranks countries based on their environmental health and ecosystem vitality, providing a comprehensive assessment of how well nations manage environmental challenges. Developed by a team of researchers and policy experts at the Yale Centre for Environmental Law and Policy (Yale University) and Columbia University's Centre for International Earth Science Information Network (CIESIN) in collaboration with the World Economic Forum in 2006, the EPI evaluates countries on various performance indicators, such

as air quality, water and sanitation, biodiversity, climate policy, and resource management (Hsu & Zomer, 2014).

Therefore, this study aims to investigate the impact of trade openness, financial development, and governance on Nigeria's environmental performance, as measured by the EPI, using the Autoregressive Distributed Lag (ARDL) approach. By using the EPI as a measure of environmental performance, this study adopts a comprehensive and internationally recognized metric for Nigeria. This approach differs from most research that often focuses on narrower indicators, such as carbon emissions and ecological footprint, thus providing a broader perspective on environmental sustainability. This approach not only highlights key policy interventions but also sets the groundwork for developing strategies that holistically target environmental sustainability.

The rest of the paper is structured as follows: Section 2 provides a review of relevant literature, Section 3 details the model and methodology, Section 4 presents and discusses the findings, and Section 5 concludes with implications and recommendations.

2. Literature Review

Research on environmental sustainability determinants consistently underscores the roles of trade openness, financial development, and governance in shaping environmental outcomes, with variations arising from regional economic structures and governance capacities. In Nigeria, Mesagan and Nwachukwu (2018) found that while financial development and income levels positively impact environmental quality, they also exert pressure through increased CO_2 emissions and energy demands, though without a reciprocal effect between financial growth and the environment. Extending this to South Asia, Bhutta et al. (2022) observed that although financial development boosts economic activities, it fails to curb emissions independently, underscoring the importance of governance frameworks that encourage green finance and sustainable investments. These findings reflect a need to balance financial expansion with policies that promote eco-friendly growth. Meanwhile, the impact of trade openness on environmental quality remains complex: Wang et al. (2021) identified that trade openness significantly raises emissions in oil-dependent African nations, including Nigeria, by intensifying extraction-driven pollution, while non-oil economies experience relatively lesser environmental impacts. Ogundipe et al. (2020) corroborated this with evidence of a direct link

between Nigeria's fossil fuel reliance and rising emissions, showing that without sustainable trade practices, openness can worsen environmental degradation in resource-dependent economies.

Research by Antweiler et al (2001) underscores that trade can lead to environmental improvements through a "technique effect," where access to cleaner technologies enhances production methods. However, the "scale effect" of trade, which results in increased production, may also heighten environmental degradation, especially in resource-intensive economies (Le et al., 2016). For Nigeria, Omoke et al. (2021) concludes that good governance and quality institutions can channel the gains of trade openness into growth-enhancing activities.

Financial development, another pivotal factor, can support environmental sustainability by channeling investments into green technologies and sustainable initiatives. According to Zaidi et al. (2019), a well-developed financial sector fosters innovation and enables firms to invest in environmentally friendly technologies, contributing to improved environmental outcomes. Nonetheless, financial development may also fuel industrial expansion, which can lead to environmental degradation if sustainability considerations are overlooked (Al-Mulali et al., 2015).

Governance plays a crucial role in the environmental domain as it shapes the effectiveness of policies and regulations governing resource use. Strong institutions promote transparency, policy stability, and enforcement capabilities, which are essential for environmental protection (Baloch et al., 2018). Conversely, poor governance often results in regulatory failures, unsustainable resource exploitation, and environmental harm, as seen in countries with weak governance frameworks (Acheampong & Dzator, 2020). Institutional reforms aimed at strengthening governance and accountability are thus essential to aligning economic goals with environmental protection. Governance and institutional quality have proven pivotal in mitigating the adverse effects of trade and financial growth on environmental outcomes. For instance, Ali et al. (2019) found that robust institutions across developing countries effectively reduce emissions by strengthening environmental governance. Similarly, Acheampong and Dzator (2020) highlighted that in sub-Saharan Africa, governance factors like regulatory quality and rule of law significantly improve environmental quality, particularly in nations with

British or French legal legacies. These findings indicate that the effectiveness of institutional interventions may depend on historical governance structures. Didia et al. (2022) further supported this view, noting that although some governance variables like political stability had no significant effect, others, including government effectiveness and the rule of law, were essential in enhancing environmental performance, suggesting that targeted improvements in governance can yield direct environmental benefits.

Ahmed et al. (2020) employed an ARDL approach to demonstrate how institutional quality can mitigate environmental degradation effects linked to financial development and trade. Their study supports the notion that effective governance frameworks can enhance sustainable development by managing financial growth's environmental impact, while Bhutta et al. (2022) similarly noted that green innovation and renewable initiatives succeed when actively supported by governance frameworks. Together, these insights suggest that for Nigeria, a proactive regulatory framework encouraging green finance and technological R&D could help mitigate the environmental impacts of financial and trade growth.

3. Methodology

3.1 Theoretical Framework

The environmental performance of Nigeria can be well explained by the theoretical framework of the Environmental Kuznets Curve (EKC) which accounts for the interaction between environmental management, economic growth and institutional quality. The EKC hypothesis posits an inverted U-shaped relationship between environmental degradation and economic growth. According to this hypothesis, in the early stages of economic growth, environmental degradation and pollution tend to increase, but after reaching a certain level of income per capita, the trend reverses, leading to environmental improvement as economies continue to grow. Grossman and Krueger (1991) explained the stages of the Environmental Kuznets Curve (EKC) Hypothesis as the initial stage, growth stage, turning point and decline stage.

3.2 Model Specification

Following Didia et al (2022), whose model was:

EPI = f (RGDP, Debt, Tropen, Popden, Govn, Inst) (1)

Where the Environmental Performance Index (EPI), the dependent variable, serves as a measure of environmental sustainability; RGDP (economic growth) is represented by per capita GDP; globalization reflects efforts by countries to maintain or enhance international competitiveness in trade; social factors capture environmental pressures arising from population dynamics or population density (popden); and institutional quality (IQ) encompasses indicators such as government stability, law and order, political stability, democratic accountability, and control of corruption, collectively representing institutional effectiveness.

The model for this study was specified with a slight modification thus:

$$\boldsymbol{EPI_t = a_0 + \beta_1 TOP_t + \beta_2 FD_t + \beta_3 POP_t + \beta_4 GDP_t + \beta_5 IQ + \varepsilon_t} \quad (2)$$

Narayan and Narayan (2010) argued that to solve the problem of multi-collinearity, varying variance and to calculate elasticities, short-run and long-run income elasticities should be compared by adopting a linear model. Hence, the natural logarithm of all variables was taken to avoid multicollinearity, heteroscedasticity and to obtain the elasticities of the variables using a double logarithmic model.

$$\boldsymbol{lnEPI_t = a_0 + \beta_1 lnTOP_t + \beta_2 lnFD_t + \beta_3 lnPOP_t + \beta_4 lnGDP_t + \beta_5 IQ + \varepsilon_t} \quad (3)$$

where EPI, the dependent variable, is a measure of environmental sustainability; trade openness is represented by TOP; FD represents financial development; social factors capture pressures on the environment resulting from the population (POP); IQ represent institutional quality measured by government stability, law and order, democratic accountability, and control of corruption. Economic growth is captured by growth rate of per capita GDP. $\boldsymbol{a_0}$ is the intercept/slope, $\boldsymbol{\beta_1}$ to $\boldsymbol{\beta_6}$ are the parameters, "t" denotes the study period in years involved, and the term, $\boldsymbol{\varepsilon_t}$ is the error/disturbance term.

3.3 Estimation Technique

The estimation technique adopted for this study is the autoregressive distributed lag. Autoregressive distributed lag (ARDL) is a least squares regression consisting of the lags of the dependent variables 'the autoregressive terms' and of the explanatory variables 'the

distributed lag terms. It allows for the investigation of both short-term and long-term effects and is particularly suitable for exploring the interplay between the variables, considering the time series nature of the data.

The ARDL linear specification for equation 3 is thus:

$$\begin{aligned}\Delta lnEPI_t = a_0 + \sum_{k=1}^{n} \gamma_k \Delta lnEPI_{t-k} + \sum_{k=0}^{P} \eta_k \Delta lnTOP_{t-k} \\ + \sum_{k=0}^{p} \theta_k \Delta lnFD_{t-k} + \sum_{k=0}^{p} \lambda_k \Delta lnPOP_{t-k} \\ + \sum_{k=0}^{p} \partial_k \Delta lnIQ_{t-k} + \sum_{k=0}^{p} \delta_k \Delta lnGDP_{t-k} \\ + a_1\, lnEPI_{t-1} + a_2 lnTOP_{t-1} + a_3 lnFD_{t-1} \\ + a_4 lnPOP_{t-1} + a_5 lnIQ_{t-1}\, a_6 GDP_{t-1} + \epsilon_t\end{aligned} \quad (4)$$

3.4 Data

This study employs a quantitative research approach to assess the impact of trade openness, financial development, and institutional quality on environmental performance in Nigeria, utilizing secondary data spanning from 1995 to 2022. Based on a time series data analysis, the dataset includes the Environmental Performance Index (EPI) as the dependent variable and several independent variables: economic growth measured by Gross Domestic Product (GDP), financial development measured by a broad-based financial development index, trade openness represented by trade as a percentage of GDP, population size measured by total individuals, and institutional quality measured by the index of the four institutional variables. The EPI, developed by the Yale Centre for Environmental Law and Policy (YCELP), is derived from 40 environmental indicators and encompasses subcategories such as Climate Change (PCC), Environmental Health (HLT), and Ecosystem Vitality (ECO) (Wolf *et al*., 2022). Data for institution were sourced from the International Country Risk Guide by The PRS Group and computed using Principal component analysis (Eigen values), while all other variables were obtained from the World Bank's World Development Indicators Database.

4. Results

The descriptive statistics in Table 4.1 show that environmental sustainability (LNEPI) has a mean value of 3.59, with relatively low variation, indicating stability over the observed period. Per capita GDP (LNGDP) has a mean of 7.62, with moderate variability, while population (LNPOP) is relatively stable around its mean of 18.85. Trade openness (LNTO) varies more widely, suggesting fluctuations in trade policies. Institution (IQ) has a mean of 1.142 and a standard deviation of 0.959, showing moderate variability, with values ranging from a minimum of 0.02 to a maximum of 4.21. Financial development (LNFD) is negative on average, likely suggesting a lower level of financial services accessibility or integration.

The correlation analysis shows that LNEPI (Environmental Performance Index) has a weak positive correlation with LNGDP (0.37) and LNFD (0.41), indicating a mild association between environmental performance, economic growth, and financial development. IQ (Institutional Quality) has a positive correlation with LNEPI (0.62), LNGDP (0.58), and LNPOP (0.43), suggesting that higher institutional quality is associated with higher economic and population metrics. LNTO (Trade Openness) has mixed relationships, being positively correlated with IQ (0.09) but negatively with LNPOP (-0.66).

Table 4.1 Descriptive Statistics and Correlation Analysis Result

		LNEPI	LNGDP	LNPOP	LNTO	IQ	LNFD
Mean		**3.591801**	**7.623538**	**18.85422**	**3.575373**	**1.141974**	**-1.597144**
Median		**3.558684**	**7.707524**	**18.85554**	**3.671422**	**1.016064**	**-1.576104**
Maximum		**3.792744**	**7.893406**	**19.20249**	**3.975523**	**4.209850**	**-1.299291**
Minimum		**3.483514**	**7.264739**	**18.49938**	**2.794362**	**0.020111**	**-1.932236**

Std. Dev.		**0.080807**	**0.232316**	**0.217497**	**0.297658**	**0.958881**	**0.137390**
Observations		**28**	**28**	**28**	**28**	**28**	**28**
	Correlation Matrix						
		LNEPI	**LNGDP**	**LNPOP**	**LNTO**	**IQ**	**LNFD**
LNEPI		**1.00**					
LNGDP		**0.37**	**1.00**				
LNPOP		**0.13**	**0.92**	**1.00**			
LNTO		**0.21**	**-0.50**	**-0.66**	**1.00**		
IQ		**0.62**	**0.58**	**0.43**	**0.09**	**1.00**	
LNFD		**0.41**	**0.78**	**0.76**	**-0.39**	**-0.38**	**1.00**

Source: Authors' Computation

Table 4.2 Unit root test

Variables	**ADF**		**PP**		**Conclusion**
	Statistics	**Prob.**	**Statistics**	**Prob.**	**Integration**
LnEPI	**-3.452022**	**0.0181**	**-3.438566**	**0.0186**	**I (1)**
lnGDP	**-4.541420**	**0.0008**	**-4.621057**	**0.0006**	**I (1)**
lnIQ	**-3.258745**	**0.0277**	**-5.244246**	**0.0001**	**I (1)**
lnPOP	**-3.627532**	**0.0431**	**-3.252211**	**0.0281**	**I (1)**
LnFD	**-3.762603**	**0.0356**	**-2.651610**	**0.0955**	**I (0)**
IQ	**-3.818965**	**0.0078**	**-3.734717**	**0.0095**	**I (1)**

Source: Authors' Computation

Table 4.2 presents the results of the unit root tests carried out to determine the stationarity of the time series and their levels of integration. Employing Augmented Dickey-Fuller and Philips-perron test, the result shows that except for log of financial development that is stationary at level form, all other variables obtained stationarity after first difference. The implications of the mixed order integration are that certain estimation techniques cannot be applied to estimate the specified model. In this case, the most appropriate linear regression estimation is the autoregressive distributed lags (ARDL) test. But first the ARDL bond test for cointegration will be conducted to ascertain if there exist a long run relationship between the variables.

Table 4.3 ARDL Bounds Test

Null Hypothesis: No long-run relationships exist				
Test Statistic	**Value**	**K**		
F-statistic	**17.67398**	**5**		
Critical Value Bounds				
Significance	**I0 Bound**	**I1 Bound**		
10%	**2.26**	**3.35**		
5%	**2.62**	**3.79**		

Source: Authors' Computation

Table 4.3 provides evidence that the variables are linked in the long term. Looking at the table, the F-statistics for the linear ARDL approaches higher than the upper limits for both 5% and 10% significance levels. This suggests a long-run relationship.

Impact of Trade Openness, Financial Development, and Institutional Quality on Environmental Sustainability

The ARDL results offer critical insights into the determinants of environmental performance in Nigeria, aligning with key empirical findings. The short-run analysis highlights that economic growth has mixed effects on environmental performance. Specifically, a 1% increase in the previous year's economic growth significantly reduces current environmental

performance by 0.70%, while a 1% increase in economic growth from two years ago enhances it by 0.53%. These findings resonate with Mesagan and Nwachukwu (2018), who observed that economic growth could negatively impact environmental quality in resource-dependent economies but may improve it when aligned with sustainability efforts.

Trade openness shows a significant positive short-run effect, with a one-period lag increasing environmental performance by 0.057%. This finding contrasts with Ogundipe et al. (2020), who argued that trade liberalization in oil-exporting African nations often exacerbates emissions. However, the positive impact in this study suggests that Nigeria may benefit from trade openness through the adoption of environmentally friendly technologies or compliance with international environmental standards.

Conversely, population growth exerts a negative short-term impact on environmental performance, as a 1% increase in population growth results to 35.5% decline in environmental performance. This aligns with findings from Wang et al. (2021), who noted that population pressures often contribute to increased emissions, particularly in resource-dependent economies. The challenge of managing population growth to balance environmental objectives is underscored in our results, suggesting that environmental policies should consider population dynamics to effectively mitigate ecological pressures.

Institutional quality (IQ) demonstrates a delayed but significant positive impact, as an increase in institution quality in the last two years will lead to a 0.044% increase in environmental performance. This corroborates findings by Didia et al. (2022) and Jilanguo et al. (2022), who emphasized the critical role of governance and institutional frameworks in reducing emissions and promoting green investments.

In the long run, financial development emerges as a significant driver of environmental performance, with a 1% increase contributing to a 0.63% rise in environmental performance. This finding aligns with Bhutta et al. (2022), who emphasized that financial sector growth fosters green investments, provided it is backed by strong institutional frameworks. Institutional quality also positively influences long-term outcomes, with a 1% increase improving environmental performance by 23%. This supports Acheampong and Dzator (2020), who highlighted the stabilizing effects of governance on environmental sustainability.

Conversely, economic growth exerts a negative long-term effect, with a 1% increase leading to a 1.54% reduction in environmental performance. This finding is consistent with Wang et al. (2021), who noted that industrial-driven growth in developing economies often intensifies environmental degradation, underscoring the need for sustainable growth strategies.

The error correction term (-0.3457) indicates that 34.57% of any disequilibrium is corrected within one period, confirming a stable long-term relationship. This supports Ali et al. (2019), who emphasized the dynamic interplay between institutional structures and environmental sustainability. These results provide actionable insights into how economic policies and governance can shape Nigeria's environmental outcomes, emphasizing the importance of balancing growth with sustainability goals.

Table 4.4 Regression Results

ARDL Cointegrating And Long Run Form				
Dependent Variable: LNEPI				
Selected Model: ARDL(1, 3, 2, 2, 1, 3)				
Cointegrating Form (Short Run Estimates)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LNGDP)	**-0.074814**	**0.211224**	**-0.354194**	**0.7336**
D(LNGDP(-1))	**-0.698788**	**0.174747**	**-3.998851**	**0.0052**
D(LNGDP(-2))	**0.529651**	**0.208235**	**2.543520**	**0.0385**
D(LNPOP)	**-35.563537**	**16.863055**	**-2.108962**	**0.0729**
D(LNPOP(-1))	**30.879656**	**23.576457**	**1.309767**	**0.2316**
D(LNTO)	**0.013907**	**0.018620**	**0.746874**	**0.4795**
D(LNTO(-1))	**0.056666**	**0.018159**	**3.120611**	**0.0168**
D(LNFD)	**-0.088477**	**0.047849**	**-1.849089**	**0.1069**

D(IQ)	**-0.020660**	**0.013148**	**-1.571394**	**0.1601**
D(IQ(-1))	**-0.001875**	**0.008349**	**-0.224517**	**0.8288**
D(IQ(-2))	**0.043830**	**0.011291**	**3.881743**	**0.0060**
CointEq(-1)	**-0.345667**	**0.067423**	**-5.126882**	**0.0014**
Long Run Estimates				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LNGDP	**-1.537673**	**0.452984**	**-3.394544**	**0.0115**
LNPOP	**0.525591**	**0.521667**	**1.007523**	**0.3472**
LNTO	**-0.169381**	**0.127633**	**-1.327103**	**0.2261**
LNFD	**0.631310**	**0.176585**	**3.575105**	**0.0090**
IQ	**0.238603**	**0.088303**	**2.702082**	**0.0305**
C	**7.644701**	**8.828946**	**0.865868**	**0.4153**

Source: Authors' Computation

Diagnostic Test

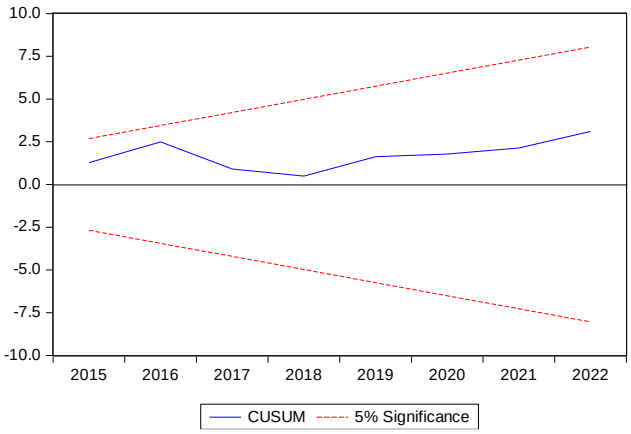
According to Table 4.5, the values of R- and adjusted R-squared in the model indicate that the exogenous variables (Trade Openness, Financial Development and Institutional Quality) account for about 99% and 98% respectively of environmental sustainability. The significant values of F-statistics (73.37928) obtained show that the independent variables are jointly significant. The Durbin-Watson statistics point to the absence of autocorrelation, meaning that the residuals are uncorrelated in the respective models. The insignificant values of the Jarque-Bera test reveal that the variables are normally distributed. Furthermore, the Breusch-Pagan-Godfrey test with insignificant F-statistics of 1.298036 from the ARDL model show that the residuals are homoscedastic, that is, the residuals do not differ across all values of the exogenous variables. The CUSUM and CUSUMSQ plots in Figures 1 and 2 reveal that the long-run coefficients are stable since both of their plots stay inside the critical bounds.

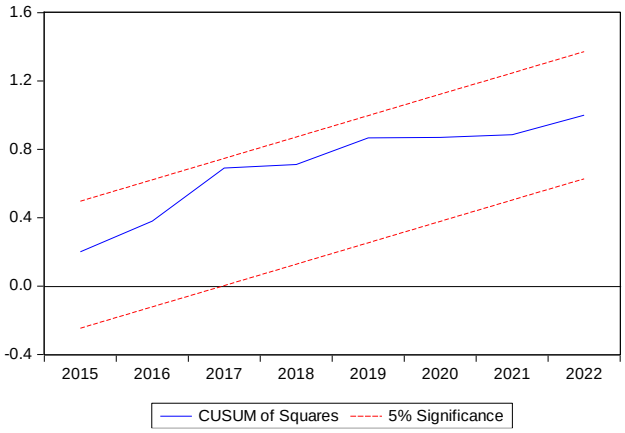
Table 4.5 Diagnostic Test

Test	ARDL
R-squared	**0.997282**
Adjusted R-squared	**0.983691**
F-statistic (p-value)	**73.37928 (0.000400)**
Durbin-Watson	**3.657183**
Jarque-Bera (p-value)	**0.467768 (0.79145)**
Breusch-Pagan-Godfrey	**1.298036 (0.3664)**

Source: Authors' Computation

Figure 1. CUSUM AND CUSUM SQUARED TEST





5. Conclusion and Recommendations

In conclusion, this study assessed the impact of trade openness, financial development, and institutional quality on environmental performance in Nigeria using ARDL approach, providing insights into both short- and long-term dynamics. The findings reveal that in the short run, economic growth and trade openness positively influence environmental sustainability, indicating that Nigeria's integration into the global economy may encourage environmentally friendly practices, such as enhanced technology adoption and adherence to international environmental standards. Population growth exerts a negative short-term effect on sustainability, underscoring the ecological pressures associated with Nigeria's demographic expansion. Institutional quality shows a delayed positive impact, emphasizing the importance of governance improvements in achieving consistent environmental outcomes. However, short-term fluctuations in institutional quality underscore the need for stable governance frameworks to support environmental sustainability. Long-term analysis highlights institutional quality and financial development as critical drivers of environmental performance, with institutional quality fostering green investments and stabilizing

environmental outcomes. This indicates that financial development alone may not achieve maximum environmental benefits without governance mechanisms to guide investment decisions. While the direct impacts of financial development and institutional quality on environmental performance are evident, their potential combined effect warrants further exploration. This perspective aligns with the growing consensus that financial growth must be underpinned by institutional quality to achieve sustainable development. Policymakers should prioritize strengthening governance frameworks to maximize the environmental benefits of financial development in Nigeria. For instance, governance ensures transparency, accountability, and policy coherence, which are vital for promoting green finance and mitigating ecological risks. Thus, the synergy between financial development and governance represents a pivotal area for future research and policy intervention in aligning financial growth with environmental sustainability goals in Nigeria. Conversely, economic growth negatively impacts environmental performance in the long run, reflecting the challenges of balancing industrial-driven growth with sustainability goals. Trade openness continues to show positive long-term effects, suggesting that environmentally sound trade practices and regulatory measures can enhance sustainability. However, these benefits depend on policies that align trade liberalization with ecological protection. These findings highlight the need for Nigeria to prioritize governance reforms and financial sector development aimed at supporting sustainable growth. Integrated trade policies and strategies to manage population dynamics are essential to balance economic growth with environmental preservation.

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INVESTMENT MULTIPLIER AND ELASTICITY OF PRODUCTION DYNAMICS IN NIGERIAN AGRICULTURE

By

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Abstract

Real Investment in Nigeria agriculture is expected to energize production in the sector and promote a linkage effect in Nigerian economy. Investment in Nigeria agriculture has been enormous of recent, but growth and output expansion path remain a major concern for food security. The study examines investment multiplier effect on production dynamics in agricultural sector. Time series data for 30years (1987-2016) were used for the study. The sample point was chosen because the periods witnessed growth and output recession in the sector by 2016. Loanable funds and advances under Anchored borrowers' programs, Agricultural Credit Guarantee Scheme Fund (ACSGF), Funds for Agricultural Finance in Nigeria (FAFIN), Rural Finance (RUFIN) and Nigeria Incentive-based Risk Sharing framework for Agricultural Lending (NIRSAL) as reported under Central Bank of Nigeria (CBN) and Bureau of Statistics (BOS) were used to proxy investment. Data collected were analyzed using single equation OLS regression model to estimate the coefficients with Keynesian investment multiplier. Descriptive and inferential statistics were used to analyze the data. The result showed a negative influence between investment capital and real agricultural gross domestic output. The Keynesian investment multiplier effect in the sector was ($\boldsymbol{K_{I=}\ 0.963\ times}$) *which was insignificant. Elasticity of production in the sector evidenced that output expansion path was negatively inelastic at a percentage rate of* $\boldsymbol{-1.23\%\ and\ -0.31\%}$. *The study concluded that real investment in agriculture had insignificant impact on real agricultural gross domestic output. Therefore, recommended that allocation and disbursement of investment resources should be efficient and monitored to avoid diversion so as to achieve linkage effect and increased value addition in the sector.*

Key words: Agriculture, Gross Domestic Output, Investment, Multiplier Effect and Elasticity of Production

1. Introduction

Concerted efforts have been made by government at present to diversify the productive resource base of Nigerian agriculture, increase value chain, improve the quality of human capacity index in the sector and reduce dependency on oil. Though Nigeria is a mono- product economy with the bulk of government revenue coming from oil exports which is susceptible

to shocks in the international oil market (Sanusi, 2010). CBN (2011) reported that Nigeria is generously endowed with favorable condition for sustainable agricultural development. Agricultural Gross Domestic Product (AGDP) has been on decline due to the overbearing influence and near absolute dependency of the economy on the oil sub sector. Economic crisis in the nation crude oil sector today has made government supportive of intensive investments in agricultural sector as alternative to crude oil.

According to RUFIN (2015) reported that sugar cane production in Niger state and palm oil production in Ogun state had an investment worth of $680million USA dollars. Under the Rural Financing programs (RUFIN), government was committed to 13 major policy activities in the area of seedlings and fertilizer while the key development partners were committed to funding, to an equivalent amount of $500 million U.S.A dollars for Nigerian Agriculture from 2013-2016. Moreover, the International and Local Business Firms are committed to making investment of about $4 billion U.S.A dollars in agricultural sector (FMARD, 2015). Equally, RUFIN has shown commitment to help in facilitating Microfinance Banks, Co-operatives and other 176 Organizations in rural economy to access $220 billion U.S.A Dollars for Micro, Small and Medium scale enterprises funds in agriculture in all RUFIN states of the Federation (FMARD, 2015). MBP (2016) and BUDGIT (2016) observed that economic recovery and growth plan of the Federal Government incentivized agricultural sector in the national budgets towards increased output and value chain to the tune of N68.15billion in 2015 and 2016 respectively.

The total recurrent expenditure on agricultural investment was to the tune of N53.81 billion naira and capital expenditure to N263.1billion naira in 2017 national budget (NBS, 2017).Usigbe (2018) reported that national council of states approved a sum of $1billion U.S.A dollar for crops and livestock production in Nigerian agriculture and additional sum of $1billion U.S.A dollar would be spent on agricultural sector over and above the present commitment of $200million U.S.A dollar in the sector from 2018. The fund would be disbursed through Anchor borrowers and Commercial Agriculture Credit Scheme (CACS) programs to encourage diversification of the economy and promote food security. CBN (2017) released a sum of N501.697 billion naira to agricultural sector for commercial farming under Commercial Agricultural Credit schemes (CACS). The cumulative cost of agricultural interventions for meeting the MDGs (Millennium Development Goals) targets of reducing poverty and hunger was $55.12billion from 2006 to 2015. Under Fund for Agricultural Finance in Nigeria (FAFIN) initiative, $100million (USA dollars) was made available to support the small and medium scale enterprises in agricultural projects (FMARD, 2015). The role of Bank of Industry (BOI) in Nigerian economy recently through Cottage Agro Processing Funds (CAPFUNDs) program towards processing and preservation of agricultural produce (value chain) as well as stimulating small and medium scale enterprises in agriculture also buttress the government efforts to promote agricultural production. Olowofeso *et al.* (2017) said commercial banks are used by government as the main driver of the steady growth of investment in agricultural sector. Among the newest financing incentive to agriculture is the Nigeria Incentive- based Risk Sharing framework in Agricultural Lending (NIRSAL) which is demand driven investment facility.

Despite the huge investments in Nigerian agriculture by government how much of these investment multiplier effects have translated into elasticity of output and food security in agricultural sector today and net contribution to Gross Domestic Product (GDP)? Government

at present has declared state of emergence in agricultural production and food security. It is against this backdrop that the study investigates the following specific objectives:

(i) To examine investment multiplier effect on real agricultural gross domestic output
(ii) To measure the elasticity of production with respect to agricultural gross domestic output (AGDO) and real gross domestic product (RGDP)

The study would help policy makers to formulate appropriate macroeconomic policies to support sustainable growth and development in agricultural production

2. Literature Review

Concepts of Agricultural Productivity Growth (APG), Output and Expansion path

Conceptually, agriculture involves productive activities like growing of crops, rising of animals (including poultry), fishing and forestry (Ishola, (2018). Agriculture is a science and art of producing crops and livestock for economic purposes (Gangotri, 2012). Agricultural productivity growth measures the increase in agricultural outputs per a given quantity of inputs or reduction in inputs per a given level of outputs. It measures the efficiency with which inputs are used to produce agricultural output (USDA, 2021). Alain and Sadoulet (2010) observed that agricultural GDP growth induced income growth and promote growth leakage effects on the rest of the economy. Agricultural output on the other hand, refers to physical expansion in agricultural yields and productivity while productivity is defined as the ratio between the output volume and the inputs volume (Eatwell and Newman, 1991). Expansion path in relation to output is the isocline along which output will expand when factor prices remain constant. Expansion path in agriculture showed the optimum (least cost) combination of inputs to use to produce different levels of output. It is the maximum revenue points for different levels of resources which defined output expansion path (Olukosi and Ogungbile, 1989). It measures how efficiently, production inputs such as labour and capital are being used in an economy to produce a given level of output (Krugman, 1994) It is the total value of production (TVP) which is the total physical product multiplied by the unit price of the output (Olukosi and Ogungbile, 1989). Agricultural productivity is measured as the ratio of agricultural outputs to inputs (Farmer's Weekly, 2017). Gardner (1996) reported that agricultural performance relates to growth rates of agricultural value added (AGVA) and that the rate of expansion and contraction of agricultural value added per capita is associated with Gross Domestic Product (GDP).

Theoretical Review

Elasticity of Production and Growth Theory (Output)

Elasticity of production measures the response of output to changes in the variable inputs in production. Elasticity of production (Ep) is measured by percentage change in output (Y) divided by percentage change in variable inputs (X_1). Elasticity when measured along production line or functions, can evidenced that Ep>1 meaning that the percentage change in output is greater than percentage change in the variable inputs. This is an indication of increasing returns to scale of output. When elasticity of production is 1 (Ep =1) showed that production level lies between 0 and1 which implied or indicated a constant return to scale. This means that one percent increase in the level of inputs will be accompanied by a one percent increase in output level. However, if elasticity of production is less than one (Ep<1) then is an indication of diminishing returns in output (Olukosi and Ogungbile, 1989).

Classical growth theory of Smith (1776) and Ricardo (1817) argued that the sources of output growth are capital accumulation (investment), supply of land,growth of labour force and

change in institutions but David Ricardo theory agreed with Smith and added technological know-how as one of the factors of economic growth. On the other hand, Solow (1956) and Swan (1958) posited that growth in output is a function of growth in input factors such as capital (investment), labour and technological progress. Leontief (1953) propounded input and output theory and explained the inter-relationship that exists between industries in an economy as input in one industry was considered as output of another industry.

Investment Multiplier Theory

Keynesian investment multiplier process is used as a tool of analysis in this work, the concept of multiplier analysis shows that an increase in the level of investment is capable of bringing about increases in the national output more than the initial increase in the level of investment (Buhari, 1989). Many economists believe that the key to economic growth rest on increasing the level of investments in the economy (Keynes,1936). Development economists such as Lewis (1954); Rostow (1960); Ghose (1989); and Johnson (1969) as cited in Salihu (2016) that investment is a fundamental factor in the growth process. They observed that economic growth could be brought about principally by labour, capital and total factor productivity which include human capital, social capital, governance, infrastructure capital, natural capital and knowledge capital. Investment in agricultural production is a process of capital formation necessary for growth in the sector. This perspective is demonstrated in the equation stated below, that if we represent the national income or output at an initial period 't' by Y_t and the national income or output at the immediately preceding period 't-1' by Y_{t-1}. Then the change in national income (i.e. GDP or national output) at the interval between the two periods will be given by:

$$Y_t - Y_{t-1} \quad [1]$$

Thus, the multiplier may be measured by

$$\text{Multiplier (K)} = \frac{\textit{Change in national income output (GDP)}}{\textit{Change in investment}} \quad [2]$$

Or

$$K = \frac{\Delta Y}{\Delta I} \quad [3]$$

If we represent the Change in investment by, I_t then we can write that:

$$K = \frac{\textit{Change in national income or output (GDP)}}{I_t} \quad [4]$$

Or

$$K = \frac{Y_t - Y_{t-1}}{I_t} \quad [5]$$

$$I_t = (Y_t - Y_{t-1}) \times \frac{1}{K} \quad [6]$$

Same as

$$\Delta I = (\Delta Y) . \frac{1}{K} \quad [7]$$

Assuming V represent $\frac{1}{K}$---------- [8]

$$V = \frac{1}{K} \quad [9]$$

Then: $I_t = V(Y_t - Y_{t-1})$

This means changes in the level of I_t will lead to changes in the rate of growth of national output or income. Hence investment according to the theory of economic growth is the major factor for economic growth and development in real sector such as agriculture. The theory of investment multiplier is seen as an integral part of the theory of income, output and employment. In the multiplier theory, the important element of the multiplier coefficient (k) refers to the power by which any initial investment expenditure is multiplied to obtain a final increase in income, output and employment.

Empirical review

Egbedenwe and Gero (2020) examined macroeconomic effects of agricultural productivity on economic growth in Nigeria, but the result revealed that agricultural productivity growth could improve other sectors of the economy. Kelikume and Nwani (2020) also observed that there was a linkage effects between agricultural output and output of other sectors of Nigerian economy. Bada (2017) used co-integration test and vector error correction model to indicate long run relationship agricultural output and banks' credit investment. Ewetan et al (2017) investigated relationship between agricultural output and economic growth and reported there was a long run relationship between the two variables. Abulla and Ben (2016) reported the impact of agricultural output on economic growth in Nigeria using times series analysis and concluded that agriculture is beneficial and plays important role in the process of development. Zakaree (2014) in his study of the impact of agricultural credit guarantee scheme fund (ACGSF) on domestic food supply in Nigeria reported that domestic food supply cannot be said to follow the same trend as credit investment extended to agricultural sector by institutional lenders but concluded that there was a negative trend between domestic food supply (i.e. agricultural output) and investment in Nigerian agriculture.

3. Methodology

Theoretical Frame

The theoretical frame of this work was built on interaction of application of Keynesian investment multiplier concept with classical and neo-classical postulations on output/productivity growth. Jhingan (2006) reported that multiplier establishes a precise relationship between aggregate national output (i.e. national income) and the rate of investment given the marginal propensity to consume. When there is an increment of investment, national output (income) will increase by an amount which is $'K'$ (i.e. multiplier) multiplied by the increment in investment. This is stated below:

$\Delta y = K\Delta I$……..……... [10]

Keynesian Multiplier Model was adopted to determine the multiplier effect of investment in agriculture

$'K'$ is the Keynesian Investment multiplier and it is the co-efficient relating to a change in investment leading to an increment in national output or income.

Keynesian multiplier Model is stated below:

$K = {}^{\Delta y}/_{\Delta I}$ …… [11]

Where:

$y =$ Level of national output or income in the economy measured in billion naira (₦) and percentage (%)

$I =$ Investment measured in billion naira (₦) and regression coefficients or parameters.

$K =$ Multiplier coefficient which is measured in number of times with respect to multiplier effect and percentage of effect)

$\Delta =$ Change (i.e. decrease or increase) relating to variables.

Ordinary Least Square (OLS) estimation technique, t-test, F- test, Breusch-Godfrey LM serial correlation test, Breusch-Pagan-Godfrey heteroscedasticity test, Normality test, Augmented Dickey Fuller Unit Root test techniques and null hypothesis were used to determine if the variables are stationary in the series before running the regression to avoid spurious regression (random walk). Linear and log linear functional forms (exponential) were found to provide goodness of fit of the estimates.

Model specification

(a)Linear Functional Model

The implicit equation is structurally specified below:

$AGVA_t = f(INVEST)_t$ ----------(12)

Where:

$AGVA_t =$ Agricultural Gross Domestic Output at Value Added (AGVA)

$(INVEST)_t =$ Investment in agricultural sector

The explicit equation of linear model is specified below:

$AGVA_t = \beta_o + \beta_1 INVEST_t + \mu_t$----------[13]

$\beta_o =$ is the autonomous intercept of the model.

β_1 is the coefficient or slope of the explanatory variable

$\mu_t =$Stochastic Error term

(b) Non – Linear Model (Exponential)

Uzowulu *et al.* (2007) and Olayemi (1998) pointed out that log linear functional form (exponential) is more realistic,and that elasticity of errors is reduced when use. Equally the functional form is effective for determining elasticity of production.

Implicit equation

$$\boldsymbol{RGDP_t = f(AGDO)_t}$$ ----------[14]

Where:

$\boldsymbol{RGDP_t}$ = Real Gross Domestic Product (at constant prices).

$\boldsymbol{AGDO_t}$ = Agricultural Gross Domestic Output (at constant prices).

Explicit equation

$$\boldsymbol{In(RGDP_{t)} = \beta_o + \beta_1 AGDO_t + \mu_t}$$ ----------[15]

Where:

$\boldsymbol{In(RGDP_t)}$ = Natural logarithm of Real Gross Domestic Product (at constant prices)

$\boldsymbol{\beta_o}$ = is the constant variable (autonomous intercept of the model)

$\boldsymbol{\beta_1}$ =is the co-efficient or slope of the explanatory variable

$\boldsymbol{AGDO_t}$ = Agricultural Gross Domestic Output (at constant prices)

$\boldsymbol{\mu_t}$ =Stochastic error term.

Application of Keynesian Multiplier Model to the Study:

$\boldsymbol{I}$ =Investment (Investment in agricultural sector measured in billion naira ₦ and percentage (%).

$\boldsymbol{y}$ = Agricultural Gross Domestic Output (aggregate agricultural output in the economy measured in billion naira (₦) and in percentage (%) of value added or chain.

$\boldsymbol{K_I}$ = Investment multiplier effect in the economy.

Δ = Change (i.e decrease or increase on variables).

$\boldsymbol{'b'}$ = Measures the rate of change in investment to change in agricultural gross domestic output (AGDO at Value Added) using the value of the coefficients.

Investment Multiplier is expressed as:

$$\boldsymbol{K_I = \frac{\Delta y}{\Delta I}} \text{ Or} \boldsymbol{\frac{I}{I-b}} \quad (\boldsymbol{'b' = MPI})$$----------[16]

Multiplier effect in the economy would be a change in $\boldsymbol{y}$ ($\boldsymbol{AGDO}$) equal to multiplier ($\boldsymbol{K_I}$) multiply by change in Investment given as:

$$\boldsymbol{\Delta y = K_I \cdot \Delta I}$$ ----------[17]

Elasticity of production

The elasticity of national output (RGDP) with respect to Agricultural Gross Domestic Output (AGDO) was measured (Olayemi,1998) by below stated equation:

$$\boldsymbol{\beta_1 \ (RGDP_t) \times \frac{AGDO_t}{RGDP_t} = \beta_1 \times AGDO_t}$$ ----------[18]

A- priori Economic Expectation

If $\beta_1 > 0$, it then implies that there is a positive effect of investment on agricultural gross domestic output at value added.

$\boldsymbol{\beta_1}$– Elasticity of production with respect to agricultural output is expected to be positive with exponential growth.

4. Results and Discussions

Objective 1: To examine Investment Multiplier Effect on Agricultural Gross Domestic Output

Table1: Percentage Contribution of Agricultural Gross Domestic Output (AGDO) to Real Gross Domestic Product (RGDP).

Descriptive Statistics

Measurement Parameters	AGDO	RGDP

Minimum	20.20	1.52
Maximum	48.50	6.98
Mean	31.9267	3.5583
Standard Deviation	6.91076	1.85399
Coefficient of Variation	21.64570	52.10325

Field work Computation, 2020.

Table 2: Percentage Growth Rate of Agricultural Gross Domestic Output (AGDO) and Real Gross Domestic Product (RGDP)

Descriptive Statistics

Measurement Parameters	% Growth Rate in AGDO	% Growth Rate in RGDP
Minimum	-3.50	-10.75
Maximum	55.18	33.74
Mean	6.2387	4.9510
Standard Deviation	9.55741	6.92617
Coefficient of Variation	91.334	47.972

Field work Computation, 2020.

Descriptive statistics showed that there was a consistent and sustained growth in the real GDP in absolute terms with average growth rate of 3.55% (See Table 1) while the average percentage contribution of AGDO to real GDP was just 31.9% within the period under review. RGDP displaced 52.1% level of variability while AGDO displaced 21.6% which implied a slow growth rate in terms of percentage contribution of AGDO to RGDP. It evidenced that sample standard deviation was 52.1% of the value of sample mean for RGDP and 21.6% for AGDO. The annual percentage growth rate of both agricultural gross domestic output and real gross domestic product revealed the sluggish growth rate of the economy. In Table 2 the coefficient of variation for AGDO was 91.3% while RGDP was 47.9% level of variability. This was not an enduring and sustainable growth because the AGDO growth effect was an increasing but decreasing rate on the RGDP.

Regression Analysis and Unit Root Test

Augmented Dickey – Fuller (ADF) unit root test statistic was carried out. With reference to Augmented Dickey- Fuller test statistic, the implication of the data result was that D(AGVA) which represented Agricultural output at Value Added percentage contribution to Real Gross Domestic Product (RGDP) was stationary after first difference while D(INVEST) which represented Investment was also stationary after first difference. Similarly, D(RGDP) representing Real Gross Domestic Product and D(AGDO) Agricultural Gross Domestic output were stationary after first difference respectively. All the variables were significant at 5%

except Agricultural Gross Domestic Output (AGDO) that was significant at 1%. All series are integrated of order one [i. e. I (1)] showing linear combination for co integrating relationship.

Table 3: Augmented Dickey Fuller (ADF) Unit Root Test on Variables

Variables	ADF At Level	ADF at 1st Difference	Status/Decision
AGVA	-1.968656	-5.984141**	I(1)
INVEST	4.464459	-4.919029**	I(1)
RGDP	2.788059	-3.200525**	I(1)
AGDO	1.329862	-4.135233***	I(1)

/* denote stationary at 5% and 1% level of significance respectively
Source: Field work computation, 2020

Table 4: Multiplier Effect and Estimated Regression Equations with respect to Agricultural Gross Domestic Output (AGDO) at value added (AGVA) and Investment (INVEST)
Dependent Variable: AGDO @ AGVA.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	35.56266	1.421620	25.01559**	0.0000
INVEST	-0.038347	0.009786	-3.918516**	0.0007
R-squared	0.400335	Durbin-Watson Statistics		1.377386
Adjusted R-squared	0.374263	Prob. (F-statistics)		0.000689
F-statistics	15.35477			

** denotes significant @ 5% level
Source: Field Work Computation, 2020

Table 5: Multiplier Effect and Estimated Regression equations with respect to agricultural gross domestic output (AGDO) and Investment (INVEST)

Dependent Variable: AGDO

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	35.57455	1.427886	24.91414**	0.0000
INVEST	-0.038884	0.009829	-3.955902**	0.0006
R-squared	0.404903	Durbin-Watson statistics		1.358061
Adjusted R-squared	0.379029	Prob.(F-Statistics)		0.000628
F-statistic	15.64916			

** denotes significant @ 5% level

Source: Field Work Computation, 2020.

Table 6: Multiplier Effect and Estimated Regression equations (non-linear or exponential) with respect to agricultural gross domestic output (AGDO) at value added and Real Gross Domestic Product.
Dependent Variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGDO	-0.034465	0.011839	-2.911071***	0.0079
C	32.18854	0.385368	83.52669**	0.0000
R-squared	0.269246	Durbin-Watson statistic		0.256410
Adjusted R-squared	0.237474	Prob (F-statistic)		0.007867
F-statistic	8.474336			

** and *** denote significant @ 5% and 1% level
Source: Field work computation, 2020

Investment Multiplier (k_I) effect in the agricultural sector

The Keynesian investment multiplier (K) effect on the coefficient of the constant variable with respect to agricultural gross domestic output showed that by implication was 35.6% on agricultural output (See Tables 4 and 5) and 32.19% growth rate effect (See Table 5) on real gross domestic product due to non-agricultural output contribution to RGDP. The multiplier effect of investment on agricultural gross domestic output (AGDO) at value added in terms of increasing output and income was 0.963 times in the economy or [1/1-(- 0.038347)] or [1/1-(- 0.038884)] or 0.962 times in the sector.
This implied that investment multiplier effect (K) in agricultural sector within the period under review was 0.963 or 0.962 times in the economy. Investment did not create a significant positive effect on agricultural output and value chain in the sector. It showed that investment resources were underutilized or misapplied.
The significance test for $\boldsymbol{\beta}$was probably the most important for prediction in regression analysis (Lucey, 1996). Given the value of t-test statistic at 5% level of significance for two-tailed test with appropriate value of 2.048 (i. e. the value from t-tables), based on n – 2 degrees of freedom (28), it was possible to construct a test of significance for $\boldsymbol{\beta}$ (the gradient) of the regression for the multiplier to enable prediction. Since 3.96 or 3.92 > 2.048 with (df =28) degree of freedom and at 5% level of significance, then the null hypothesis (H_0) was rejected that $\boldsymbol{\beta}$ was significant and statistically different from zero. Hence this evidenced the basis of the regression estimate used for the investment multiplier.

Analysis of Empirical Results

The tables 4 showed that explanatory variable [Investment] exhibited a negative influence ($-\mathbf{0.038347}$) which did not conform to expected sign. The long-run influence of investment on agricultural gross domestic output (AGDO) at value added is - 0.038347 which is negative

but statistically significant at 5% level. This implies that the increase in investment of 1% decreased agricultural gross domestic output growth by 03.8%. The constant variable being the autonomous intercept of the model revealed a positive intercept that agricultural output at value added changed over the period without investment capital by 35.56% (35.56266). The p – value of 0.0000 of the constant variable meant that the constant variable was statistically significant at 5%. This might be due to peasant production that had no access to investment funds and other favorable natural factors that could stimulate agricultural production. The regression coefficient of determination was (R^2= 40%, i.e. [0.400335]). By implication it means that 40% variation or change in the agricultural output at value added was being explained by change in investment. The log linear regression results with (Table 6) showed the influence of real agricultural gross domestic output at value added on the real gross domestic product with the estimated equations. All the parameter estimates were significant at 5% and 1% level of significance. The probability values with their corresponding t-ratios and F-statistics showed that independent variable (AGDO) at value added was negatively significant influencing real gross domestic product (RGDP). Hence the null hypothesis (H_o) was accepted that agricultural gross domestic output (AGDO) influence real gross domestic product (RGDP) negatively. This is an exponential decay process (Budnick, 1993). This was at variance with the expected a-priori economic sign. The study showed that one percent increase in investment decreased agricultural gross domestic output at value added by 03.8% and in turn one percent increase in agricultural gross domestic output decreased real gross domestic product also by 03.4%. This could be the reason for high food imports and importation bills in the economy. This further improves on the work of (Bada, 2017) who did not include concept of elasticity of output in his study of bank credit investment effect on manufacturing and agricultural sectors of Nigerian economy.

Objective 2: To Measure the Elasticity of Production with respect to Agricultural Gross Domestic Output (AGDO) and Real Gross Domestic Product (RGDP).

The elasticity of production of (AGDO) at value added (AGVA) with respect to Real Gross Domestic Product (RGDP) and Real Investment (INVEST) are being measured based on the coefficients of the estimated equations which are the elasticities of the dependent variable with respect to the independent variable (Olayemi,1998).

$$\boldsymbol{E_i} = \frac{\boldsymbol{\Delta y}}{\boldsymbol{\Delta x}} \times \frac{\boldsymbol{x}}{\boldsymbol{y}} \quad \text{----------[19]}$$

$$E_i = \beta_1 \times \frac{\bar{x}}{\bar{y}} \quad \text{----------[20]}$$

$$E_i = \boldsymbol{\beta_1} \frac{\times}{\boldsymbol{\gamma}} \quad \text{----------[21]}$$

Where:

$\boldsymbol{E_{i=}}$ Elasticity of agricultural output or production with respect to Real Gross Domestic Product or Investment

$\boldsymbol{\beta_1}$ = Slope and estimator coefficient

$\bar{\boldsymbol{x}}$ = Average value of Agricultural Gross Domestic Output (AGDO) or Investment

$\bar{Y}$ = Average value of Real Gross Domestic Product or Agricultural Gross Domestic Output at Value Added (AGVA).

$$(\boldsymbol{A})\boldsymbol{\beta_1}\ (\boldsymbol{RGDP_t}) \times \frac{\boldsymbol{AGDO_t}}{\boldsymbol{RGDP_t}} = \boldsymbol{\beta_1} \times \boldsymbol{AGDO_t}$$

$\log RGDP_t = 32.18854 + - 0.034465AGDP_t + u_i$

n =30

$\sum AGDO_t = \sum x = 955.8$
$\sum RGDP_t = \sum y = 106.75$
$\boldsymbol{\beta_1}$ = -0.034465
$\bar{x}(\boldsymbol{AGDO_t}) =$ 955.8 ÷ 30 = 31.866,
$\bar{y}$ ($\boldsymbol{RGDP_t}$) = 106.749272 ÷ 30 = 3.558
$-0.034465 \times \frac{31.866}{3.558} = \boldsymbol{-0.31}$
$(\boldsymbol{B}) \quad \boldsymbol{\beta_1}\ (\boldsymbol{AGVA_t}) \times \frac{\boldsymbol{INVEST_t}}{\boldsymbol{AGVA_t}} = \boldsymbol{\beta_1 \times INVEST_t}$
$AGDO_t$ ($AGVA_t$ % RGDP) = 35.56266 + (- 0.038347$INVEST_t$) + u_i
n = 30
$\sum INVEST_t = \sum x = 3472.4$
$\sum AGDO_t$ @ ($AGVA_t$) = $\sum y = 108.5$
$\boldsymbol{\beta_1}$ = − 0.038347 or – 0.038884
$\bar{x}(\boldsymbol{INVEST_t}) = \boldsymbol{3472.4} \div 30 = 115.746$
$\bar{y}$ ($\boldsymbol{AGVA_t}$) =AGDP at Value Added (AGVA) = 108.5 ÷ 30 = 3.616
$\boldsymbol{-0.038347} \times \frac{115.746}{3.616} = \boldsymbol{-1.23}$ or $\boldsymbol{-0.038347} \times \frac{115.746}{3.616} = \boldsymbol{-1.23}$
Source: Field work computation 2020

The parameter estimates obtained were inelastic ($\boldsymbol{-0.31\ and\ -1.23}$) and insignificant which implied that investment did not influence agricultural output at value added (AGVA).The estimated elasticity of AGDO percentage growth rate in terms of mean value to RGDP and INVEST were -0.31 and -1.23 respectively. The elasticity revealed that real gross domestic product (RGDP) was highly inelastic to changes in agricultural gross domestic output with a negative coefficient of (-0.034465) and agricultural gross domestic output at value added was highly inelastic to changes in investment with a negative coefficient value of (-0.038347 or -0.038884). This was in line with (Kumbhakar, 1994) who said elasticity of production (EOP) was the same as the estimated coefficients of independent variables. This is shown by the fact that parameter estimates are inelastic and negative ($\boldsymbol{-0.034465, -0.31}$) $\boldsymbol{and}$ ($\boldsymbol{-0.038347\ or\ -0.038884, -1.23}$). Hence, the degree of responsiveness of percentage change in growth rate in AGDO at value added was associated to -0.31% change in growth rate in RGDP. On other hand elasticity of – 1.23% showed the degree of responsiveness of AGDO at value added to a point change in investment. This agreed with the studies carried out by (Uzowulu *et al.*, 2007) and (Enya and Bime, 2007) that elasticity estimates showed that agricultural output was inelastic with respect to change in investment credit.

5. Conclusion

The average growth rate in the agricultural sector had also declined during the period under study despite the rising profile of investment to the sector. There was a significant difference in the average growth rate between investment and AGDO. The difference was evidenced in the negative growth rate of agricultural output (-0.038884) against the rising profile of the value of investment. This means that the average growth rate of the value of investment to the sector lead to negative growth rate on the agricultural gross domestic output. This is in line with the studies of Enya and Bime (2007), Uzowulu et al., (2008).

The multiplier effect (K_I) investment was as low as 0.963 times (i.e approximated one time) effect in the economy. This means that investment purveyance into the agricultural sector had a low multiplier effect in increasing output, employment, income and wealth in the sector. This is in line with the theoretical framework of investment multiplier (Jhingan, 2006).

The elasticity of the production with respect to output in the sector was also of negative value and less than one which made production to be inelastic. Hence agricultural growth was inelastic and results of the study did not conform with the a-priori expectation. The study recommended that real investment remains a key factor to energize and motivate agricultural production in the sector. The output expansion path in the sector must be tied to efficient, effective delivery and monitoring of investment funds in the sector.

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RELATIONSHIP BETWEEN SUSTAINABLE ECONOMIC DEVELOPMENT AND TRADE INTEGRATION IN NIGERIA

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Abstract

Sustainable development is important to any economy or society. It ensures efficient use of resources, a fair distribution of revenues, an overall increase in the level of prosperity, transformation of the economy and aims to achieve sustainable positive growth. This concept is usually analysed in three dimensions; economic, social and environmental. This study concentrates on the economic dimension of sustainable development. The economic dimension is primarily understood as sustainable economic growth measured by the dynamics of GDP growth. Trade integration is an important component of growth in countries and can contribute to greater equity, wealth and achievement of sustainable development especially for developing countries. Therefore, the objective of this paper is to present the relationship between sustainable development from the economic point of view and trade integration especially in Nigeria.

This study uses a descriptive methodology which analyses literary and statistical information on sustainable development and trade integration.

The findings of the study show that sound economic growth is a requirement for sustainable development which hinges on efficient trade integration. The implication is that a stable economic growth that is linked to trade integration enhances the achievement of sustainable development.

The study concludes that there is need for trade integration which enables access to large markets and absence of trade barriers thereby promoting inclusive and sustainable economic development.

Key Words: Sustainable Development, Economic Growth, Trade Integration

Introduction

Sustainable development is important to any economy or society. It ensures efficient use of resources, a fair distribution of revenues, an overall increase in the level of prosperity, transformation of the economy and aims to achieve sustainable positive growth. In addition, sustainable development aims to prevent exclusions in the global economy and to create the conditions for development thereby raising the standard of living of all people. According to the United Nations, sustainable development is "development that meets the present without compromising the ability of future generations to meet their own needs, in particular essential needs of the world's poor, to which overriding priority should be given and the idea of limitations impose by the state of technology and social organization on the environment's ability to meet present and future needs." This concept is usually analyzed in three dimensions; economic, social and environmental. This paper, therefore, concentrates on the economic dimension of sustainable development. The economic dimension is primarily understood as sustainable economic growth measured by the dynamics of GDP growth. Sustainable growth is primarily a fully measurable increase in Gross Domestic Product (GDP) over a defined period of time. The aim of sustainable policy is therefore to achieve sustainable positive growth dynamics and to actively develop environmentally friendly individuals and institutional strategies and the reduction of social inequalities.

Trade integration undoubtedly plays an important role in the creation of a sustainable global economy. It is an agreement to reduce or eliminate trade barriers and increase access to larger

markets. Also, international trade is notable for the development of individual countries and regions. Some of the benefits of international trade are access to wide range of markets, absence of trade barriers and the possibility of economies of scale. It is not only a source of national income and economies of scale, but also a harmonious development of all countries and peoples including the least developed countries and the poorest countries. International trade has a significant impact on a country's national income, standard of living and wealth of its population; positive trade balance increases gross national product (GNP) and thus this variable also increases the value of national income.

Sustainable Economic Growth and Trade Integration Nexus

The economic aspect of sustainable development delves into the united nation's sustainable development goals (SDGs), highlighting its key role in poverty eradication, economic growth and reduced inequalities and international trade can be a powerful tool for developing countries to reduce poverty and achieve sustainable development. To harness this potential, the integration of trade in national development plans helps ensure coherence across government activities. But less developed countries have limited capacity to mobilize resources to formulate, implement and monitor trade policies that are articulated within development strategies.

For instance, goal eight (8) of the sustainable development goals (SDGs) refers specifically to the economy and calls for stable, sustainable, inclusive growth, full and productive employment and decent work for all. This can be achieved by increase in economic productivity through trade diversification, technological modernization, innovation and efficiency of the use of natural resources for global consumption and production.

Therefore, the importance of international trade in achieving the SDGs needs to be clearly emphasized; that is, maintaining stable economic growth which is a prerequisite for achieving most of the desire results, reducing disparities in the level of development of different countries through the exchange of knowledge and technology, improving the prosperity of the poorest and underdeveloped countries by integrating them into the world economy, promoting the value of trade and possibility of achieving economies of scale and resource allocation through access to the markets of several countries.

Furthermore, in the 2015 agenda of sustainable development and especially in SDG 17, international trade is singled out as a key policy instrument to contribute to all other SDGs. The 2030 agenda for sustainable development defines international trade as "an engine" for inclusive economic growth and poverty reduction, that contributes to the promotion of sustainable development. Therefore, in order for trade to become a "sustainable engine", one approach that seems to be increasingly used is to internalize socials economic and environmental concerns in international trade. Although, shocks like the oil crisis in 1970s, the financial crisis in 2008 and the COVID 19 pandemic in 2020 have had a negative impact on the growth of trade, nevertheless, there has been a significant growth in international trade from 1970s onwards (UNCTAD, 2021).

Essentially, majority of less developed countries (LDCs) seek to integrate trade in their national level development strategies. The case for integrating trade in such development planning stems from the recognition that trade can help attain development objectives including reducing poverty and developing sustainably but that these benefits are not automatic, they require complementary policies and investments to realize this potential. Similarly, the purpose of integrating trade in development planning is to sustainably improve livelihoods, contribute to

sustainable development and help extricate less developed countries (LDCs) from the poverty trap. However, barriers to trade can create impediments to the achievement of sustainable development particularly for developing countries and trade liberalization is an important component of progress towards sustainable developments for all countries.

Trade is defined as "the process of integrating trade into national and sectoral development planning, implementation and review in a coherent and strategic manner (UNDP-EIF, 2011). It takes place at the level of policy institutions and international cooperation. According to World Trade organization (WTO) 2018, trade integration requires a deliberate effort to integrate trade into the various dimensions of government activity and policy making. It also requires public and private sector participation, creating and establishing statistical capacity to measure progress and many rounds of consultation to ensure trade, alongside finance and investment technology and capacity building, all work towards creating the structure to allow a country to benefit from trade and to see social, economic and environmental improvements.

Any trade strategy must stem from a nation's goals regarding its development path and the type of society its citizens wish to create. While approaches can differ, depending on governance structure, domestic political economy and culture, most LDC governments have mechanisms in place that allow for stakeholder dialogues to facilitate the formation of consensus around trade priorities. The enhanced integrated framework (EIF) brings together partners and resources to support the least developed countries in using trade for poverty reduction, inclusive growth and sustainable development.

In order for trade to become a "sustainable engine", one approach that seems to be increasingly used is to internalize social, economic and environmental concerns in international trade.

International trade can bring prosperity but potentially also create negative social and environmental consequences through direct effects and indirect effect (increased competition which generates pressures to cut production costs) (Irwin, WTO, 2018). The economic and social benefits of trade have been detailed by many economists and are multifold. They include export-led economic growth, positive income effects, technological innovation and poverty alleviation.

Sustainable development and open trade go hand-in-hand and the multilateral trading system helps create the enabling environment for countries to realize the sustainable development and green economy vision. According to Rio declaration of the world trade organization (WTO), principle 12, governments should strive to achieve the following objectives; to promote an open, non-discriminatory and equitable multilateral trading system that will enable all countries in particular, the developing countries to improve their economic structures and improve the standard of living of their population through sustained economic development; to improve access to markets for exports of developing countries; to promote and support policies, domestic and international, that make economic growth and environmental protection mutually supportive. Agenda 21 also put special emphasis on promoting an international trading system that takes account of the needs of developing countries. One of the WTO's basic aims is to ensure developing countries get the trade opportunities that will enable them to grow and develop, thus, helping in the fight against poverty.

Conclusion

Trade integration has helped developing countries play a bigger role in the global economy (Dupuy and Agarwala, 2014). International trade is concerned with the efficient allocation of goods and capital, contributing to sustainability via productivity improvement and increased

welfare (Dupuy and Agarwala, 2014). International trade supported by strong international cooperation, embodied in the multilateral trading system can be a powerful force for creating job (SDG 8; decent work and economic growth) fostering efficient use of resources, stimulating entrepreneurship and ultimately lifting people out of poverty (SDG 1: No poverty). This results in industrialization and development, helping to achieve SDG 9 (industry, innovation and infrastructure).

Also, WTO rules try to reduce the impact of existing inequalities through the principle of special and differential treatment for developing countries which helps in attaining SDG 10 (reduced inequalities). In addition, trade lays a critical role in addressing hunger, food security, nutrition and sustainable agriculture (SDG 2: zero hunger), contributing to healthy lives and wellbeing (SDG 3: good health and wellbeing) among others.

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EVALUATING THE IMPACT OF INFORMAL TRADE ON REGIONAL INTEGRATION: LESSONS FROM AFCFTA IMPLEMENTATION IN BARUTEN LOCAL GOVERNMENT, KWARA STATE

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Abstract

The African Continental Free Trade Area (AfCFTA) represents a significant milestone in regional economic integration, aiming to boost intra-African trade and foster sustainable economic development. However, the implementation of the AfCFTA faces various challenges, particularly concerning informal trades that dominate many African economies. Research indicates that informal trade accounts for approximately 60% of GDP in developing countries, while 64% of Nigeria's GDP loss is attributed to this menace. The presence of about 67 unmanned or porous borders in Kwara State, particularly in Baruten Local Government, poses a major concern for stakeholders. This paper provides a comprehensive assessment of the impact of informal trade on regional integration, specifically in the context of AfCFTA implementation, covering borders, markets, and various loading points in Baruten. The research employed direct observation methods, utilizing questionnaires and oral interviews with key operators and facilitators in the sector. A mixed-method approach combined theories of the informal economy and regional integration, using purposive sampling for the business survey in the study areas. Descriptive statistics were used to assess the challenges posed by informal trade and to explore potential opportunities for enhancing regional economic integration in Baruten. The study identified infrastructural decay, bureaucratic burdens, and corruption as contributing factors to informal trade. Addressing these issues involves engaging key stakeholders in border communities, a strategy adopted by the government to integrate informal traders in Nigeria. This paper offers valuable insights for policymakers and stakeholders as they navigate the complexities of both informal and formal trade interactions within the framework of regional economic integration.

Keywords: ***AfCFTA, Baruten Local Government, Informal Trade, Regional Integration, Economic Diversification.***

Introduction

The African Continental Free Trade Area (AfCFTA) represents a significant milestone in regional economic integration, aiming to boost intra-African trade and foster sustainable economic development. Discussions around the AfCFTA often highlight the role of regional integration in shaping economic and political changes within international relations (Bio and Obi, 2001). However, the effective implementation of AfCFTA encounters several challenges, particularly from informal trade, which is prevalent in many African economies. Sinha (2009) notes that, on average, 60% of employment in developing countries occurs in the informal sector. Informal trade is one of the major deficiencies that largely believed to have been affecting the Nigerian economy. This notion is owing to some factors that are not unconnected with infrastructural decadence, bureaucratic burdens, corruptions and other menaces too numerous to mention. In Nigeria, informal trade significantly impacts the economy due to factors such as infrastructural decay, bureaucratic hurdles, and corruption. Research indicates that approximately 64% of Nigeria's GDP loss is linked to informal trade (Golub, 2012; ExportNigeria, 2016).

Contrarily, the dearth of unemployment, poverty ridden, trade constraints and others that are being mitigated by the strength of informal trades become a needle in the haystack of the concerned stakeholders. While informal trade can alleviate some economic pressures, it also presents challenges, including a lack of regulatory mechanisms, tax evasion, limited access to finance, skill gaps, economic vulnerability, infrastructural decay, unfair market competitiveness among others. The high profit margins and bureaucratic burdens associated with informal trade exacerbate the issue, particularly in border regions with porous borders. Curtailing the menace involve the key stakeholders around the border communities as an important strategy adopted by the government to mainstream the players of informal trades in Nigeria. The possibility of the integrated task which is no doubt interconnected with the Government, facilitators, communities and the operators of the sector. The height of informal trade activities as mostly determined by the porous/unmanned borders as reiterated that about 67 of such can be found in Kwara State alone (NCS Kwara Command, 2023).

Kwara State, known for its agricultural potential, has informal trade deeply woven into its local economies. In Baruten Local Government, informal trade operates outside formal regulatory frameworks, leading to ineffective policies and missed opportunities for economic diversification. While informal trade can reduce barriers and enhance competitiveness, it also complicates the objectives of the AfCFTA. This study aims to explore the relationship between informal trade and regional integration efforts in Baruten, highlighting the necessity for policymakers to develop strategies that incorporate informal trade into formal economic frameworks. By addressing existing gaps, the research will analyze the strengths, weaknesses, opportunities, and threats (SWOT) associated with informal trade in Baruten. Discussion of the research findings premised on the following research objectives:

1. Analyzing the SWOT of informal trade activities in Baruten.
2. Evaluating the impacts of informal trade on regional integration.
3. Investigating the implications of informal trade for the AfCFTA in Kwara State.

Conceptual Clarification

The African Continental Free Trade Area (AfCFTA): AfCFTA offers a vital opportunity for African countries to boost regional integration and economic growth. It seeks to enhance intra-African trade and reduce dependence on primary commodity exports, which have made many economies vulnerable to global market fluctuations (Akosile, 2016). AfCFTA embodies regional integration, reflecting ethno-regionalist sensibilities (Edun, Adamu & Ayinde, 2022). The World Bank Group (2020) indicates that AfCFTA aims to help policymakers maximize benefits while minimizing risks. As a State Party, Nigeria is focused on capturing significant gains from AfCFTA and reducing costs. However, addressing preexisting informal trade activities that hinder cost reduction, particularly in Baruten, Kwara State, poses challenges that could undermine AfCFTA benefits. While Africa's economies are growing, they still heavily rely on primary commodity exports, which leave them exposed to global price swings (Akosile, 2016).

Informal Trade Activities: Informal trade involves buying and selling commodities across borders without documentation or formal arrangements. These activities are essential for border dwellers, addressing supply and demand imbalances (International Monetary Fund, 2019). Informal trade is widespread in Africa, particularly in Nigeria, where it constitutes a significant part of the informal sector and serves as a major source of employment (International Monetary Fund, 2019). The IMF notes that informal economic activities have market value and could enhance tax revenue and GDP if properly recorded. In Nigeria, informal trade accounts for 64% of GDP, influenced by bureaucratic burdens and corruption (ExportNigeria, 2016). The informal trade thrives in areas with high foot traffic, allowing traders to reach more customers. The cumbersome business processes require exporters to provide numerous documents, which complicates formal trade. Harsh economic conditions also drive people toward smuggling as a means of economic survival (Abubakar and Sha'aban, 2022).

Baruten Local Government: Kwara, a north-central state in Nigeria, comprises 16 Local Government Areas, including Baruten Local Government Area (LGA). Baruten is the largest in Kwara, covering 9,749 square kilometers (3,764 square miles) and is located in the northern part of the state, bordering the Republic of Benin from Ilesha Baruba to Chikanda (Shuaib-Babata et.al., 2018). Baruten has an estimated population of 310,300 residents, making it one of the most populated areas in the state (Brinkhoff 2022). Key economic contributors in Baruten include the local council, traditional rulers, border security, market associations, suppliers, and transport operators. Despite its size and resources, Baruten faces challenges like limited infrastructure, inadequate healthcare, and low education levels, making access to basic services difficult. Nevertheless, Baruten has opportunities for growth through agricultural expansion, mining, and tourism, while its proximity to Benin fosters cross-border trade and economic cooperation.

Regional Integration: Regional integration in this context refers to the regionalization of the African economy, closely linked to the establishment of the African Continental Free Trade Area (AfCFTA). This initiative reflects intra-African development and ethno-regionalist sensibilities (Edun, Adamu & Ayinde, 2022). Regional integration enhances Africa's

participation in various multilateral organizations, including the WTO, ETLS, AGOA, NEPAD, and AfCFTA, across global, continental, and sub-regional levels. Free trade represents expanded market liberalism and opportunities for member states. Prior examples of regional integration include the European Union (EU), North American Free Trade Area (NAFTA), and arrangements in the Asia-Pacific. The launch of AfCFTA in the 21st century aligns with global economic regionalization and aims to establish a genuine trade regime as outlined in Article 24 of the General Agreement on Tariffs and Trade (GATT). The AfCFTA offers significant economic prospects, and Nigeria, as a State Party, is actively pursuing substantial benefits from its implementation.

Economic Development: Development is a complex issue with various contentious definitions. A basic perspective equates development with economic growth, closely linked to employment on a macro level. Halperin (2015) argues that development relies on national economic growth to foster capitalist economic development and political stability. Modernization promotes international trade in products suited to national endowments, leading to efficient resource allocation and greater earnings, which can be saved to promote further development (Halperin, 2015). Seers (1969) posits that development involves reducing poverty, inequality, and unemployment. A lack of these elements signifies underdevelopment, characterized by backwardness and stagnation (Shaiye, 1998). Development embodies empowerment, allowing local people to control their lives and find solutions to their problems. Informal trades are typical forms of empowerment, generating economic growth through employment and supporting AfCFTA initiatives. However, issues such as smuggling, bureaucratic burdens, corruption, and infrastructural deficiencies plague informal trade activities in Nigeria.

Theoretical Framework

Informal economy and regional integration theories: The adoption of informal economy and regional integration theories clarifies the interplay between domestic and external factors in this study. **Informal Economy Theory** examines informal trade and economic activities within a broader economic context, exploring how informal markets operate and interact with formal economies. This framework helps analyze the nature of informal trade in Baruten, highlighting unregulated and untaxed economic activities that are vital for survival in developing regions. Informal markets interact with formal economies, influencing labor markets, business practices, and economic policies, resulting in competition and collaboration that shape regulatory frameworks and development strategies. While economic development is often linked to Modernization Theory, informal economy theory serves as a transitional phase in this process (Roberto, 2022). In Baruten, local informal markets are essential for income and employment, particularly where formal jobs are scarce.

Regional Integration Theory focuses on the processes and challenges of economic integration, assessing how informal trade impacts the implementation of AfCFTA and regional goals in Africa. This theory covers trade liberalization, economic cooperation, and social integration, fostering increased efficiency and resource allocation. The study evaluates how informal trade dynamics in Baruten may support or hinder AfCFTA objectives and examines local traders' perceptions of formalizing their practices, providing insights for integrating informal traders into the formal economy to enhance regional integration. By applying the two theories, the study can assess how informal trade dynamics in Baruten can either hinder or support the objectives of AfCFTA by evaluating the volume and nature of informal trade

occurring in Baruten and its alignment with AfCFTA goals. The theories understudy the perceptions of local traders regarding the benefits and challenges of formalizing their trade practices, and provides policy implications for integrating informal traders into the formal economy to enhance regional integration.

Research Methodology and Survey Design

The study utilized a mixed-methods survey design, combining qualitative and quantitative approaches with both primary and secondary data sources. Secondary data were obtained from journal articles, newspapers, magazines, and books. Primary data were collected using purposive sampling from ten identified groups across Baruten. A total of 400 questionnaires were administered, with 296 successfully retrieved from stakeholders. Additionally, the research included detailed observations, key informant interviews (KII) with 20 respondents, and focus group discussions (FGD) with 10 relevant groups. The study focused on informal cross-border traders, gathering quantitative data on demographics, income levels, types of goods traded, and trading frequency. Qualitative data were analyzed using content analysis to identify recurring themes and patterns, while quantitative data were processed through statistical methods, calculating Mean and Percentages with visualizations to reveal trends and relationships. A SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) was conducted, providing a structured evaluation of informal trading characteristics within the AfCFTA framework.

Sample Size and Sampling Techniques

The study covers the activities of the market and its operators, collaborators, transporters, traditional rulers, and security personnel at the border, such as the Nigeria Customs Service, among other stakeholders in Baruten Local Government of Kwara State. All categories of sample size for each of the populations were determined based on the population size of the respondents, with an acceptable margin of error. Considering the large population of respondents, the study employed stratified and purposive sampling to include 12,575 individuals from the population. To generate the sample size, Taro Yamane's (1973) formula was applied to calculate the required sample size (n) from the large population size (N).

$$\boldsymbol{n} = \frac{\boldsymbol{N}}{(\mathbf{1} + \boldsymbol{N})(\boldsymbol{e})^{\mathbf{2}}}$$

Table 1. Stratum allocation

S/N	Organization	Population	Sample Size (n)	Percentage
1	**Trade Association**	**5,349**	**170**	**42**
2	**Merchants/Suppliers**	**1,992**	**63**	**16**
3	**Transporters/Logistics**	**1,281**	**41**	**10**
4	**Border Securities**	**109**	**3**	**1**

5	**Baruten Local Govt**	**531**	**17**	**4**
6	**MSMEs/SMEs**	**312**	**10**	**3**
7	**Farmers Association**	**2,250**	**72**	**18**
8	**Kwara-SCEP**	**155**	**5**	**1**
9	**MBIT/TSOs/MDAs**	**517**	**16**	**4**
10	**Community Leaders**	**79**	**3**	**1**
Total	**----------**	**12,575**	**400**	**100**

Source: Author's Field Report, 2024

Data Presentation and Analysis

Based on the 400-sample size of the study population, questionnaires administered on each of the key stakeholders. The stakeholders include Baruten Local Government, Albarka Commodities Suppliers Association, Community Leaders, Trade/Market Association, Border Securities, Trade Support Organizations, Transporters/Logistics Operators, Farmers Associations, Organized Private Sector, and MSMEs/SMEs.

Demographic Data of the Participants

Demographic information of the respondents reflects a diverse and inclusive contribution and robustness of the survey. It spread with diverse representation across different demographic categories ensures a comprehensive exploration of perspectives relevant to the research. Out of the total of 400 copies shared across to the target population, 296 copies were retrieved, representing 74 percent as tabulated below:

Table 2. Demographic Information

Gender	***Frequency***	***Percentage***
Male	**162**	**54.7**
Female	**134**	**45.3**
Total	**296**	**100**
Marital Status	***Frequency***	***Percentage***
Single	**79**	**26.7**
Married	**109**	**36.8**
Divorced	**62**	**20.9**
Others	**46**	**15.5**
Total	**296**	**100**

Age	***Frequency***	***Percentage***
18-27	**59**	**20**
28-37	**71**	**24**
38-47	**92**	**31**
48-57	**32**	**11**
Above 57	**42**	**14**
Total	**296**	**100**
Education	***Frequency***	***Percentage***
Primary	**104**	**35.1**
Secondary	**95**	**32.1**
Tertiary	**61**	**20.6**
Others	**36**	**12.2**
Total	**296**	**100**
Ethnic Background	***Frequency***	***Percentage***
Baruten	**114**	**38.5**
Hausa/Fulani	**81**	**27.4**
Yoruba	**66**	**22.3**
Others	**35**	**11.8**
Total	**74**	**100**

Source: Author's Survey, 2024.

SWOT Analysis of the Impact of Informal Trades

The SWOT analysis table consists of five variables related to informal trade activities, with each variable assessed on a scale from "Strongly Disagree" (SD) to "Strongly Agree" (SA). The mean score for each variable is calculated, providing an insight into how participants perceive these aspects of informal trade. The range of responses shows varying levels of agreement among respondents, reflecting diverse opinions and experiences within the informal trade sector.

1. The Strength of Informal Trades:

Table 3. Opinion Description 1: Indices of the Strength.

S/N	*Variables (Items)*	*SD*	*D*	*N*	*A*	*SA*	*Mean*	*Remarks*

1.	**Informal trade activities in Baruten Local Government strengthen the *Market Accessibility*.**	**59** ***19.9 %***	**34** ***11.5 %***	**10** ***3.4%***	**91** ***30.7 %***	**102** ***34.5 %***	***3.48***	***High***
2.	***Diverse Product Offerings* characterized as one of the strengths of informal trade activities in Baruten Local Govt.**	**61** ***20.6 %***	**42** ***14.2 %***	**6** ***2.02 %***	**90** ***30.4 %***	**97** ***32.8 %***	***3.41***	***High***
3	**It is *Low Operational Cost* that heighten the strength of the informal trade operators in Baruten Local Government.**	**62** ***20.9 %***	**40** ***13.5 %***	**7** ***2.36 %***	**93** ***31.4 %***	**94** ***31.8 %***	***3.40***	***High***
4	**It is opportunity of *Flexibility and Adaptability* that strengthen the informal trade activities in Baruten Local Govt.**	**49** ***16.6 %***	**51** ***17.2 %***	**16** ***5.40 %***	**89** ***30.1 %***	**91** ***30.7 %***	***3.41***	***High***
5.	**It is the *Low Entry Barrier* that has strengthened the influx of informal trade activities in Baruten Local Government.**	**55** ***18.6 %***	**48** ***16.2 %***	**10** ***3.4%***	**85** ***28.7 %***	**98** ***33.1 %***	***3.42***	***High***

N.B: *Very high = 4.2-5.0, High = 3.40-4.19, Moderate = 2.60-3.39, Low = 1.8-2.59, and Very low = 1.0-1.79*
Source: Author's Field Survey Computation, 2024

2. The Weaknesses of Informal Trades:

Table 4. Opinion Description 2: Indices of the Weaknesses.

S/N	*Variables (Items)*	*SD*	*D*	*N*	*A*	*SA*	*Mean*	*Remarks*
1.	**Informal trade activities associated with *Lack of Regulation* in Baruten Local Government.**	**44** ***14.9 %***	**58** ***19.6 %***	**19** ***6.4%***	**74** ***25%***	**101** ***34.1%***	***3.44***	***High***
2.	***Limited Access to Finance* contributed to the weaknesses of formalizing the informal trade activities in Baruten LG.**	**57** ***19.3 %***	**42** ***14.2 %***	**4** ***1.4%***	**89** ***30.1 %***	**104** ***35.1%***	***3.48***	***High***
3	**It is the *Economic vulnerability* that has compounded the informal trade weaknesses in Baruten Local Government.**	**39** ***13.2 %***	**51** ***17.2 %***	**7** ***2.4%***	**94** ***31.8 %***	**105** ***35.5%***	***3.59***	***High***

4	**The weaknesses of the *Skill Gaps* identified as a major impediment in the informal trade activities in Baruten LG.**	**48** *16.2 %*	**57** *19.3 %*	**11** *3.7%*	**94** *31.8 %*	**86** *29.1%*	***3.3 8***	***Moderat e***
5.	**Informal trade activities associate with *Stigmatization* as one of the weaknesses in Baruten Local Government.**	**50** *16.9 %*	**49** *16.6 %*	**17** *5.7%*	**79** *26.7 %*	**101** *34.1%*	***3.4 5***	***High***

N.B: *Very high = 4.2-5.0, High = 3.40-4.19, Moderate = 2.60-3.39, Low = 1.8-2.59, and Very low = 1.0-1.79*
Source: Author's Field Survey Computation, 2024.

3. Potential Opportunities for Informal Trade:

Table 5. Opinion Description 3: Indices of the Opportunities.

S/ N	*Variables (Items)*	*SD*	*D*	*N*	*A*	*SA*	*Me an*	*Remarks*
1.	**Informal trade activities create *Market Demand* opportunity in Baruten Local Government.**	**62** *20.9 %*	**42** *14.2%*	**6** *2.02 %*	**91** *30.7 %*	**95** *32.1 %*	***3.3 9***	***Moderat e***
2.	**There is *Employment Generation* in the activities of informal trades in Baruten Local Government.**	**39** *13.2 %*	**44** *14.9%*	**4** *1.2%*	**97** *32.8 %*	**112** *37.8 %*	***3.6 7***	***High***
3	**Informal trade activities provide opportunity of *Economic Environment* in Baruten Local Government.**	**41** *13.9 %*	**32** *10.8%*	**7** *2.4%*	**111** *37.5 %*	**105** *35.5 %*	***3.7 0***	***High***
4	**There is opportunity of *Regulatory Changes* tendency in the environment of informal trade activities in Baruten LG.**	**39** *13.2 %*	**42** *14.2%*	**13** *4.4%*	**94** *31.8 %*	**108** *36.5 %*	***3.6 4***	***High***

5.	**Informal trade activities proffer *Demographic Shifts* which create new businesses opportunity in Baruten LG.**	**42** ***14.2 %***	**35** ***11.8%***	**11** ***3.7%***	**98** ***33.1 %***	**110** ***37.2 %***	***3.6 7***	***High***

N.B: *Very high = 4.2-5.0, High = 3.40-4.19, Moderate = 2.60-3.39, Low = 1.8-2.59, and Very low = 1.0-1.79*
Source: Author's Field Survey Computation, 2024

4. The Threats of Informal Trades

Table 6. Opinion Description 4: Indices of the Threats.

S/N	*Variables (Items)*	*SD*	*D*	*N*	*A*	*SA*	*Mean*	*Remarks*
1.	**Informal trade activities will confront the threat of *Insecurity of Lives and Properties* under AfCFTA in Baruten LG.**	**42** ***14.2 %***	**47** ***15.9 %***	**10** ***3.4%***	**99** ***33.4 %***	**98** ***33.1 %***	***3.55***	***High***
2.	**The *Regulatory Environment* avail with the AfCFTA become a threat to informal trade activities in Baruten LG.**	**31** ***10.5 %***	**34** ***11.5 %***	**20** ***6.8%***	**84** ***28.4 %***	**127** ***42.9 %***	***3.82***	***High***
3	**AfCFTA implementation will usher in an unfair *Market Competition* against the informal trades in Baruten LG.**	**51** ***17.2 %***	**41** ***13.9 %***	**9** ***3%***	**93** ***31.4 %***	**102** ***34.5 %***	***3.52***	***High***
4	**The threat of *Economic Instability* will affect informal trade activities of Baruten LG. in the AfCFTA regime.**	**39** ***13.2 %***	**38** ***12.8 %***	**12** ***4.1%***	**109** ***36.8 %***	**98** ***33.1 %***	***3.64***	***High***

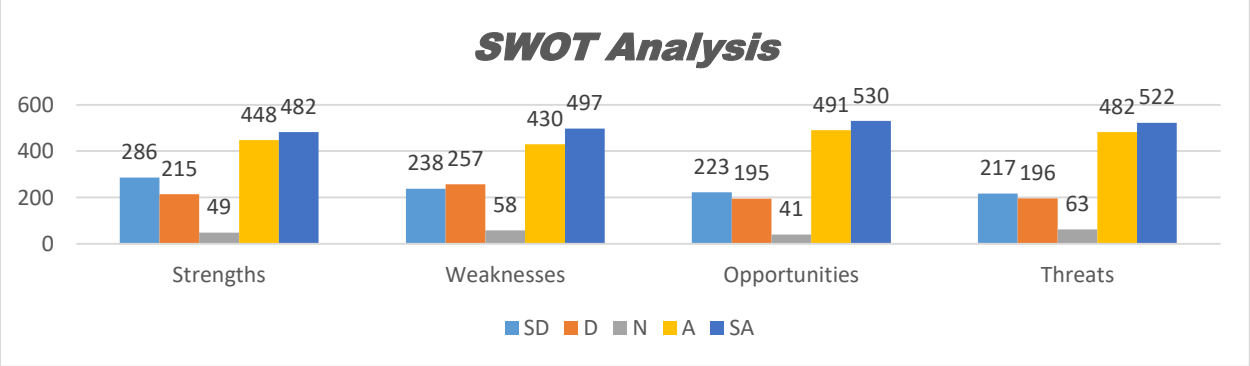
5.	**The *Infrastructural Deficiencies* in Baruten LG will affect the informal trade activities within the AfCFTA context.**	**54** ***18.2 %***	**36** ***12.2 %***	**12** ***4.1%***	**97** ***32.8 %***	**97** ***32.8 %***	***3.50***	***High***

N.B: *Very high = 4.2-5.0, High = 3.40-4.19, Moderate = 2.60-3.39, Low = 1.8-2.59, and Very low = 1.0-1.79*
Source: Author's Field Survey Computation, 2024

Discussion of the Research Findings

This section presents discussions about the findings of the study in a bid to evaluate the impact of informal trade on regional integration in the context of AfCFTA in Baruten Local Government. The results of findings by the opinion descriptions from table 4-7 with descriptive statistics in which the analysis of Mean indicate that market accessibility is a major strength, while its major weakness is economic vulnerability. Similarly, the findings also portend that economic environment generation becomes a major opportunity as the major threat is regulatory environment. However, the findings based on the SWOT analysis displays highest rating Agreed (A) + Strongly Agreed (SA) and Disagreed (D) + Strongly Disagreed to determine the impact of the informal trades in Baruten analyzed.

Fig.1 SWOT Analysis Output



Source: Author's Survey Result, 2024

The Strengths are notably recognized, with **482** respondents strongly agreeing with the identified strengths, followed by **448** who agree, indicating a strong overall confidence in the organization's capabilities. However, there are **286** strongly disagreeing and **215** disagreeing, suggesting some areas of contention or differing perceptions. **Weaknesses** present a mixed picture; while **497** respondents strongly agree that weaknesses exist, there are also **430** who agree, indicating a significant awareness of the organization's shortcomings. The numbers of those strongly disagreeing (**238**) and disagreeing (**257**) suggest that some individuals feel less impacted by these weaknesses. **Opportunities** garner the most positive sentiment, with **530** respondents strongly agreeing on the existence of potential opportunities, and **491** agreeing,

showcasing a robust optimism regarding future prospects. However, the **223** who strongly disagree and **195** who disagree highlight some skepticism. The **Threats** are also perceived seriously, as reflected by **522** strong agreements and **482** agreements. This indicates a significant awareness and concern over potential challenges, while the **217** who strongly disagree and **196** who disagree suggest that some respondents may not perceive these threats as imminent. The data indicates a strong recognition of strengths and opportunities, coupled with a substantial acknowledgment of weaknesses and threats, suggesting that while there is optimism for growth, there are critical areas requiring attention to mitigate risks.

Positive Impacts of Informal Trades

Market accessibility: In Baruten, the market accessibility reflects the potential for increased economic activity as informal traders meet local needs, which could foster greater regional integration by linking local markets to broader supply chains. This suggests that informal trade plays a vital role in facilitating local commerce, improving supply chains, and enhancing access to goods for consumers in the region. Improved economic conditions could attract investments and facilitate growth, further integrating the region into the AfCFTA framework. The advent of AfCFTA could enhance the operational environment, allowing informal traders to participate more effectively in the broader economy.

The demographic shifts: As the population dynamics evolve, they can drive demand for various goods and services, creating avenues for informal traders to expand and innovate. Thus, several promising opportunities for informal trade in Baruten LG, capitalizing on these opportunities, informal trade can significantly contribute to regional integration and economic growth under the AfCFTA framework. These perspectives align with the stakeholders understanding of factors that enhance informal trades in Baruten Local Government. According to the Chairman of the Albarka Agricultural Commodities, ***"informal trade is a big factor for the regulatory changes as a result of demographic shifts in economic environment"*** (Respondent 3)**.**

Flexibility and Adaptation: The nature of Baruten and its economy tendency culminates to the factors of having about 75% of Baruten families that are in the Benin Republic, and most of those in Nigeria go for medical care in the Benin Republic. It is discovered that some communities that bordered with the Benin Republic are bloodily related to the Benin Republic and were together prior to the incursion of colonization in Africa ***(Discussant 1).*** An example of this is persistence where their children cross the Nigerian border to go to schools in Benin Republic and their trade by barter economic perspectives, which is still persisting that the former exports shea products to accept the cotton from the latter ***(Discussant 2).*** There are some borderline features in the town like Chikanda International Market, multi-tribal acculturation, active border system.

Poverty Reduction and Job Creation: Employment generation and cost reduction accruable from informal trades make the informal economy sector essential to economic growth. Informal trades thrive in areas with high foot traffic, allowing traders to reach more customers. In Baruten LG, the presence of local markets facilitates easy access for both sellers and buyers, enhancing sales opportunities. Informal trade is a crucial coping measure for poor households, especially when unemployment is high. One of the Trade Association executive stated that, ***"apart from farming which has been the heritage of Baruten and environs, the thrive***

business that increases the livelihood in the environment is informal trans-border activities" (Respondents 4).

Negative Impacts of the Informal Trades

Price Regime/Exploitation: The arbitrary measuring and pricing of the produce by which the buyers gain while sellers loss example was cited on Benin Republic where farmers determine what to sell how to sell and to whom is to be sold to. As a result of poor market governance that can arise from strong, cooperatives in most border markets, they succeed in manipulating the price of commodities & manufactured products sold at the border markets. Because of observed poverty of the people in the study areas they are usually not able to participate fully in the trading activities but act as commission agents. Identified at some border markets where foreign business partners did come in to buy off the goods with the Nigerian counterparts only serving as commission agents simply for lack of capital to embark on the business directly.

Exporting Employment to other Countries: Most of the raw commodities transacted in these markets stimulate industrial activities in other countries and generate employment for them. This phenomenon of poor infrastructural facilities has discouraged industrial activities in Nigeria and worsened the unemployment problem. According to some of the respondents, there is always pilfering of Baruten products that lead the products of Baruten to become brands of other communities.

N**egligence of the Stakeholders:** The Stakeholders contend that, "***lack of proper machinery to cultivate higher produce like that of the Benin Republic and financial constraint of the farmers, merchants, or any other value chain players"*** (Respondent 5)**.** The stakeholder posited further that lack of good farm inputs that can enhance optimal yield and lack of infrastructural development, e.g., health, road network, warehouse, etc., are considered the influences of informal trades. The stakeholders decried attitude of the concerned authority which their responsibilities shortfall provision of tractor for mechanized farming among other required facilities. It is observed that there is truly lack of tractors as the only available one is serving the whole community with exorbitant charges like #15,000/day ***(Discussant 2).***

Inability to Calculate accurate National Income of Nigeria: Such unrecorded outflow of trading activities undermined the accurate calculation of the actual Gross National Income of Nigeria. Hoffman & Melly (2018) assert that the scale of unrecorded trade trade across the border between Nigeria, the region's biggest economy and market and its francophone neighbours is particularly high. They opine further that despite providing economic incentives, informal trade entails costs, complications and sometimes risks (Hoffman & Melly, 2018). The performance of the national economy is under estimated.

Security Challenges and Formal Trade: There are many extra-territorial expansion-prone crises between Nikki of the Northern Benin Republic and Barubas in Baruten and Kaiama Local Government of Kwara State, both of the same ancestral origin but different nationalities ***(Discussant 3,4).*** There are a series of theft and illegal incursion cases of friction between the two communities to date. Thus, the stakeholders emphasized that ***border porosity causes insecurities, dumping of substandard goods, kidnappings, and other menaces in the border communities*** (Respondents 6, 7, 8). Onyeiwu (2019) states that Nigeria needs a competent

customs and immigration service, not border closure. Informal trades in Baruten local government is characterized by insecurities of lives and properties as major challenge and cited the friction of Nigeria-Benin diplomatic ties which has culminated to incarceration of many Baruten people by Benionise government ***(Discussant 3, 4).***

Negative Foreign Direct Investment (FDI): The attraction and therefore the pull of any national economy to FDI depend on its performance generally. Investors' understanding of the performance of key sectors like Agriculture, Industrial Development, Solid Mineral and others will influence their decision on the choice of investment destination. Nigeria's weak economy arising from severe outflow of resources may not attract serious investors. According to the Officials of the Baruten Local Government, the Barutens are better relate with Beninoise than Nigerians with the factors that not unconnected with inconsistent policies and infrastructural decay which undermine capacity of Nigerians in trades and other bilateral relations ***(Discussant 5).***

Implication for AfCFTA Implementation

The act of informal trade facing a lot of challenges and the major one as the findings portends is the **limited access to finance**. According to the Trade Finance Executive at Euro Exim Bank, ***"limited access to finance can also bedeviling formalization of trade due to lack of regulation and knowledge gaps of the informal trade players".*** This weakness may hinder the AfCFTA in the region due to the trades' formalization burden and negligence of the operators to involve in the procedural arrangement. Informal traders frequently struggle to access formal financing options, which restricts their ability to invest in inventory or expand their businesses. This financial vulnerability can hinder growth and sustainability. Informal trade often operates outside legal frameworks, leading to **inconsistent quality standards and potential exploitation** of consumers. The absence of regulation can result in unfair trade practices and lack of accountability. Many informal traders may lack the necessary skills and training to effectively manage their businesses. This deficiency can lead to poor business practices, ineffective marketing strategies, and limited customer reach. This regulatory barrier couple with economic instability exist within the procedural purview**.** Apart from the fact that most of these operators lack financial capacity, most of them are mere commission agents because they lack capital and engage in the business themselves ***(Respondent 9).***

These local agents buy on behalf of the foreigners who, in most cases, by-passed, or, in collusion with, the concern agency(s) to the Nigerian terrain for purchases ***(Discussants 4).*** Informal traders are highly susceptible to economic fluctuations and market instability and **vulnerable to economic shifts.** The changes in consumer preferences or economic downturns can disproportionately affect their sales and income. According to the Market Association Secretary at Chikanda International Market, "economic crises could adversely serve hinderance to the spate of informal trade as lack of access to finance for the players of the informal trades reduce their activities" ***(Respondent 10).*** Despite the opportunity of market demand, informal trades fetter security challenges such as crime and violence which can deter traders and consumers, leading to **reduced trade activities and financial losses for businesses**. The extent of this is depended on stringent government regulations which can pose threats to informal traders. Increased enforcement of trade laws or higher taxation can push informal traders out of business or lead them to operate clandestinely, increasing risks of fines

or shutdowns as witness with the interplay between Smugglers and Law Enforcement Agencies ***(Discussant 6).*** The presence of formal retail markets and larger businesses can threaten informal trade by offering better prices, quality, and convenience.

Conclusion and Recommendation

The African Continental Free Trade Area (AfCFTA) is a major step toward regional economic integration, designed to enhance intra-African trade and promote sustainable development. However, its implementation faces challenges, especially from informal trade, which is prevalent in many African economies. While informal trade can reduce costs, generate employment, and foster local economic growth, it also poses significant challenges. In Nigeria, approximately 64% of GDP loss is attributed to informal trade activities, largely due to a lack of data. In Baruten Local Government, informal trade is a key economic activity, but it is hindered by infrastructural deficiencies, bureaucratic obstacles, and corruption. A SWOT analysis reveals that, despite the potential benefits of informal trade for regional integration, significant weaknesses and threats remain. Therefore, it is essential to develop policies recommendation that can harness the advantages of informal trade while mitigating its challenges to ensure effective regional integration through the AfCFTA in Nigeria.

1. **Strengthening Institutional Framework***:* Establish a robust regulatory body dedicated to overseeing trade policies and practices, ensuring compliance with AfCFTA provisions while promoting transparency and accountability. Implementing these strategies will reduce bureaucratic burden and other menaces that aggravated the smuggling and other clandestine factors in informal economy sector in Baruten Local Government.

2. **Anti-Corruption Mechanisms***:* Implement strict anti-corruption measures, including independent audits and whistleblower protections, to combat corruption within trade processes and build trust among traders. Effective anti-corruption institutions required with investigative and prosecutorial powers is crucial to tame the negative impacts of informal trades such as extortion and exploitation that inflict excruciating pain and place additional burden on operators.

3. **Capacity Building for the Operators***:* Develop training programs aimed at educating informal traders about formal trade practices, legal compliance, and business management to help the operators to transit into the formal economy effectively. By implementing these strategies, capacity-building initiatives can significantly enhance the readiness of informal traders to transition into the formal economy, fostering sustainable economic development.

4. **Infrastructural Development***:* Invest in critical infrastructure, such as roads, warehouses, and border facilities, to facilitate smoother trade operations and reduce the barriers faced by informal traders. By focusing on these areas, governments and stakeholders can create an enabling environment for informal traders to thrive, thus contributing to broader economic growth. By addressing these infrastructural needs, governments and stakeholders can create a supportive environment for informal traders, ultimately fostering broader economic growth and development.

5. Accessibility to Loan Facilities*:* Create tailored loan facilities for informal traders, enabling them to access capital for business expansion and formalization, with minimal bureaucratic hurdles. There should be provision for loan from BOI, NEXIM Bank and other relevant

Financial Institutions to address the issue of capital that plague the operators in the informal sector. By implementing these strategies, informal traders can gain the necessary capital to expand their businesses and transition into the formal economy more effectively.

6. Incentives Packages for Informal Trade Actors*:* Design incentive packages that offer tax breaks, subsidies, or grants to informal traders who register and adhere to formal trading practices, encouraging compliance and integration. Implement subsidies that help cover the costs of registration and compliance with regulatory requirements. These incentives not only encourage registration but also promote a smoother transition into the formal market, enhancing economic stability and growth.

7. Establishment of an International Border Market: Develop a dedicated international border market in Chikanda that serves as a hub for trade, enabling informal traders to operate within a structured environment that promotes legal compliance and enhances visibility. The establishment of a dedicated international border market in Chikanda can transform the informal trade sector, promoting legal compliance while bolstering economic activity in the region.

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DETERMINANTS OF SUSTAINABLE DEVELOPMENT GOAL-13 IN SUB-SAHARAN AFRICA

BY

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Abstract

The United Nations initiated the Millennium Development Goals (MDGs) in 2000, followed by the Sustainable Development Goals (SDGs) in 2015, with Sustainable Development Goal 13 (SDG 13) emphasising the urgent need to combat climate change by 2030. This study explored the determinants influencing SDG 13 in sub-Saharan Africa, analysing data from 49 countries through multiple linear regression analysis. The findings indicated that factors such as climate change risks, good governance, national wealth, access to safe drinking water, and climate change awareness positively contributed to climate change mitigation. However, several variables (including environmental concerns, political stability, access to sanitation, and enforcement of environmental laws) did not yield the expected outcomes. To enhance these conditions before the 2030 deadline, collaborative efforts from regional stakeholders are essential to reduce environmental degradation risks. Key recommendations include controlling corruption, enhancing government efficiency and accountability, and transitioning from fossil fuels to renewable energy sources like solar and wind power. Additionally, investing in technologies for solid, food, and water waste recycling is crucial in effectively addressing the challenges of climate change and its impacts.

KEYWORDS: SDGs, SDG13, Climate Change, Determinants, Mitigation, Sub-Saharan Africa

Introduction

The United Nations started with the Millennium Development Goals (MDGs) in 2000 (World Bank, 2008), which ended in 2015, with little or no success, especially in Sub-Saharan Africa because as of 2015 most of the targets set for the MDGs were not met as evidenced in some of

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the key indicators of development. For instance, as of 2015, sub-Saharan Africa when compared to the other sub-regions in the world had the least performance in its human development index put at 0.523. Life expectancy at birth (years), literacy rate (% ages 15 and older and GNI per capita ($) were also the lowest put at 58.9 years, 64.3 per cent and $3,383 respectively (UNDP, 2016).

Based on these situations, by 2015, the United Nations launched the Sustainable Development Goals (SDGs) with 17 Goals to replace the MDGs. The seventeen SDGs are supposed to be achieved by 2030. Sustainable Development Goal 13 (SDG 13) is one of the Goals set to take urgent action to combat climate change and its impacts by 2030 (see UNSD 2023).

SDG 13 was established in response to climate change, characterized by rising temperatures, increased rainfall, and frequent storms, leading to rapid warming and severe weather events, as well as ecosystem degradation. This environmental issue is often driven by greenhouse gases such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), released through both human activity and natural processes (see, YCELP/CIEIN, 2022, 2024).

Research shows Africa contributes only 2–3 per cent of global greenhouse gas emissions, yet it is the most vulnerable region to climate change impacts globally (UNEP, 2024). Despite this, Over the past 60 years, Africa has experienced a warming trend that exceeds the global average. Marine heat waves have become more frequent since the 20th century and are anticipated to increase across the continent. Additionally, relative sea levels around Africa have risen faster than the global mean over the past 30 years, resulting in more severe coastal flooding and erosion in low-lying areas. In West Africa, some regions have faced increased river flooding and droughts, adversely impacting agriculture and ecosystems (IPCC, 2021).

Recent extreme climate events in sub-Saharan Africa highlight the region's vulnerability to climate change. In 2022, the Horn of Africa experienced a prolonged rainy season absence, leading to a drought that displaced over 1 million people in Somalia. Additionally, Cyclone Freddy struck Madagascar, Malawi, and Mozambique in 2023, causing nearly 1,000 deaths and significant livestock losses in Malawi, while also triggering a cholera outbreak in Mozambique due to damaged sanitation and water supplies (see also UN 2022; WMO 2022).

Over the years, these experiences have prompted efforts to alleviate the impacts of climate change. Some of the mitigating efforts include the wealth of the nations measured by the nations' GDP per capita, the ability to cope and adapt to climate change, risk aversion related to climate change, knowledge about climate change, access to sanitation facilities and safe drinking water, the presence of good governance (especially control of corruption), awareness of climate change, the presence of peace and political stability, policy certainty/consistency on climate change, economic prosperity, judicial effectiveness, law enforcement and compliance (World Bank, 1992; Stern, 2004; Lee, et al., 2015; González-Hernández et al, 2019; BEH/RUBIILPC, 2023; Dabla-Norris, 2023; Ali, 2024; EEA, 2024; GEF, 2024).

Against this backdrop, the objective of this study is to examine the relative contributions of some of these mitigating efforts in combating climate change (SDG 13) before 2030.

Literature Review

Conceptual Clarifications: Sustainable Development, Sustainable Development Goals and Sustainable Development Goal 13, Climate, Weather, Climate Change and Mitigation

Sustainable development ensures current needs are met without jeopardizing future generations' ability to fulfill their own needs (IISD, 2024). Since 2015, sustainability has been the framework for the seventeen (17) Sustainable Development Goals (SDGs) and their targets (see UNSD, 2023ab).

Sustainable Development Goals (SDGs) therefore focus on addressing global challenges like poverty, inequality, and climate change (IISD 2024). Sustainable Development Goal-13 emphasises the urgent need for action against climate change to protect ecosystems and human life (see UNSD, 2023).

Climate represents the annual average of weather conditions, which includes variations in temperature, humidity, wind, and precipitation within a specific area, while the elements of weather can change frequently, showcasing diverse conditions, such as a cold morning evolving into a warm, sunny evening (NASA 2011; Ijaiya et al 2016; Ijaiya & Ijaiya, 2022).

Climate change encompasses long-term alterations in Earth's climate, impacting various regions and cities. It includes both warming and cooling trends, with global warming tied to fluctuations in average temperatures (NASA 2011, Ijaiya et al 2016; Ijaiya & Ijaiya 2022; Osterloff, ud.).

Climate change mitigation aims to reduce greenhouse gas emissions from power plants, factories, vehicles, and agriculture. Enhancing carbon sinks such as forests, oceans, and soil helps absorb these gases, limiting global warming impacts (UNDP, 2024).

Determinants of Sustainable Development Goal 13 (Combating Climate Change and its Impacts)

Theoretical studies on climate change mitigation focus on renewable energy, improved transportation and energy efficiency, enhanced building design, advanced vehicle technology, sustainable agriculture, and forest conservation, supported by policies and incentives for emission reductions (Stern, 2004; Lecocq, et al 2022; UN, 2023ab; EEA, 2024; GEF, 2024; UNDP 2024; UNEP, 2024).

The World Bank, (1992), Lee, et al., (2015), González-Hernández et al, (2019), YCELP/CIEIN, (2022), Dabla-Norris, (2023), Ali, (2024) Chisale, (2024) EEA, (2024), and GEF, (2024) highlighted the severe consequences of carbon emissions, deforestation, species extinction, and drought and therefore underscored the necessity of tackling climate change risks by advocating for good governance, improvement on national wealth or income, investment in green technology, improved infrastructure, access to safe drinking water, and enhanced awareness, adaptability, and compliance regarding climate change.

Empirically, a study carried out by González-Hernández et al, (2019) in Nuevo Leon, Mexico found that households' responses to climate change were affected by their knowledge and economic status. Dabla-Norris' (2023), research across multiple regions (Europe, Asia, and Latin America) also highlighted the importance of policy effectiveness, climate risk, cultural beliefs, literacy, knowledge, communication and awareness in addressing climate change and promoting economic growth.

The study by Brown et al. (2001) cited in Tompkins and Adger (2004) underscored the significance of effective governance and robust institutions for climate change policy implementation, emphasising stakeholder engagement in Trinidad and Tobago to tackle conflict resolution, data analysis, and resource management challenges.

Materials and Methods

The Variables and Data Sources

The variables considered for this study were Sustainable Development Goal (SDG) 13, focusing on climate change prevention and the key factors influencing its effectiveness.

To measure the impact of climate change effectively, studies highlight key variables like greenhouse gases (GHGs) including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), alongside global temperature, precipitation, and air quality. This study focuses on carbon dioxide (CO_2) due to its widespread acceptance as a reliable metric for understanding climate change, aiding policymakers and individuals in setting targets and making informed decisions to mitigate its effects (UNEP, 2024).

Sustainable Development Goal (SDG13) is assessed through carbon dioxide emissions per capita as the dependent variable. Several independent factors impact its effectiveness, including the environmental concern index (which reflects increase in pollution, deforestation, species loss, drought, food waste, and water depletion). Additionally, climate change risk avoidance, good governance, political stability, and national wealth measured by GDP per capita play crucial roles. Other influential factors include knowledge and awareness of climate change, access to safe drinking water and sanitation, and effective law enforcement and compliance.

Cross-country data from 49 countries in sub-Saharan Africa for the year 2022 were used for the study (see Annex I). The data were obtained from IM, (2021), IUCN, (2022), UNEP, (2022), World Bank, (2022ab), AfDB, (2023), BEH/RUBIILPC, (2023), IEP, (2023), THF, (2023), UNICEF, (2023), UNDP/RBAS/MBRF, (2023), and UNEP, (2023).

Model Specification

Following the studies by World Bank, (1992) Stern, (2004), González-Hernández, et al (2019), Dabla-Norris, (2023), EEA, (2024) and GEF, (2024) as provided in the literature, the model for this study was specified as:

$$SDG13_{it} = f(DET_{it}) \quad (1)$$

$$DET_{it} = (InEC_{it}, LgRA_{it}, GGo_{it}, PPS_{it}, LgNW_{it}, Kno_{it}, LgAWa_{it}, LgASa_{ti}, LgACo_{it}, LgAAd_{it}, InAw_{it}, JEf_{it} LEn_{it} LCom_{it}) \quad (2)$$

When equation (2) is substituted into equation (1), it then becomes:

$$SDG13_{it} = (InEC_{it}, LgRA_{it}, GGo_{it}, PPS_{it}, LgNW_{it}, Kno_{it}, LgAWa_{it}, LgASa_{ti}, LgACo_{it}, LgAAd_{it}, InAw_{it}, JEf_{it} LEn_{it} LCom_{it}) \quad (3)$$

When equation (3) is transformed into a multiple linear regression equation, the model thus becomes:

$$SDG13_{ti} = \beta_0 + \beta_1 InEC_{it} + \beta_2 LgRA_{it} + \beta_3 GGo_{it} + \beta_4 PPS_{it} + \beta_5 LgNW_{it} + \beta_6 Kno_{it} + \beta_7 LgAWa_{it} + \beta_8 LgASa_{it} + \beta_9 LgAACo_{it} + \beta_{10} LgAAd_{it} + \beta_{11} InAw_{it} + \beta_{12} JEf_{it} + \beta_{13} LEn_{it} + \beta_{14} LCom_{it} + z_{it} \quad (4)$$

The description, measurement and *a-priori* expectations of the variables as stated in equation (4) are shown in Table 1.

Table 1: Variable Description and Measurement: Sustainable Development Goal 13 and Well-being

Variable Name	Variable Acronym	Variable Measurement	*a-Priori* Expectation (Expected Sign)
SDG 13:Actions to tackle Climate Change (Carbon Dioxide and its impacts on the Ecosystem and Human Life	**$SDG13_{it}$**	**SDG 13 measured by carbon dioxide (metric tons per capita)for country *i* at a time *t***	**The dependent variable**
Determinants of SDG 13	**DET_{it}**	**As indicated below**	**(+) Indicates positive impact**
Environmental concerns/considerations	**$InEC_{it}$**	**The index of environmental concerns/considerations which includes the extent to which carbon emissions, deforestation, extinction of species, drought, food waste and freshwater depletion were reduced for country *i* at time *t*. [The index was generated using the Principal Component Analysis (PCA)].**	**(+) Indicates positive impact**
Risks from extreme natural events from climate change	**$LgRA_{it}$**	**The log of the index of risk avoidance related to extreme natural events and the negative impacts of climate**	**(+) Indicates positive impact**

		change for country *i* at a time *t*	
Good Governance	**GGo_{it}**	**The index of good governance measured by the control of corruption for country *i* at a time *t***	**(+) Indicates positive impact**
Peace and Political Stability	**PPS_{it}**	**The index of peace is measured by the political stability and absence of violence in a country *i* at a time *t***	**(+) Indicates positive impact**
National Wealth	**$LgNW_{it}$**	**The log of National Wealth measured by GDP per capita in US$ for country *i* at a time *t***	**(+) Indicates positive impact**
Knowledge of climate change generated through research	**Kno_{it}**	**The index of knowledge of climate change generated through research for country *i* at a time *t***	**(+) Indicates positive impact**
Access to Safe Drinking Water	**$LgAWa_{it}$**	**The log of the percentage of the population that had access to safe drinking water for the country *i* at a time *t***	**(+) Indicates positive impact**
Access to Sanitation	**$LgASa_{it}$**	**The log of the percentage of the population that had access to sanitation facilities for country *i* at a time *t***	**(+) Indicates positive impact**
Ability to cope with the Change in Climate	**$LgACo_{it}$**	**The log of the percentage of the population that coped with climate change through direct actions and available resources for country *i* at a time *t***	**(+) Indicates positive impact**

Ability to adapt to the Change in Climate	**$LgAAd_{it}$**	**The log of the percentage of the population that adapted to climate change through long-term processes and strategies for country *i* at a time *t***	**(+) Indicates positive impact**
Awareness of Climate Change and its Impact	**$InAw_{it}$**	**The index of awareness comprises the level of education and access to communication (e-connectivity) for country *i* at time *t*. [The index was generated using the Principal Component Analysis (PCA)].**	**(+) Indicates positive impact**
Judicial Effectiveness	**JEf_{it}**	**Index of judicial effectiveness for country *i* at a time *t***	**(+) Indicates positive impact**
Law Enforcement	**LEn_{it}**	**Index of law enforcement for country *i* at time *t***	**(+) Indicates positive impact**
Law Compliance	**$LCom_i$**	**Index of law compliance for country *i* at a time *t***	**(+) Indicates positive impact**
	β_0	**The Intercept**	
	β_1..... β_{14}	**The slope of the Parameters**	
	z_{it}	**The error term**	
	I	**Denoted as country 1…..49**	
	t	**Time**	**2022**

Note: Transforming certain variables to logarithmic form enhances functional fit, as it prevents disproportionately high scores from skewing the analysis and ensures more balanced outcomes (Ijaiya 2002).

Estimation Techniques

The study utilised a multiple linear regression analysis with robust standard errors to estimate a model by examining the role of various explanatory variables. To assess the model's validity, two criteria were applied: (i) a-priori expectations regarding the signs and magnitudes of the coefficients, and (ii) statistical criteria, which include the R-squared (R^2) for overall explanatory power, the F-statistic for model significance, and t-values to evaluate the significance of individual independent variables in relation to the dependent variable (see Gujarati & Porter 2009).

As highlighted in the model, the factors that influenced SDG13 in combating climate change include environmental concerns, risk avoidance related to climate change, good governance (control of corruption), peace and political stability, national wealth, knowledge of climate change, access to safe drinking water, access to sanitation facilities, ability to cope with climate change, ability adapt to climate change, climate change awareness, judicial effectiveness, law enforcement and law compliance.

As indicated by the a-priori expectations the independent variables directly influence the realisation of SDG 13 in sub-Saharan Africa (see Table 1).

Results and Discussion

Regression Results of the Determinants of SDG13 (combating Climate Change) in Sub-Saharan Africa

The extent to which SDG13 (combating climate change) is influenced in sub-Saharan Africa is shown in Table 2.

Table 2: Regression Results of the Determinants of SDG-13 (combating climate change) in Sub-Saharan Africa

Independent Variable	Co-efficient	Robust Standard Errors	t-value	P > (t)
Intercept	**-8.122083****	**3.164441**	**-2.57**	**0.015**
$IndEC_{it}$	**-0.6046579***	**0.2987227**	**-2.02**	**0.051**
$lnRA_{it}$	**0.018217**	**0.0223223**	**0.82**	**0.420**
GGo_{it}	**0.0167115**	**0.0164284**	**1.02**	**0.316**
PPS_{it}	**-0.0318637**	**0.0219946**	**-1.45**	**0.157**
$lnNW_{it}$	**1.026238*****	**0.2341831**	**4.38**	**0.000**
Kno_{it}	**-0.0260895**	**0.0174265**	**-1.50**	**0.144**
$lnAWa_{it}$	**0.415592**	**1.060806**	**0.39**	**0.698**
$lnASa_{it}$	**-0.2057989**	**0.3181771**	**-0.65**	**0.522**

lnACo$_{it}$	**-0.0977391**	**0.1776097**	**-0.55**	**0.586**
lnAAda$_{it}$	**0.0175197**	**0.2267171**	**0.08**	**0.939**
IndAw$_{it}$	**0.0198965**	**0.0133697**	**1.49**	**0.146**
JEf$_{it}$	**-0.0168978**	**0.01534**	**-1.10**	**0.278**
LaEnf$_{it}$	**-0.2830894***	**0.1591965**	**-1.78**	**0.084**
LCom$_{it}$	**0.039188***	**0.0218279**	**1.80**	**0.081**
R-Squared (R^2)	**0.715**			
F-Statistic	**0.000**			
Variance Inflation Factor (VIF)	**4.73**			
No. of Observations	**49**			

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The results in Table 2 show an R-squared (R^2) value of 0. 71, indicating that 71 per cent of the variation in the dependent variable (SDG 13) is explained by the independent variables. These include environmental concerns, risk avoidance related to climate change, good governance (control of corruption), peace and political stability, national wealth, knowledge of climate change, access to safe drinking water, access to sanitation facilities, ability to cope with climate change, ability adapt to climate change, climate change awareness, judicial effectiveness, law enforcement and law compliance. The remaining 29 per cent represents the error term, highlighting unmeasured influences such as policy uncertainty, government effectiveness, and the quality of climate change regulations. This suggests the presence of additional factors affecting SDG 13 beyond those measured.

At a 5 per cent significance level, the F statistic of 0. 000 indicates the overall model is statistically significant, showing that the independent variables significantly affect the dependent variable (SDG 13) in sub-Saharan Africa. Additionally, the variance inflation factor (vif) average of 4. 73, being below the 10-point threshold, confirms no multicollinearity among the variables.

This study's results indicate that risk aversion to climate change (0.018), good governance (0.016), national wealth (1.026), access to safe drinking water (0.415), ability to adapt to climate change (0.017) climate change awareness (0.019) and law compliance (0.039) align with our expectations. However, issues such as environmental concerns (-0.604), peace and political stability (-0.031), knowledge of climate change (-0.026), access to sanitation facilities (-0.205), ability to cope with climate change (-0.097), judicial effectiveness (-0.016) and law

enforcement (-0.283) did not meet anticipated outcomes. Notably, environmental concerns and law enforcement were significant at a 1 percent level, while the national wealth was significant at a 10 percent level, highlighting the varying impact of these factors on climate change adaptation.

Positive indicators like risk avoidance, good governance, national wealth, access to safe drinking water, and climate change awareness are essential for combating climate change. These factors will enhance public health and well-being, reduce pollution, and improve environmental standards in sub-Saharan Africa by 2030, contributing significantly to sustainable development in the region.

Environmental concerns, peace and political stability, knowledge about climate change, access to sanitation facilities, ability to cope with climate change, judicial effectiveness, and enforcement of environmental laws with negative indicators are unlikely to address climate change, enhance public health and well-being, reduce pollution, and improve conservation and environmental performance in sub-Saharan Africa by 2030.

In relative terms, national wealth with a coefficient value of 1. 026, is expected to have a greater impact on combating climate change by 2030. On the contrary, good governance (control of corruption), with a coefficient value of 0. 016, is predicted to have a lesser influence on addressing climate change by 2030.

The correlation between effective governance, national wealth, and climate change adaptation is increasingly evident, especially when linked to substantial investments in telecommunication infrastructure, such as the Internet. Initiatives like investing in alternative safe drinking water sources, awareness campaigns, and participation in climate conferences also play crucial roles. An example is COP28 in the United Arab Emirates (UAE), which focused on transitioning from fossil fuels and aimed for net-zero emissions by 2050, highlighting collaborative efforts toward climate resilience (UN, 2023a). These findings are in tandem with World Bank research (1992), Lee (2015), YCELP/CIEN, (2022), EEA, (2024), GEF (2024), UNEP, (2024), and UNDP, (2024).

Inadequate responses to climate change in sub-Saharan Africa are linked to high poverty, inequality, and weak institutions, particularly bureaucracies. Key challenges include environmental concerns, political instability, and ineffective law enforcement, compounded by conflicts, macroeconomic instability, and soaring debt. For instance, Sudan has faced ongoing civil conflicts since gaining independence in 1956, particularly in regions like Darfur, Blue Nile, and Kordofan. The Darfur conflict has significantly impacted around 2. 7 million farmers and pastoralists, driven by issues such as governance failures, prolonged droughts, desertification, and competition for limited land and water resources. Addressing these interconnected problems is crucial for climate resilience in the region (see Ali, 2024).

Conclusion and Recommendations

The study found that factors such as risk aversion to climate change, good governance, national wealth, access to safe drinking water, ability to adapt to climate change, climate change

awareness, and compliance with the laws on the environment good governance, national wealth, access to safe drinking water, ability to adapt to climate change, climate change awareness, and compliance with the laws on the environment significantly contribute to reducing pollution, improving conservation efforts, and boosting overall environmental performance by 2030. Conversely, while environmental concerns, political stability, knowledge about climate change, and access to sanitation awareness are important, they alone are insufficient to tackle these challenges without implementing targeted measures.

The measures would require the support of international organisations, the governments of sub-Saharan African countries and the people of the sub-region in minimising the risks involved in environmental degradation. Control of corruption should go in hand with improving government efficiency, integrity, accountability, openness, and transparency in the management of resources meant to mitigate climate change.

Governments of sub-Saharan African countries, private sector organisations and individuals should begin to shift away from the use of fossil fuels to renewable energy sources such as solar and wind and use of compressed gas and electricity-powered vehicles. Investing in solid, food and water waste recycling technologies, conservation of forest resources, planting and replanting of trees in deforested areas, reforming the existing laws on the environment in line with the most recent international laws and conventions on climate change and the environment and making enforcement and compliance with laws priorities will go a long way in mitigating climate change.

Economic, and socio-political stability and peace building are paramount in fighting the menace of climate change in the sub-region. It is therefore important for governments in the sub-region to address the incessant macroeconomic and political instability that has led to high rates of inflation, foreign exchange volatility, high debt rates (foreign and domestic), high rates of poverty and inequality, conflicts and wars, high rate of crime, especially in countries such as Democratic Republic of Congo, Central African Republic, South Sudan and Sudan.

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REGIONAL INTEGRATION AND SUSTAINABLE DEVELOPMENT IN WEST AFRICA: THE ROLE OF GOVERNANCE QUALITY

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Abstract

Despite the vast opportunities presented by regional integration, West Africa's progress towards Sustainable Development has been hindered by suboptimal economic growth and development outcomes. This study examines the role of governance quality on the effectiveness of regional integration and sustainable development in West Africa from 1996 to 2022. A modified Cobb-Douglas production function, augmented with trade integration and governance quality, is estimated using the Dynamic Panel Model with Interacting Effects (DPMEs) method. The findings reveal that governance quality has a positive and significant role in achieving sustainable development in West Africa. While the lag of ANS and number of people employed were respectively found not to be significant. However, trade integration exhibits a negative impact, reflecting inefficiencies in regional trade practices. The study recommends that strategic policy measures, including governance reforms and targeted economic strategies, should be taken to accelerate sustainable development in West Africa.

Keywords: Regional Integration, Sustainable Development, Governance Quality, West Africa.

1. Introduction

Regional integration is increasingly seen as a key strategy for fostering economic and social progress in West Africa, led by organizations like the Economic Community of West African States (ECOWAS). Integration offers opportunities for trade diversification, economic resilience, and shared infrastructure projects, aiming to address issues such as poverty, unemployment, and food security. However, the success of regional integration in promoting sustainable development across West Africa varies, with governance quality emerging as a critical factor influencing these outcomes (Economic Commission for Africa, 2021; Adeniran & Sidi, 2021). Governance disparities among ECOWAS nations create challenges in policy implementation, impacting sustainable development indicators such as healthcare, education, and infrastructure. Research highlights the role of governance elements, including accountability, transparency, and the rule of law, in promoting economic stability and growth (Asongu & Nwachukwu, 2021; Jimoh & Chua, 2023). The interaction between governance quality, regional integration, and sustainable development has therefore become a central focus for policymakers, particularly in West Africa.

While regional integration holds promising potential, weak institutional structures often limit the benefits, as poor policy enforcement, corruption, and inefficiencies undermine cross-national collaboration (Asongu & Nwachukwu, 2021). Consequently, nations with lower institutional quality face greater obstacles to achieving sustainable development compared to those with stronger governance frameworks. This study addresses the need for empirical evidence linking governance quality to the outcomes of regional integration in West Africa, particularly regarding sustainable development. While previous research has examined economic integration as a singular aspect, few studies have considered how governance quality differences impact broader integration goals like sustainable, equitable development across West African nations. This gap underscores the importance of exploring governance quality as a moderating factor in regional integration efforts to sustainable development.

The significance of this study lies in its potential to provide insights into how governance reforms could strengthen regional integration outcomes for sustainable development. By examining the role of governance quality, this research contributes to the literature by elucidating how governance improvements can reduce governance disparities within ECOWAS, thereby enhancing the benefits of integration (Moghalu, 2018). Insights from this paper could guide policies aimed at elevating governance standards, aligning with the United Nations' Sustainable Development Goals (SDGs) to foster economic stability and social progress. The primary objective of this research is to analyze the influence of governance quality on the relationship between regional integration and sustainable development in West Africa.

The study focuses on ECOWAS member countries over the period from 1996 to 2022, allowing a comprehensive examination of governance quality, integration, and sustainable development outcomes. This time span enables an analysis of both short- and long-term impacts of governance quality on regional integration initiatives and sustainable development indicators within the region. The study's rationale is also based on the premise that improving governance quality in West Africa could significantly enhance the success of regional integration in promoting sustainable development. Addressing governance-related challenges is essential to ensure that regional trade initiatives not only drive economic growth but also promote social equity and sustainability across West Africa. The paper is organized as follows: a literature section; a methodology section detailing the approach for analyzing governance quality's impact on regional integration and development; a findings section with policy implications; and a conclusion with recommendations for future research.

2. Literature Review

The relationship between regional integration and sustainable development is increasingly studied, especially in terms of governance frameworks. Research in this area often follows two main theoretical perspectives. The first highlights the role of strong institutions in supporting trade by lowering transaction costs and reducing risks linked to cross-border transactions. The second approach suggests that governance quality impacts trade indirectly by influencing infrastructure investment and domestic investment levels, both crucial to trade. Countries with lower governance quality often underinvest in infrastructure, resulting in increased logistical costs and reduced trade efficiency (Zhang & Sun, 2021; Cust & Andres, 2019). Poor

governance also deters both local and foreign investments needed to facilitate regional trade (Krishnan et al., 2020; Hanousek et al., 2019).

Empirical studies on the role of governance quality in regional integration and sustainable development yield mixed results, particularly in West Africa. For instance, Jimoh et al. (2023) examined how regional integration affects sustainable development in West Africa from 1980-2019 using a production function approach. The study found an unexpected negative relationship between trade integration and sustainable development, suggesting that regional trade conditions may not yet support sustainable growth in the region. Similarly, Vigninou (2021) found that regional trade integration contributes to economic growth in Africa but also exacerbates income disparities, benefiting more developed economies disproportionately. The study emphasized the importance of supportive policies to reduce non-tariff barriers and enhance infrastructure to maximize regional integration's growth potential for all countries.

Some research examines regional integration's moderating role in sustainable development. For example, Ullah et al. (2021), Jimoh & Chua (2023) and Zazerskaya & Bunko (2022) analyzed the interaction between governance quality and trade within currency unions in West Africa, and found that currency union membership and governance quality positively influence regional trade flows. Disaggregated indicators showed that the rule of law boosts trade flows, while political stability affects them negatively. The literature highlights ongoing challenges, including theoretical and scope limitations and inconsistent variable measurement, particularly regarding governance quality, regional integration, and sustainable development. This study addresses these gaps by using up-to-date data, adopting trade flow statistics as a comprehensive measure of regional integration, and applying a dynamic panel model with interacting effects (DPME) such the system GMM to better capture the influence of governance quality on regional trade and sustainable development.

3. Methodology

Flowing from the theory and past literature, this study follows the works of Ullah et al. (2021) and Jimoh et al. (2023) with modifications. The study utilizes a Cobb-Douglas type production function to depict the relationship between output, capital, and labour with the inclusion of additional augmented determinants of output (that is, trade integration and governance quality variables). This is specified as below

$$\boldsymbol{Y_{it} = f(K_{it}L_{it}TIF_{it}IQ_{it})} \\ \boldsymbol{= K_{it}^{\beta_1}, L_{it}^{\beta_2}, TIF_{it}^{\beta_3}, IQ_{it}^{\beta_1} - - - -(3.1)}$$

where *Q, K, L TIF, and IQ* denotes output, capital, labour, trade integration, and governance quality index respectively. The shares of the output with respect to each of the explanatory variables are denoted by $\boldsymbol{\beta_1 - \beta_4}$. To allow for better impact, equation 3.1 can be log-linearised to form equation (3.2), thus,

$$\boldsymbol{LnY_{it} = \beta_0 + \beta_1 LnK_{it} + \beta_2 LnL_{it} + \beta_3 LnTIF_{it}} \\ \boldsymbol{+ \beta_4 LnIQ_{it} + \varepsilon_{it} - -(3.2)}$$

In order to achieve the objective of this study, equation 3.2 is modified by replacing the output with Adjusted Net Savings, while capital and labour are substituted by stock of capital and number of labour employed; and governance quality index respectively. That is,

$$LnANS_{it} = \beta_0 + \beta_1 LnK_{it} + \beta_2 LnL_{it} + \beta_3 LnTIF_{it} + \beta_4 LnIQ_{it} + \beta_5 LnTIF_{it} * LnIQ_{it} + \varepsilon_{it} - (3.3)$$

TIF_{It} is the intra-regional trade share of an individual country and is measure as the sum of exports and imports of countries *i* and *j* within West Africa (T_{ij}); and the trade volume of West Africa to the rest of the world (T_j) (He et al., 2021; Ejones et al., 2021; Jimoh and Chua, 2021).

3.1 Methods of Data Collection

The study employs secondary data that covers a panel of 16 West African countries: Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo. The sample period is from 1996 to 2022, due to data availability for governance quality variables. Variables such as adjusted net savings and governance quality were sourced from World bank WDI and WGI, trade integration was sourced from IMF direction of trade statistics, while stock of capital and the number of labour employed were from the Penn-World Table 10.0 respectively.

3.2 Estimation method

In addressing the role of governance quality on the relationship between regional integration and sustainable development in West Africa, this study adopts the Dynamic Panel Method with Interacting Effects (DPME). DPME is a relatively an advanced panel data model estimation technique in econometrics. This method is employ because of the role of cross-sectional dependence in non-stationarity panels, which may lead to misleading results. Thus, Cross-sectional dependence often arises when units in a panel (e.g., countries, firms, or regions) are influenced by common shocks or factors, leading to correlations across units. Incorporating interaction effects in a dynamic panel framework, the DPME captures both time-series dynamics and the interdependence among units in the panel (Chudik & Pesaran, 2015). The DPME model is specified in equation 3.4 below:

$$ANS_{it} = \alpha ANS_{it-1} + \beta X_{it} + \gamma X_{it} + F_i + \delta_i + \varphi_i + \epsilon_i - - - (3.4)$$

Where Y_{it} is the dependent variable, Y_{it-1} is the lag of the dependent variable, X_{it} is the independent variable, $F_i, \delta_i, \varphi_i, \epsilon_i$ imply the common factors, unit of fixed effects, time fixed effect and error term respectively..

4. Result

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ANS	432	1.131	12.657	-37.767	31.658
lnempL	432	1.099	1.298	-2.048	4.291
lncnS	432	11.046	1.583	8.627	15.261
lnTIF	432	5.122	1.57	1.019	9.749
pca instq	432	.05	1.185	-3.255	5.089

Source: Authors' Computation 2024

Table 1 represents the summary statistics of the variables employed in this study. The result shows that ANS, number of employed people has the average mean of 1%, and 1.1%, which

indicates a low average ANSs and high level of unemployment in the West African region when compared to other regions pursuing collective SDGs. The cnS which implies the average stock of capital has the average mean of 11.0, explaining an improved financial system of the region. The average mean values of TIF and political stability are 5.1 and 0.05, which indicates that the region has been more of importations of goods and services than exportation, and that political stability though low, but it indicates an improved level of stability in the West African region respectively.

Table 2: Pairwise correlations

Variables	ANS	lnempL	lncnS	lnTIF	pca_instq
ANS	1.000				
lnempL	0.2211***	1.0000			
lncnS	0.3919***	0.8684***	1.0000		
lnTIF	0.1464***	0.7528***	0.6815***	1.0000	
pca_instq	0.3273***	-0.0193	0.2512***	0.0425	1.0000

Source: Authors' computation (2024)

Table 2 above shows the relationship between the different variables employed. The result indicates a weak and significant relationship among the variables in this study area. The relationship between the adjusted net savings and capital stock of West Africa shows a moderate significant and highest coefficient of correlation (0.3919), while the relationship between trade integration and ANSs has the lowest and the weakest correlation coefficient (0.1464). The correlation coefficients also suggest that there is no likelihood of multi-collinearity among variables.

On the other hand, several other tests were conducted to verify the relationship between the dependent variable and the independent variables. For instance, the panel unit root tests conducted showed that the variables were stationary at level or first difference (I(0) or I(1)). After which the cointegration test was conducted and the result shows the presence of cointegration. Thus the presences of cross sectional independence was tested using the Persaran and Friedman tests, their result with the P-value of 0.0000 and 0.0001 respectively indicates the presence of cross sectional dependence in achieving sustainable development, which could be because of the common characteristic in the region. Therefore, to solve for this problem, a dynamic panel model with interacting effect using system GMM was conducted and the result is presented as in table 3 below.

The result of the pooled OLS in table 3, shows that variables such as log of capital stock, (lncnS) and governance quality are the most significant determinants of achieving sustainable development in the study area with coefficient values of 4.790 and 1.832 respectively. However, trade integration was found not have a significant relationship with sustainable development. The result of the system Gmm also shows that when there is a change in achieving sustainable development in West Africa, it could due to 33% change or improvement in the governance quality of the region. The lag of the dependent variable was however found not to be significant in achieving sustainable development in West Africa.

Table 3: Regression Results of Pooled and System GMM

	(1)	(2)
VARIABLES	Pooled	SysGMM

L.ANS		0.0564
		(0.0402)
lnempL	-2.800**	1.471
	(1.143)	(1.181)
lncnS	4.790***	2.066**
	(0.804)	(0.839)
lnTIF	-0.0409	-1.354**
	(0.535)	(0.543)
pca_instq	1.832***	3.394***
	(0.544)	(0.543)
Constant	-48.58***	-16.24*
	(8.703)	(9.602)
Observations	432	405
Number of year	27	27

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
Source: Authors Computation. 2024.

5. Conclusions

This study investigates the pivotal role of governance quality on the relationship between regional integration and sustainable development in West Africa using an augmented Cobb-Douglas production function for the period 1996-2022. Employing a DPME using a dynamic system GMM, the result shows that governance quality has a positive and significant role in achieving sustainable development in West Africa. On the other hand the lag of ANS and number of people employed were respectively found not to be significant. However, trade integration exhibits a negative impact, reflecting inefficiencies in regional trade practices. The study recommends that strategic policy measures, including governance or reforms and targeted economic strategies, should be taken to accelerate sustainable development in West Africa.

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THE IMPACT OF INSTITUTIONAL QUALITY ON FOREIGN DIRECT INVESTMENT INFLOW IN NIGERIA

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Abstract

Institutional quality has been a debate among scholars on to effectively harness investment from foreign investor, however investors will examine policies that will prompt investment by this institutional quality will be a yard stick in accommodating foreign investment. This study aimed to examine policies that promotes foreign investment and the policies that can retard foreign investment. The study will use the following method of analysis for the time series analysis; Unit Root Test, Cointegration test, Error Correction Model (ECM), Error Correction Model (ECM), Granger Causality Test using VECM, Autoregressive Distributive Lag Model (ARDL), multicollinearity test, autocorrelation test, heteroscedasticity test, chow test for normality, and non-normality of distribution of the residuals test. The result of the test will show the impact of all the institutional quality variables (Regulatory Quality, Rule of Law, Voice and Accountability, Political Stability, Government Effectiveness, Control of Corruption) on foreign direct investment inflow in Nigeria both from positive side and negative side, the study will recommend based the result on how to improve the institutional quality variable to improve FDI in Nigeria

Key words: foreign direct investment, institutional quality and governance

1. Introduction

The impact of institutional quality on foreign direct investment (FDI) in Nigeria has drawn significant attention, as governance indicators such as political stability, regulatory quality, and control of corruption play a crucial role in determining investment flows. Institutional quality, often captured through these governance indicators, can either attract or deter FDI depending on the stability and transparency it offers to investors. Studies like those of Kaufmann, Kraay, and Mastruzzi (2009) emphasize that countries with strong institutions enjoy higher levels of

FDI, primarily because institutional strength reduces uncertainty for foreign investors. Nigeria's governance structure, which has experienced reforms aimed at stabilizing the political and regulatory landscape, influences how attractive the country is to foreign investors, especially in high-risk sectors like oil and gas (Oguntoye & Oguntoye, 2021).

One critical governance indicator affecting FDI is political stability. According to the World Bank (1996), political stability is the likelihood of a government remaining free from violent changes, terrorism, or sudden shifts in power. Nigeria has had varying degrees of political stability, with significant impacts on FDI inflows. Research by Aisen and Veiga (2013) illustrates how political instability and the risk of violence discourage foreign investors by creating an unpredictable business environment, thereby impacting FDI negatively. In Nigeria, political unrest, especially around election periods and in regions with insurgent activities, has been linked to fluctuating FDI trends, as shown by FDI statistics, which have seen dips and rises that coincide with periods of political stability or instability (Akinwalere & Chang, 2023).

Another governance indicator affecting FDI is regulatory quality, which assesses the government's ability to formulate and implement policies that encourage private sector development. High regulatory quality reduces bureaucratic delays and policy inconsistencies that may otherwise deter investment. Nigeria's government has initiated several regulatory reforms to improve investment attractiveness, such as the establishment of the Nigeria Investment Promotion Commission (NIPC) and other legislative frameworks like the Banking and Other Financial Institutions Act (1991) and the Investment and Securities Act (2007). These reforms have opened various sectors to foreign ownership, albeit with exceptions in petroleum, and have helped increase FDI by creating a predictable and investor-friendly environment (Oguntoye & Oguntoye, 2021; CBN, 2006).

Control of corruption is another significant governance indicator influencing FDI. Countries with high corruption levels often see reduced FDI inflows due to increased costs and risks. The World Bank defines corruption control as the extent to which public power is exercised for private gain. Nigeria’s introduction of institutions like the Independent Corrupt Practices Commission (ICPC) and the Economic and Financial Crimes Commission (EFCC) aimed to curb corruption and create a more transparent environment for business. Studies such as those

by Elish (2022) indicate that improved corruption control can increase investor confidence by lowering operational risks, thus making Nigeria more attractive for foreign investors.

The rule of law is another essential governance indicator impacting FDI, as it ensures that investors' rights are protected, contracts are enforced, and disputes are resolved fairly. Research by Kim (2010) and Groznykh et al. (2020) supports that countries with strong legal frameworks attract more FDI because investors can rely on consistent and fair legal practices. In Nigeria, the enactment of the Nigerian Oil and Gas Content Development Act (2010) and other reforms in the legal framework have aimed to improve the rule of law, though challenges remain. The perceived weakness in contract enforcement and judicial delays still affects Nigeria's FDI competitiveness, especially in sectors requiring long-term investments (UNCTAD, 2020).

The effectiveness of government institutions in Nigeria has a tangible impact on FDI, as effective institutions tend to enhance efficiency and reduce risks for foreign investors. Institutional effectiveness covers aspects such as the quality of public services and the degree of independence from political pressure. According to Gani and Al-Abri (2013), countries with effective institutions are more likely to attract FDI since investors are assured of a stable operational environment. Reforms such as the deregulation policy and bilateral investment treaties (BITs) in Nigeria reflect efforts to enhance government effectiveness, which in turn fosters investor confidence by signaling that the country is committed to maintaining favorable conditions for FDI. Objectives of the Study; to investigate the effect of political institutional quality on foreign direct investment in Nigeria. Scope of the Study: The focus of this study is to examine the impact of political stability on foreign direct investment in Nigeria over the period 1990–2023. Considering the country's various political regimes and the challenges of quantifying the political variable, the study is based on annual data spanning from 1990 to 2023. The 1990 commencement year is considered for this study because of its availability and consistent statistics with respect to the variables of interest, while the 2023 end-period is informed by the fact that 2023 was the most recent year of data availability for most of the variables of the study.

The study also focuses on the effects of institutional quality (most especially the governance indicators) on foreign direct investment in Nigeria. This scope is necessitated by the fact that, to the best of knowledge available to this study, only a few studies have been carried out on

the effects of institutional quality on FDI in Nigeria and the continent of Africa. It is also necessitated by the fact that Nigeria is a country in Africa that has been benefiting from FDI inflows over the past period, and the need to assess the level of her institutional quality makes this study an imperative one.

2. Literature Review

Concept of Political Stability

The concept of political stability, as viewed by several scholars, is ostensibly self-evident, obviating the need for an exhaustive explanation of its significance. A stable political environment, according to Aisen and Veiga (2013), is characterized by a predictable policy framework, low corruption, and the absence of violent protests or civil unrest. It assumes a salient position as one of the paramount political institutions within a nation-state. Political stability is therefore a broad term that encompasses many factors, such as the rule of law, democratic governance, civil liberties, and human rights (Onah and Ozoko 2022). It involves the ability of the government to maintain social order, prevent conflicts, and provide basic services to its citizens.

According to Sidamor et al. (2016), political stability is defined as a qualitative condition of public development, expressed as public order, achieved by controlling and balancing stakeholders in a society to achieve specific macroeconomic goals, ideals, and targets. The author also described it as a reflection of good governance, which oversees the performance of an economy's activities. Ake (1975), on the other hand, defined political stability as members of society limiting their behavioral patterns to those constrained by political role expectations. Thus, any act that deviates from these boundaries is an example of political instability. Institutional factors: Institutional factors such as the quality of governance, rule of law, and mechanisms for conflict resolution play a crucial role in maintaining political stability and managing political transitions in an economy. When the proper institutional conditions are established, higher foreign direct investment will be attracted; which in turn will drive economic expansion and progress.

Institutional Theory

Institutions, defined as the formal and informal rules, norms, and practices that structure human interactions (North, 1990), are seen as crucial determinants of political stability. Institutional theorists emphasize the role of formal and informal institutions in shaping the investment environment and FDI decisions. Political stability is seen as a critical institutional factor that influences investor perceptions of the regulatory environment and governance quality. Countries with stable political systems are more likely to have credible institutions that support investment, leading to higher FDI inflows. This theory emphasizes the importance of institutional factors, such as political stability, rule of law, and governance quality, in shaping the investment environment and influencing FDI decisions.

Institutional theory provides valuable insights into the relationship between political stability and foreign direct investment by highlighting the importance of well-designed, coherent, and adaptive institutions in creating a predictable and low-risk environment for foreign investors. One of the key arguments put forth by institutional theorists is that stable and well-designed institutions can promote political stability by creating a predictable environment, reducing uncertainty, and providing a set of rules and incentives that guide the behavior of political actors (Acemoglu and Robinson, 2012). Effective institutions can help manage conflicts of interest, facilitate coordination, and prevent the abuse of power, thereby contributing to a more stable political environment. Furthermore, the theory emphasizes the role of institutional change and adaptation in maintaining political stability (North, 1990). Institutions must be able to adapt to changing circumstances, such as shifts in power dynamics, demographic changes, or technological advancements. Rigid institutions that fail to evolve can become sources of instability, as they may no longer serve the interests of the population or reflect the realities on the ground (Acemoglu and Robinson, 2012).

Empirical Review

The empirical literature on the impact of political stability on foreign direct investment (FDI) have been found to have mixed results; as some studies show positive relationship while some show negative relationship depending on the perspective through which the previous studies have paid their attention to. In line with this outcome, the empirical studies on this subject

matter in countries outside Nigeria is segmented below based on positive, negative, and mixed outcomes.

Akin (2019) examined the effects of political stability, economic freedom and trade freedom of Fragile Five Countries consisting of Brazil, Indonesia, India, Turkey, and South Africa on the performance of FDI using the first generation panel data analysis method for the 1996-2017 period. The study conducted a cointegration analysis by means of Kao (1999) and Pedroni (2004) test. The study found that political stability and trade freedom have a significant positive coefficient on the Fragile Five Countries' FDI. It was also determined that the impact of economic freedom on FDI was statistically insignificant. Thus, political stability was seen as the most important determinant of FDI entry into the countries is political stability. In addition, it was found that political stability, economic freedom, and trade freedom are the cause of foreign direct investment in the long-run.

Afolabi and Abu Bakar (2016) examined the causal link between FDI inflows, trade volume, political instability and economic growth in Nigeria from 1981-2012. The study used co-integration analysis and Multivariate Granger causality test using VECM approach. A bi-directional causation was found to exist between FDI inflow and economic growth and one-way direction existed between political instability and GDP, and between FDI and trade volume. Wafure and Nurudeen (2010) on the other hand, investigated the determinants of foreign direct investment in Nigeria. The error correction technique was employed to analyse the relationship between foreign direct investment and its determinants. The results reveal that the market size of the host country, deregulation, political stability, and exchange rate depreciation are the main determinants of foreign direct investment in Nigeria

3. Methodology

3.1 Theoretical Framework

Various theories have been reviewed in Section 2.2 to clarify the impact of political stability on FDI in both the developed, emerging, and developing economies (Nigeria included). Such theories include the theories of dependency, transaction cost, institutional, Neoclassical, and Eclectic paradigm (OLI framework). The theoretical framework of this study is drawn from Eclectic paradigm (OLI framework) by Dunning (1979; 2000) who suggested that the primary

determinants of FDI inflows in an economy are; financial development, access to market, large scale privatization, the level of political strength and stable economy. It provides a framework that groups' micro and macro level determinants in order to analyze why and where multinational companies (MNCs) invest abroad. The framework therefore posits that, firms invest abroad to look for three types of advantages: Ownership (O), Location (L), and Internalization (I) advantages. Hence, it is called the OLI framework (as reviewed in Section 2.2 of Chapter two).

3.2 Model Specification

The model specification in this study is drawn from the theoretical framework discussed in section (3.3) and the work of Okeke and kalu (2020) with some modifications. One of the modifications is that the present study used up-to-date annual time series data for the period 1990-2022 while Okeke and Kalu on the other side, used quarterly data for the period 1970Q1-2015Q4. Therefore spanning from equation (3.8) that form the model for the different estimations of the present study, the model specification is as follows; thus, from equation (3.8) which is stated as,

$$\boldsymbol{FDI_{ij} = \alpha_0 + \sum(\beta_1 O_i) + \sum(\beta_2 L_J) + \sum(\beta_3 I_i) + \mu_i} \quad \boldsymbol{(3.8')}$$

To achieve the objective that is the effect of institutional quality on foreign direct investment, we include the governance indicators or variables and the model is specified as below:

$$\boldsymbol{FDI_t = \beta_0 + \beta_1 FDI_{t-1} + \beta_2 GQI_t + \beta_3 CV_t + \mu_t} \quad \boldsymbol{(3.11)}$$

Where $\boldsymbol{GQI_t}$ is the governance quality indicators such as, regulatory quality, government effectiveness, rule of law, and political stability, and $\boldsymbol{CV_t}$ means the control variables such as inflation, exchange rate and GDP growth rate. However, objective four will be estimated using the granger causal test statistics.

3.3 Estimation Techniques

This section explains the different techniques employed to achieve the predetermined objectives of this study. These techniques includes the unit root test, cointegration test, the autoregressive distributive lags model, as well as the granger causality test. These are all discussed as below.

Autoregressive Distributive Lag Model (ARDL)

Pesaran and Shin (1995) and Pesaran et al. (2001) recommended Autoregressive Distributed Lag (ARDL) bounds testing approach to cointegration. ARDL technique has resolved the endogeneity problem. Appropriate number of lags is estimated in ARDL that solves both the problems of endogeneity and autocorrelation (Pesaran and Shin, 1995). In ARDL approach both long-run and short-run coefficients are estimated simultaneously, and all the variables are considered endogenous (Khan et al. 2005). Pesaran and Shin (1999) have shown that the ARDL method can distinguish between dependent and explanatory variables and this implies that, the estimation is possible even when the explanatory variables are endogenous (Pesaran and Pesaran, 1997; Pesaran et al. 2001). Since we may have a mix of I (0) and I (1) variables amongst the variables of observation, this is an advantage for this study to compared to the conventional Granger causality test of which it requires all the variable to be stationary in first difference form only.

3.4 The Chow Test

The Chow test, named after the econometrician Gregory C. Chow, is an econometrics test tool used to detect structural breaks or changes in the parameters of a regression model over different time periods or subsamples. It is particularly useful in time series analysis when there is a suspicion that the underlying data-generating process has undergone a significant change at a known point in time. The Chow test fits the regression model separately to the two subsamples (before and after the suspected break point) and then compare the sum of squared residuals from the separate regressions to the sum of squared residuals from the regression on the entire sample. Thus if the difference is significant, it implies that there is a structural break, and the parameters of the model are not constant across the subsamples.

3.5 Nature, Measurement, and Sources of Data

The data used in this study are annual time series data spanning from 1990 to 2023. The choice of the time period for this study is motivated by availability of data, and to meet up with the time series characteristics of thirty years minimum.

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TRADE LIBERALIZATION, POVERTY, AND SUSTAINABLE DEVELOPMENT IN SUB-SAHARAN AFRICA

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Abstract

This study investigates the relationship between trade liberalization, poverty, and sustainable development in Sub-Saharan Africa. Using a fixed effects panel regression model with Driscoll-Kraay standard errors, we analyze the impact of foreign direct investment (FDI), trade openness, and governance on sustainable development. Our findings reveal that while FDI is not significantly associated with sustainable development, trade openness has a negative impact but significant. Moreover, all six governance indicators, except voice and accountability, are significantly positively correlated with sustainable development. Additionally, the capital-labor ratio is significantly positively associated with sustainable development. These findings highlight the complex interplay between trade, governance, and sustainable development in Sub-Saharan Africa, emphasizing the need for well-designed policies to promote equitable and inclusive growth.

Keywords: Sustainable development, trade liberalization, trade openness, foreign direct investment

1. Introduction

According to the United Nations (UN 2015), the sustainable development goals (SDGs) are "the blueprint to achieve a better and more sustainable future for all." The core guiding principle behind this is the notion of "leave no one behind." These goals aim to eliminate the global challenges faced by humankind, which can be broadly categorized as poverty, inequality, climate change, environmental degradation, peace, and justice. The UN also emphasizes the importance of being able to achieve all the sustainable development goals laid out by the Organization by 2030. Achieving these goals will mean that every individual can sustain his/her life without facing any major challenge in fulfilling basic needs. A total of seventeen goals have been outlined to call for action across both developed and developing countries to improve the environmental, economic, and health prosperity (UN 2015). The Millennium Development Goals has poverty eradication to be the first target and hoped to be achieved by 2015 which the scourge is still pertinent to Sub-Saharan Africa.

Global effort toward reducing poverty is thwarted by its outcome in Sub-Saharan Africa (SSA). Even though the World has made significant progress in reducing poverty levels from 36% (1990) to 10% (2015), SSA has retrogressed. A greater portion of the poor people in the world live in this region and the projection for 2030 is alarming. According to the World Bank (2019), if the current situation persists, about 90% of the extremely poor population around the universe will be living in this region. Income disparity, on the other hand, has risen globally in recent decades (Samuel & Godwin 2022). This study seeks to investigate the effect of trade openness and foreign direct investment to achieve growth and sustainable development by reducing poverty level. Also, to examine how other factors of sustainable development vis a viz: governance indicator, economic variables and environmental qualities affect Sub-Saharan Africa. This study aims to to cover 48 countries of the Sub-Saharan region between 2000 and 2023. Similarly, this research aims to work in line with the goals of Millenium Development Goals (MDG) and Sustainable Development Goals (SDGs). The SDGs has its goals spread out to be seventeen while MDGs is summarized to be just eight. Now, strictly considering and working with the goals and targets of MDGs, this study aims to work on eradication of extreme poverty, environmental sustainability and development of global partnership. These three phrases are the MDGs 1st, 7th and 8th goals itemized by the United Nations. The scope of this study starting with the year 2000 was when the SDGs were implemented and to be achieved by 2030 while 2023 is the recent data available in World Bank WDI.

2. Literature Review

2.1 Theoretical Literature Review

The theoretical review of this study should encompass the relationship between trade liberalization, poverty and sustainable development which is a complex and multifaceted issue. While trade liberalization can potentially stimulate economic growth and development, its

impact on environmental sustainability and social equity is a subject of ongoing research and discussion. Therefore, this study reviews the following:

Heckscher-Ohlin (1933) Trade theory suggests that countries will specialize in producing goods that intensively use their abundant factors of production. Trade liberalization can lead to specialization and increased efficiency, which can positively impact economic growth and development. However, it may also lead to environmental degradation if countries specialize in resource-intensive industries.

Kuznets (1955) Curve, EKC posits that as countries develop economically, income inequality initially increases but then decreases after reaching a certain level of economic development. It's often depicted as an inverted U-shaped curve. They also initially experience increasing levels of environmental degradation, but as they reach a certain level of income, they begin to invest in environment protection, leading to improved environmental quality. Trade liberalization can accelerate economic growth, which may initially lead to increased environmental degradation, but eventually, as incomes rise, countries may adopt stricter environmental regulations (Kuznets 1955).

Structural Change Models

This approach focuses on mechanisms that transform economic structure of nations from traditional agriculture to industrial and service system. In particular, structural change approach is based on theories of neoclassical price and resource allocation. Two main approaches are: the model of two-sector surplus labor by Lewis (1954) and econometric analysis of the patterns of development by Chenery and colleagues (1975). The model of Lewis (1954) considers a process of modern sector self-sustaining growth and employment expansion that are assumed to continue until all surplus of rural labor is absorbed in new industrial sectors of urban areas. However, a limitation of the model by Lewis (1954) is the assumption of diminishing returns in industrial sector, whereas empirical evidence shows increasing returns in that sector (Todaro and Smith 2003). Empirical patterns of development consider the steady accumulation of physical and human capital, the change in consumer not, in many cases, generated pathways of development within and between countries.

The International-Dependence Models

Consider developing countries in a relationship of dependence with developed countries. Major approaches are: neocolonial-dependence, false-paradigm, and dualistic models. These approaches reject neoclassical theory of development designed to accelerate growth of gross national product; they also reject the empirical results by Chenery about some characteristics of development that poor countries should pursue (cf., Todaro and Smith 2003). These international-dependence models stress the imbalance of socioeconomic power between rich and poor nations. According to the American sociologist Immanuel Maurice Wallerstein, the world system has core and periphery regions, in which powerful and wealthy core societies dominate and exploit weak and poor peripheral societies. In particular, the strong nations

reinforce and increase the flow of surplus because their governments provide economic assistance to capitalist classes on world market. The major weakness of this approach is the actual experience of Least Developed Countries (LCDs) that have had nationalization of firms and state-run production with negative effects on long-run patterns of economic growth.

2.2 Empirical Review

Ifeanyi (2017) examined the effect of Trade Liberalization on economic growth of Nigeria for the period 1981-2016. The study applied E-view 7.0 version and the estimation technique applied are ordinary least square (OLS), diagnostic test, serial correlation test, stability test and Granger causality test. Result of the analysis shows that the whole independent variables have 94% positive impact to GDP in Nigeria The independent variables used for the study were Degree of Openness, Net Import, Net Export, Exchange Rate and Balance of Payment while the dependent variable is Gross Domestic Product (GDP). It was concluded that the whole independent variables were significant to GDP in Nigeria. Consequently, the study recommended that Government must continue to adopt appropriate policies to diversify the productive base of the economy in order to promote net export and build an efficient service infrastructure. Exchange rate liberalization is also critical in facilitating trade in any economy. Marian (2018) examined the determinants of foreign direct investment (FDI) and environmental sustainability in sub-Saharan Africa over the period 1985-2012. Using bilateral panel dataset for 30 Organisation for Economic Cooperation and Development (OECD) parent countries and 28 sub-Saharan African host countries, the results indicate that both horizontal and vertical investments are important to sub-Saharan Africa's economy. The findings reveal that relative environmental regulatory stringency difference between the parent and host country is a positive and significant determinant of inward FDI. The findings indicate that MNEs exploits favourable economic conditions, growth prospect, governance and institutional quality, return on investment, human capital, infrastructure, natural resources and agglomeration economies. Further, trade liberalisation can help promote FDI, however, financial liberalisation such as financial sector development and bank efficiency as well as privatisation of state-owned enterprises has no compelling effect on productive FDI to the region.

Cesaire & Sibe (2013) examined new developed Countries' (ndc) investment opportunities in SSA. They used panel data regression model to estimate the parameters on 18 SSA countries from 2000 to 2012. They reached the conclusion that variables such as market size, inflation, taxes and wages significantly affect FDI attraction in SSA countries; furthermore, corruption, countries openness, and infrastructure development could not be seen as factors that absolutely impede on countries ability to attract FDI. We propose that SSA countries' monetary authorities should review their exchange rate system in order to be able to have more control over inflation.

Samuel & Godwin (2022) assessed the moderating role of institutions in the trade openness and inclusive growth nexus in Sub-Saharan Africa (SSA). Based on the System General

Method of Moment estimation technique applied to data from 39 SSA countries from 1996 to 2017, the results offer support for the assertion that institutions strengthen the positive relationship between trade openness and inclusive growth in SSA. Economies in SSA should put in policies to strengthen their institutions to improve the positive link between trade openness and inclusive growth.

Batrancea et al. (2020) examined the empirical investigation on determinants of sustainable economic growth. The study focuses on the effects of imports, exports, financial direct investment inflow and financial direct investment outflow on sustainable economic growth expressed by various macroeconomic indicators (gross domestic product, gross domestic savings, gross domestic capital) using the least squares panel method. Sample data were selected for ten Central and Eastern European (CEE) countries and the time frame considered was 2005–2016. Generally, transitional economies have to incorporate strong savings and a steady capital formation in order to achieve higher economic growth via foreign direct investment. Results showed that the analyzed factors played a major role in the sustainable economic growth of CEE countries. Another important and valuable insight of this study is that the financial sector steers the process of achieving sustainable economic growth across CEE countries.

It can thus be observed from the empirical studies reviewed above that measuring sustainable development is multifaceted, that is, difficulties in measuring sustainable development arise from the diversity of definitions and determinants of this sustainable development.

This study will fill the gap by investigating how economic variables, political institutions, and environmental qualities can influence each other over time. And employing fixed-effects models with Driscoll-Kraay standard errors, which are more robust to these issues especially in the area of cross-sectional dependence.

Also, in order to achieve the United Nations' aims by 2030 whereby man needs not to face major challenges before securing his basic needs, then employing the three pillars of sustainable development makes this study proffering solution from findings of the connectivity of the three pillars.

2.Methodology

Theoretical framework

The structural change models and the theoretical foundation of the economic growth found in neo-classical growth model which are widely used in empirical studies and is being adopted in this study. Theoretical foundation of growth of GDP per capital (i.e, economic growth) equation can be found in the neoclassical growth model which is widely used in empirical studies.

$$Y=Af(K, L) \qquad 3.1$$

Where A = indicator of the level of Technology, K= Capital stock, L= Labour, and Y= Output

This production function indicates that output is a function of labour, capital and technology,

Taking a total derivative of Y in the above equation 3.1 gives Equation 3.2 below

$$\Delta Y = MPL \cdot \Delta L + MPK \cdot \Delta K + F(K,L)\,\Delta A \qquad 3.2$$

Where *MPL* and *MPK*are marginal productivities of labour and capital respectively. If we divide eqn 3.2 by eqn 3.1 we arrive at

$$\frac{\Delta Y}{Y} = \frac{MPL}{Y} \cdot \Delta L + \frac{MPK}{Y} \cdot \Delta K \frac{\Delta K}{K} + \frac{\Delta A}{A} \qquad 3.3$$

Multiplying and dividing the first and second parts of the Right Hand Side (RHS) by *L* and *K* respectively will give:

$$\frac{\Delta Y}{Y} = \left(\frac{MPL}{Y} L\right) \frac{\Delta L}{L} += \left(\frac{MPL}{Y} K\right) \frac{\Delta K}{K} + \frac{\Delta A}{A} \qquad 3.4$$

Assuming a perfect competitive market, factors are paid their respective marginal products, then, MPL = w and MPK = r, where w and r are the market wage rate and capital rental rate. The$\frac{MPL}{Y}$L and $\frac{MPK}{Y}$Krepresent the shares of labour and capital in the total income respectively. Replacing the labour and capital shares with 1—α and α respectively will give us the growth accounting equation below:

$$\frac{\Delta Y}{Y} = (1 - \alpha) \frac{\Delta L}{L} + \alpha \frac{\Delta K}{K} + \frac{\Delta A}{A} \qquad 3.5$$

Equation 3.5 summarizes how the growth of inputs and productivity contribute to the growth of output.

The above is the derivation of growth accounting equation which in turn, is based on the neoclassical growth framework. It is this growth accounting equation linked with Cobb-Douglas production function that serves as the basis for the model specification adopted in the study.

Model Specification

In order to investigate trade liberalization, poverty and sustainable development, the neo-classical growth equation is linked with Cobb-Douglas production function $Y = a_1 K + a_2 L$ by log- linearising labour and capital in the equation

ANS = *f*[lnK, lnL, EV(GDP, FDI, UMR, TO), PI(RoL, GE, PS, VAC), EQ(CO_2, LoP, SQ, EQ)]……. 3.1

Each variable from EV, PI and EQ is taken and regressed which make the models to be four

Where ANS = adjusted net savings (proxy for sustainable development); and EV, PI, EQ

are economic variables, political institution and environmental quality respectively;

TRO = trade openness, GDP = gross domestic product per capita, FDI = foreign direct investment and UMR = unemployment rate.

RoL = rule of law, GE = government effectiveness, PS = political stability, VAC = voice and accountability.

EC = energy consumption, SQ = soil quality, CO_2 = carbondioxide, and LoP = level of pollutant.

Estimation Technique

The study used fixed-effects models with Driscoll-Kraay standard errors, which are more robust to these issues as it tends to cross-sectional dependence. This technique addressed the limitation of heteroskedasticity and autocorrelation in the error terms.

The data employed are secondary data sourced from World Bank, WDI. The independent variables are trade openness (TO), foreign direct investment(FDI), Rule of Law (RoL), Government Effectiveness (GE), Political Stability (PS), Voice and Accountability (VAC), GDP per capita (GDP), Unemployment Rate (UMR), Carbondioxide Emission (CO_2), Level of Pollutant (LoP), and Soil Quality (SQ). labour and capital are used as control variable which featured in the models estimated.The dependent variable which is sustainable development proxied by adjusted net savings (ANS). ANS is used because it provides a more comprehensive measure of a country's wealth and long term economic health. It goes beyond traditional metrics like GDP by incorporating the depletion of natural resources, environmental degradation, and investment in human capital.

Table 4.4 Empirical Estimates of Tax Revenue Equations

	Model I						Model II					
	FE			FE Discroll-kraay			FE			FE Discroll-kraay		
VARIABLES	Coef	tstat	Pval	Coef	tstat	Pval	coef	Tstat	pval	Coef	tstat	Pval
lnK	17.411	4.466	0.000	17.411	4.653	0.000	14.876	2.980	0.003	14.876	3.634	0.004
lnL	33.081	6.447	0.000	33.081	6.911	0.000	34.239	3.871	0.000	34.239	2.622	0.024
GDP	-0.0001	-2.772	0.006	-0.0001	-4.171	0.001						
RoL	8.189	3.323	0.001	8.189	4.229	0.000						
CO2	-5.258	-0.785	0.433	-5.258	-0.780	0.445						
FDI							0.153	0.999	0.319	0.153	0.864	0.406
GE							6.705	1.830	0.068	6.705	2.799	0.017
LoP							-0.055	-0.333	0.740	-0.055	-0.478	0.642
Constant	-229.173	-7.124	0.000	-229.173	-7.737	0.000	-236.456	-4.150	0.000	-236.456	-2.839	0.016
Observations	606.000			606			386			386		

R-squared	0.733						0.732					

Author's computation using stata 14 software (2024) Explanatory Notes: ANS = adjusted net savings, lnK = log gross fixed capital formation, lnL =log of labour force, GDP = gross domestic product per capita, RoL = rule of law, CO2 = carbon dioxide emission, FDI = foreign direct investment, GE = government effectiveness, LoP = level of pollutant. Probability values are reported in parenthesis underneath the correlation coefficients. A correlation is adjudged to exist between a pair of variables only if the applicable p-value does not exceed 0.05

	Model III						Model IV					
	FE			FE Discroll-kraay			FE			FE Discroll-kraay		
VARIABLES	Coef	tstat	pval	Coef	tstat	Pval	coef	Tstat	pval	Coef	tstat	Pval
lnK	18.079	4.810	0.000	18.079	5.146	0.000	53.990	6.452	0.000	53.990	8.353	0.000
lnL	24.080	4.838	0.000	24.080	4.045	0.001	-2.604	-0.228	0.820	-2.604	-0.285	0.780
UMR	-0.489	-1.921	0.055	-0.489	-2.098	0.049						
PS	1.836	2.108	0.035	1.836	1.860	0.078						
SQ	-0.233	-2.258	0.024	-0.233	-3.775	0.001						
TRO							-0.332	-5.079	0.000	-0.332	-7.575	0.000
VAC							3.071	0.590	0.556	3.071	0.589	0.566

EC							0.002	0.972	0.332	0.002	0.985	0.342
Constant	-170.790	-5.157	0.000	-170.790	-4.388	0.000	-29.677	-0.413	0.680	-29.677	-0.514	0.616
Observations	623			623			260			260		
R-squared	0.722						0.831					

Author's computation using stata 14 software (2024) Explanatory Note; lnK = gross fixed capital formation, lnL =log of labour force, PS = political stability, VAC = voice and accountability, UMR = unemployment rate, EC = energy consumption, TRO = trade openness, SQ = soil quality. Probability values are reported in parenthesis underneath the correlation coefficients. A correlation is adjudged to exist between a pair of variables only if the applicable p-value does not exceed0.0

The R^2 for the four models are 0.73,0.73, 0.72 and 0.83 respectively while their corresponding *F* statistics are 15.34, 5.66, 16.39 and 9.94 with p-values that are less than or below the benchmark of 0.05 significance level in all cases. This shows that the models are of good of fit and have, at least, modest explanatory powers.

5. Conclusion

Trade liberalisation, poverty, and sustainable development in Sub-Saharan Africa, United Nation kicked off the 8 goals and targets of Millennium Development Goals by 2000. They aimed to eradicate poverty by 2015 that is 15years after whereby poverty is still at the increasing end in Sub-Saharan Africa. This region faces unique challenges, including poverty, inequality, and environmental degradation, that hinder its progress towards a sustainable future. To address these challenges effectively, it is crucial to understand the key determinants of sustainable development. The research employed a quantitative approach, utilizing panel data analysis to examine the relationships between economic determinants, political institutions, and environmental qualities and their impact on sustainable development in sub-Saharan Africa. Fixed-effects models and Driscoll-Kraay standard errors were used to control for unobserved heterogeneity and address potential endogeneity issues.

Political institutions: Rule of law, political stability, and government effectiveness emerged as strong determinants of sustainable development. These factors play a crucial role in creating a conducive environment for investment, innovation, and social progress

Economic Determinants: GDP per capita, unemployment rate, and trade openness exhibited negative and statistically significant relationships with sustainable development, indicating that these economic challenges require attention. Environmental variables, while not directly significant, are still relevant to consider. Factors like carbon dioxide emissions, level of pollutants, energy consumption, and soil quality may have indirect impacts on sustainable development.

Conclusively, findings of this study emphasize the importance of strong institutions as a foundation for sustainable development. Rule of law, political stability, and government effectiveness are critical in creating conducive environment for investment, innovation, and social progress while economic factors play a role, the research highlights the need to address economic challenges such as inequality, unemployment, and trade barriers. These factors can hinder sustainable development and exacerbate existing inequalities. Environmental considerations are also important, although their direct impact may be more indirect. Integrating environmental factors into economic and development policies can help mitigate negative environmental consequences and promote sustainable practices.

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INDUSTRIALISATION AND SUSTAINABLE DEVELOPMENT IN AFRICA: THE INFLUENCE OF GLOBALISATION AND ENVIRONMENTAL REGULATIONS

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ABSTRACT

Industrialization has been regarded as a panacea to economic growth and sustainable development. Some of the likelihood factors responsible for the poor sustainable development through contributions from industrialization in Africa when compared with other continents include low productivity, political unrest, institutional limitations, environmental degradation, and poor globalization. Therefore, this prompts the present study to investigate the effect of industrialization on economic growth and sustainable development in Africa from 2000 to 2022. Specifically, to examine the influence of globalization and environmental regulations on the effect of industrialization on sustainable development. To achieve these objectives, the theoretical background of the study rests on the Kaldor's growth first law. The study employed fixed effect (FE) estimation techniques with Driscoll-Kraay standard errors to cater for heteroscedasticity, autocorrelation, and cross-sectional dependence problems. The data employed were obtained from the World Bank, United Nations Industrial Development Organization (UNIDO), and the Mo Ibrahim Foundation databases. The FE estimate reports that industrialization proxied by the growth of the manufacturing sector has a positive effect on economic growth but has a positive effect on sustainable development with the influence of globalization and enforcement of environmental regulations in Africa. Based on these findings, the study recommends that policymakers implement strategies to promote international trade participation and enforce environmental regulations to maximize the benefits of industrialization for sustainable development in Africa.

Keywords: Industrialisation; Economic growth; Sustainable development; *Driscoll-Kraay*

1. Introduction

Industrial performance, which refers to the performance of the manufacturing and non-manufacturing activities (including mining and utilities sector), is been regarded as a panacea to economic growth (Prebisch, 1962; Kaldor, 1967; Thirlwall, 1979; etc). Both economic growth and industrial performance are inter-linked, particularly as the latter can contribute to the former. In this sense, the United Nations Industrial Development Organisation, UNIDO (2022) claims that the following factors can be used to link industrial sector production to the accomplishment of sustainable development goals (SDG):

improvements in human health and well-being due to technological progress in industry (e.g., new vaccinations and drugs) lead to good health and wellbeing; higher wages in manufacturing and new (formal) employment opportunities support the eradication of extreme poverty; an increase in agricultural productivity due to industrial innovation (e.g., new machines, fertilisers) promotes food security and leads to zero hunger; etc. It can thus be inferred from the above that one of the ways to achieve growth is through industrialisation. Indeed, the expansion of production that results from industrial performance and diversification can help an economy meet its developmental needs. A further benefit of industrialisation is that it has sped up technological advancements and worldwide production network integration (UNIDO, 2022).

Additionally, to achieve industria.l growth, intergovernmental organizations or bodies to which African countries belong have continued to formulate policy measures. Examples of these include the East African Industrialization Policy (EAIPP), which was started in 2012, the West African Common Industrial Policy (WACIP), which was started in 2005, and the Industrialization Strategy and Roadmap of the Southern Africa Development Community (SADC), which was started in 2015 and is scheduled to end in 2063 (Bokosi, 2022).

Despite the efforts contributed towards industrial development through these policies, Africa still accounts for just 1.9 percent of global manufacturing, placing it at the bottom of the value chain. African economies continue to be overly dependent on raw commodities. In 2021, manufacturing value added (MVA) of about 13.14 percent of GDP was accounted for by the Western and Central region of Africa, which fell to 12.73 percent of GDP in 2022 and rose by 0.47 percent in 2023. In the Eastern and Southern region of Africa, MVA contributions to GDP increases from 10.28 percent in 2021 to 10.40 percent in 2022. Thereafter, it fell to 9.89 percent in 2023 (World Development Indicators, WDI, 2024).

According to WDI (2024), the level of sustainable development proxy by adjusted net savings as a percentage of gross national income (GNI) rapidly increases from 5.92 percent in 2019 to 11.30 percent in 2020 and it further increases to 14.18 in 2021 (World Development Indicators, WDI, 2024). Some of the likelihood factors responsible for the poor sustainable development and poor contributions of manufacturing value added to GDP in Africa when compared with other continent include low productivity, political unrest, institutional limitations, environmental degradation and poor globalisation characterized by limited particip.ation in trade and global value chains (GVCs) (WDI, 2024). This thus calls for an updated study that would address these challenges and this is where and why the present study comes in to fill these gaps. This prompts the present study that aims to investigate the effects of industrialisation on economic growth and sustainable development in Africa from 2000 to 2022. The specific objectives are to investigate the influence of globalisation on the effect of industrialisation on sustainable development and to examine the influence of environmental regulation on the effect of industrialisation on sustainable development.

2. Literature Review

According to United Nations Industrial Development Organization, UNIDO (2022), industrialisation comprises manufacturing and non-manufacturing activities.

Manufacturing is the process of turning raw materials or parts into finished goods by utilizing machines, tools, labor from humans, and chemical processing (Scott, 2022).

According to Krugman (1994), a productivity ratio is the volume of inputs divided by the volume of output. It gauges an economy's efficiency in using capital and labor as production inputs to generate a specific level of output.

Todaro and Smith (2011) consider economic growth to be the gradual process through which the economy's production capacity grows over time, leading to an increase in the amount of national production and output.

On the theoretical account, the growth rule proposed by Kaldor (1966, 1967) originates in the course of the proponent's inaugural lecture at Cambridge University in 1966 on the causes of the U.K's slow growth rate. He later explained these laws in a lecture at Cornell Univeristy in 1967. The three components of Kaldor's law are as follows (Thirllwall, 1983). The expansion of the manufacturing sector is positively connected with GDP growth, according to the first law. In other words, increasing the industrial or manufacturing sector's growth will increase output growth (GDP). The second law, which is similar to Verdoorn law in 1949, states that productivity growth in the manufacturing sector and the manufacturing sector growth have a positive correlation. According to the third law, the expansion of the manufacturing sector and the productivity of the non-manufacturing sector are positively correlated (Kaldor, 1975)

Over time, an increasing number of empirical studies have been conducted to estimate the impact of industrialisation on economic growth. However, there is still disagreement regarding the conceptualization and analytical approach of this topic and few of those recent studies reviewed include studies like (viz Wonyra 2018; Moyo and Jeke 2019; Ughulu 2021; and Onye et al. 2023), which affirms that industrialisation has positive effect on economic growth. However, studies by Luken and Castellanos-Silveria (2011), Sofrankova et al. (2021) and Bose et al. (2024) recognises some number of factors that determines sustainable development, among them are human resources, business climate, innovative activity and corruption.

On the account of gaps identified in the existing literature, it was observed that previous studies focused on examination of the effect of industrialisation on economic growth and sustainable development as well as the determinants of sustainable development. However, the present study explore further to investigate on globalisation and environmental regulations as factors that stimulate the effect of industrialisation on sustainable development.

3. Methodology

3.1 Theoretical Framework

The theoretical foundation of the role of industrialisation on economic growth and sustainable development can be found in the Kaldor (1967) first law as it provides a strong positive statistical correlation and causal connection between industrialisation and economic growth. This first law states that the growth of manufacturing sector is positively

correlated with GDP growth. The relationship rests on certain special characteristics of the manufacturing sector, which makes it the engine of GDP growth and of living standards.

In the context of the Kaldorian specification of the first law, which is often called "the engine of growth hypothesis", the following expression holds:

$$\frac{\mathbf{dq_{GDP}}}{\mathbf{q_{GDP}}} = \mathbf{a_0} + \mathbf{a_1}\frac{\mathbf{dq_m}}{\mathbf{q_m}},\ \mathbf{a_1} > 0 \qquad (1)$$

Where $\frac{\mathbf{dq_{GDP}}}{\mathbf{q_{GDP}}}$ and $\frac{\mathbf{dq_m}}{\mathbf{q_m}}$ are the growth of GDP/economic growth and the growth of manufacturing sector respectively and $\mathbf{a_k}$ (k = 0, 1) are regression coefficients. The condition of positive $\mathbf{a_1}$ indicates a positive association between the growth of manufacturing output and the growth of GDP.

3.2 Model Specification

To specify a model to achieve the objective of this study, the following stages are entailed. First, the Kaldorian first growth law Equation (1) is modified into a panel based model (especially a fixed effect model) by replacing the notations of economic growth and growth of manufacturing sector with EG and MOG respectively, as well as adding the control variables, time and country subscripts (t and i), unobservable individual specific effect (μ_i), the unobservable time effect (λ_t) and the remainder stochastic disturbance (v_{it}) to yield a two-way error component fixed effect Equation (2) thus:

$$\mathbf{EG_{it}} = \mathbf{a_{i0}} + \mathbf{a_1 MOG_{it}} + \mathbf{a_2 CSG_{it}} + \mathbf{a_3 LFG_{it}} + \mathbf{a_4 INF_{it}} + \mathbf{a_5 LRL_{it}} + \mu_i + \boldsymbol{\lambda_t} + v_{it} \qquad (2)$$

Where: $\mathbf{CSG}$ = growth of capital stock; $\mathbf{LFG}$ = labour force growth; INF = inflation rate; and LRL = literacy level proxied by net school enrolment rate. $\mathbf{a_0}, \mathbf{a_1}, \mathbf{a_2}, \mathbf{a_3}, \mathbf{a_4}$ **and** $\mathbf{a_5}$ represent parameters to be estimated. Other notations and acronyms are as previously explained in connection with Equation (1).

The above stage permits a confirmation of the Kaldorian growth law which states that a positive relationship exist between economic growth and manufacturing sector growth. The second stage or phase is to go deeper and to examine whether globalisation, proxy with trade openness as percentage of GDP (TRO) stimulates the effect of industrialisation on sustainable development. This is accomplished by first replacing economic growth (EG) with sustainable development (ADJNS) in growth Equation (2) and introduce a moderating term of trade openness (TRO) which is included as a standalone variable as well as an interaction with the growth of manufacturing sector (MOG), i.e. $\mathbf{MGO} * \mathbf{TRO}$ yield Equation (3) thus:

$$\mathbf{ADJNS_{it}} = \mathbf{a_{i0}} + \mathbf{a_1 MOG_{it}} + \boldsymbol{\eta_1 TRO_{it}} + \boldsymbol{\eta_2}(\mathbf{MOG} * \mathbf{TRO})_{\mathbf{it}} + \mathbf{a_2 CSG_{it}} + \mathbf{a_3 LFG_{it}} + \mathbf{a_4 INF_{it}} + \mathbf{a_5 LRL_{it}} + \mu_i + \boldsymbol{\lambda_t} + v_{it} \qquad (3)$$

Where: $\mathbf{ADJNS}$ = sustainable development proxy with adjusted net savings; $\mathbf{TRO}$ = globalisation proxy with trade openness; and $\mathbf{MOG} * \mathbf{TRO}$ = interaction of growth of

manufacturing sector and globalisation. $\boldsymbol{\eta_1}$and $\boldsymbol{\eta_2}$ represent parameters to be estimated. Other notations and acronyms are as previously explained in connection with Equation (2). It should be noted that variable $\mathbf{MOG} * \mathbf{TRO}$ and other interaction variables used in the study are demeaned, i.e. subtracting the mean value of the variable from its actual value, before estimating the model to avoid structural multicollinearity.

The final stage is to examine whether environmental regulations, proxy by enforcement of environmental regulations score (EER) influences the effect of industrialisation on sustainable development. This is accomplished by replacing globalisation (TRO) with environmental regulations (EER) in Equation (3) to yield Equation (4) thus:

$$\mathbf{ADJNS_{it}} = \mathbf{a_{i0}} + \mathbf{a_1 MOG_{it}} + \boldsymbol{\sigma_1}\mathbf{EER_{it}} + \boldsymbol{\sigma_2}(\mathbf{MOG} * \mathbf{EER})_{\mathbf{it}} + \mathbf{a_2 CSG_{it}} + \mathbf{a_3 LFG_{it}} + \mathbf{a_4 INF_{it}} + \mathbf{a_5 LRL_{it}} + \mu_i + \boldsymbol{\lambda_t} + \nu_{\mathbf{it}} \quad (4)$$

Where: $\mathbf{EER}$ = environmental regulations proxy enforcement of environmental regulations; and $\mathbf{MOG} * \mathbf{EER}$ = interaction of growth of manufacturing sector and environmental regulations. $\boldsymbol{\sigma_1}$ and $\boldsymbol{\sigma_2}$ represent parameters to be estimated. Other notations and acronyms are as previously explained in connection with Equation (3).

3.3 Estimation Techniques

Concerning the estimation techniques, the study employed fixed effect (FE) estimator with *Driscoll-Kraay standard errors to cater for heteroscedasticity, autocorrelation, and cross-sectional dependence problems.* The fixed effect is an appropriate specification when focusing on a specific set of *N* units, say countries greater than the number of time periods. Furthermore, the FE approach cannot estimate the effect of any time-invariant variable like sex, race, religion and other categorical variables (Baltagi, 2001). Finally, the diagnostics and post estimation tests (including multicollinearity, panel autocorrelation, heteroscedasticity and normality tests) are carried out.

3.4 Data Coverage, Measurements and Sources

Economic growth (EG) is the annual percentage change in the real GDP at purchaser's prices in constant local currency; Growth of manufacturing sector (MOG) is the annual percentage change in the value added of manufacturing output; Growth of capital stock (CSG) is annual percentage change in the private capital stock (at constant value of international dollars); Labour force growth (LFG) is measured as the annual percentage change in the labour force; Inflation rate (INF) is measured as the annual percentage change in the consumer price index; Literacy level proxied by net school enrolment rate (LRL) is proxied by net school enrolment rate; Sustainable development proxy with adjusted net savings (ADJNS) is equal to net national savings plus education expenditure and minus energy depletion, mineral depletion, net forest depletion, and carbon dioxide and particulate emissions damage. It is measured as percentage of gross national income; Globalisation proxy with trade openness (TRO) is the sum of exports and imports of goods and services measured as a share of gross domestic product; Environmental regulations proxy enforcement of environmental regulations (EER) is measured by composite index score generated from various environmental regulations variables. All data were sourced from the World Bank's World Development Indicators, WDI (2024) except enforcement of environmental regulations which is sourced from Mo Ibrahim Foundation Database.

4. Results

4.1 Regression Analysis Results

Table 3 comprises the estimates of Models I II and III which are equivalent to the specified Equations (2), (3) and (4) of Section 3. The estimate of the equation testing the effect of industrialisation proxy by manufacturing output growth on economic growth, which is labelled in Table 3 as Model I. Also, the estimate of the equation for determining whether the effect of industrialisation on sustainable development is influenced globalisation proxy by trade openness is labelled in Table 3 as Model II. Finally, Model III in Table 3 captured the estimates of investigating whether environmental regulations influences the effect of industrialisation on economic growth.

Table 1: *Regression Results*

	Model I	**Model II**	**Model III**
VARIABLES	**EC**	**ADJNS**	**ADJNS**
MOG	**0.001** **[2.213]** **(0.040)**	**0.448** **[1.141]** **(0.269)**	**-1.766** **[-4.583]** **(0.003)**
CSG	**0.002** **[4.266]** **(0.000)**	**0.130** **[1.842]** **(0.082)**	**-0.102** **[-1.075]** **(0.318)**
LFG	**0.001** **[0.310]** **(0.760)**	**-0.552** **[-2.883]** **(0.010)**	**-0.110** **[-1.322]** **(0.228)**
INF	**0.001** **[1.496]** **(0.152)**	**0.130** **[2.040]** **(0.056)**	**-0.016** **[-0.146]** **(0.888)**
LRL	**0.006** **[9.436]** **(0.000)**	**0.083** **[1.281]** **(0.217)**	**-0.030** **[-0.509]** **(0.626)**
TRO	-	**-0.071** **[-1.771]** **(0.093)**	-
MOGTRO	-	**0.007** **[3.136]** **(0.006)**	-
EER	-	-	**-0.163** **[-2.089]** **(0.075)**
MOGEER	-	-	**0.016** **[2.421]** **(0.046)**
Observations	**233**	**205**	**95**
Number of groups	**34**	**32**	**23**

F statistic and its p-value	**[50.40] (0.000)**	**[13.54] (0.000)**	**[24.69] (0.000)**
VIF statistic for multicollinearity test	**1.06**	**4.38**	**8.80**
Wooldridge F statistic for autocorrelation test and its p-value	**[83.598] (0.000)**	**[8.320] (0.009)**	**[4.328] (0.056)**
Modified Wald χ^2 statistic for heteroscedasticity test and its p-value	**[6.2e+29] (0.000)**	**[1.0e+31] (0.000)**	**[2.4e+36] (0.000)**
Galvao et al. (2013) χ^2 statistic for normality test and its p-value	**[2.09] (0.351)**	**[4.72] (0.095)**	**[0.32] (0.850)**

Author's computation (2024).

Explanatory notes: The following are the meanings of the acronyms: EG = Economic Growth, ADJNS = Adjusted net savings, CSG = Capital stock growth, LFG = Labour force growth, MOG = Manufacturing output growth, TRO = Trade openness, EER = Enforcement of environmental regulations index, INF = Inflation, LRL = Literacy rate. MOGTRO = interaction between manufacturing output growth and trade openness, MOGGEER = interaction between manufacturing output growth and enforcement of environmental regulations index. Test statistics and P-value are represented by [ ] and ( ) respectively. ***A coefficient is significant only if its p-value is less than or equal to 5% critical value. The F statistics are for the overall significance of the model, with the decision rule being to reject the null hypothesis that the model is not statistically significant if its test statistic's p-value is less than or equal to 5% and to accept it if otherwise.***

In Table 3, the estimate of Model I, II and II show that the coefficient of manufacturing output growth (MOG) are 0.001, 0.448 and -1.766 with the associated p-values of 0.040, 0.269 and 0.003, indicating that the coefficient of MOG is positive and statistically significant only in Model I. Therefore, this suggests that industrialisation plays a positive and vital role in stimulating economic growth, aligning with the Kaldor growth first law and the existing empirical studies such as Ughulu (2021) and Onye et al. (2023). Regarding the interaction of both globalisation and environmental regulation with manufacturing output growth, Table 3 reveals that, the coefficients of the moderating terms MOGTRO and MOGEER in Model II and Model III are 0.007 and 0.016, with the associated p-values of 0.006 and 0.046, which shows that, the two coefficients are positive and statistically significant. This implies that both globalisation and environmental regulations influence the effect of industrialisation on sustainable development in Africa. As the size of coefficient of MOGEER is greater than MOGTRO, hence, the effect of industrialisation on sustainable development in African countries procure more benefits from stricter environmental regulations when compare to trade globalisation.

5. Conclusions

The estimates reveals that while industrialisation proxy with growth of manufacturing output contributes positively to African countries economic growth, it negatively associated with sustainable development in African. Afterwards, it is revealed that both stricter environmental regulation and trade globalisation positively influence the effect of industrialisation on sustainable development in Africa, but the influence of the former is greater than the later. This implies that the Africa countries engage in international trade as well as comply with environmental regulations which makes them become more efficient in sustainable practice and boosting their long-term savings.

Given the opinion that trade integrations and globalisation as well as stricter environmental regulations in African countries stimulate the impact of industrialisation on sustainable development, policymakers should pursue strategies aimed at *promoting international trade participation and enforcement of environmental regulations to maximize the benefits of industrialization for sustainable development in Africa.*

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ELECTRICITY CONSUMPTION AND MANUFACTURING SECTOR PERFORMANCE IN NIGERIA

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Abstract

Regular supply of electricity is crucial for driving manufacturing growth in any economy, as it significantly influences production and consumption patterns and ultimately, impacting a nation's economic advancement. In consideration of the foregoing, this study sought to determine the effect of electricity consumption on the manufacturing sector's performance in Nigeria from 1990 to 2023. The study differs from the previous ones by using ARDL model and credit to private sector as a proxy for capital stock growth. The data for the study were sourced from the World Bank's World Development Indicator which include manufacturing value added, labour force growth, gross capital formation, foreign direct investment, electricity consumption, carbon emission, access to electricity, real exchange rate, foreign direct investment and inflation. The study employed Augmented Dickey Fuller methodology to carry out a unit root test, on the basis of which it was discovered that nine of the variables were stationary at first difference while the remaining one was stationary at level. Consequently, the Autoregressive Distributed Lag technique was used for the analysis. We found that, in the long run, electricity consumption, carbon emission, access to electricity, foreign direct investment, real exchange rate, foreign direct investment, and inflation had a positive and significant impact on manufacturing performance whereas labour force growth and gross capital formation had a negative and

significant impact on manufacturing performance. Therefore, Nigerian government should improve transmission and distribution efficiency in the electricity sector and implement cost-reflective tariffs on electricity so as to boost electricity consumption by the manufacturing sector.
Keywords: Electricity consumption, manufacturing sector performance, energy economics.

1. Introduction

One of the most important sociological, environmental, and economic challenges of the present time is energy consumption. According to recent studies on energy consumption (IEA, 2008), a significant portion of energy consumption is attributed to industry. Actually, manufacturing accounts for 33% of the world's energy consumption, which is a major problem, given the rising and unstable cost of energy sources as well as the environmental effect (manufacturing accounts for 38% of all CO_2 emissions). Numerous energy-saving projects are underway as a response to this issue and a move toward sustainable manufacturing. The majority of them are creating novel technologies, industrial techniques, and regulatory frameworks.

The manufacturing sector is an important component of industry as its operations affect economic production. The sector is critical to economic sustainability because of its production capability to fulfill aggregate demand in the economy. The manufacturing sector is a catalytic force in a contemporary economy, with several dynamic advantages critical to economic development. In many ways, the industrial sector is the most important in a modern economy. It is a means of enhancing productivity through import substitution and export expansion, generating foreign exchange earning capacity, and growing employment and per capita income in the domestic economy. In addition, it accelerates investment capital than any other economic sector while encouraging larger and more effective links across diverse sectors, resulting in economic growth. The manufacturing sector is the most important contributor to Nigeria's GDP and has boosted the country's economic growth rate (Anyanwu, 2000).

In recognition of the sector's potential roles, successive Nigerian governments have continued to articulate policy initiatives and projects aimed at improving incentives and creating a favourable environment for the manufacturing sector to thrive and contribute effectively to economic growth and development (Fakiyesi, 2005). It is true that the manufacturing sector works better in the presence of a thriving energy

sector; so, a consistent supply of power is a stimulus for manufacturing sector growth.

Sufficient electricity supply is critical for the expansion of the manufacturing and industrial sectors in general. However, the situation in Nigeria is different since an inadequate supply of power impeded the expansion of the industrial sector and its contributions to overall GDP. The manufacturing sector's proportion of total GDP decreased from 7.84 percent between 1971 and 1980 to 7.33 percent between 1981 and 1990. This proportion fell to 4.87 and 3.84 percent between 1991 and 2000, and 2001 and 2010, respectively. Similarly, from 2011 to 2019, the manufacturing sector contributed an average of 9.4% of GDP (CBN, 2019).

Nigeria's manufacturing sector has long been hindered by numerous challenges, with the unpredictable electricity supply being a major obstacle. Despite successive governments' promises to address the issue, the power sector remains in crisis, affecting not only Nigerians but also foreign investors. The demand for energy continues to rise, while supply dwindles, highlighting the need for a comprehensive energy strategy that incorporates alternative sources.

KPMG's 2021 report reveals that Nigeria's electricity generation and transmission capacity averaged 4,000MW in 2020, occasionally peaking at 5,000MW. Nonetheless, due to infrastructural constraints, only 3,000MW were distributed to consumers, leaving a shortfall in meeting the power needs of manufacturers and the public. Nigeria's electricity access deficit is a significant concern, with only 57 per cent of the population having access to electricity, according to the World Bank (2021a). This is in contrast to other countries such as Mauritius (100%), Cape Verde (90.7%) and South Africa (84.2%). The consequences of this energy access deficit has resulted in estimated annual economic losses of $26.2billion (N10.1 trillion) and ranking of 171 out of 190 countries for electricity access (World Bank, 2021b).

The challenges posed by Nigeria's unreliable electricity supply to the manufacturing sector have been the subject of numerous studies, resulting in a range of conclusions. This study contributes to the existing literature on the impact of electricity consumption on manufacturing sector performance in Nigeria by using the autoregressive distributed lag (ARDL) model and domestic credit to private sector as a proxy for capital stock growth. This differs from the use of other indicators of gross fixed capital formation (GFCF) employed by previous authors.

The paper is organized into five sections. Following this introductory part, Section 2 examines relevant research on electricity consumption and

manufacturing sector performance. The methodology adopted for the study is explained in the third part. Section 4 presents the results and discusses the findings, while Section 5 highlights conclusions based on the findings and offers recommendations for further actions.

2. Literature Review

Bernstein and Madlener (2015) utilized a cointegrated VAR technique to estimate electricity demand elasticities for eight subsectors of the German industrial sector. The researchers used yearly data from 1970 to 2007. In this analysis, a long-term relationship was discovered in five of the eight subsectors: food and tobacco, pulp and paper, chemicals, non-metallic minerals, and transportation equipment. Granger causality tests discovered evidence supporting the feedback theory in the food, tobacco, and pulp and paper sectors. In the chemical, non-metallic mineral, and transportation equipment industries, the conservation hypothesis was confirmed. In the near run, the elasticity estimations were determined to be economically justifiable in terms of sign and magnitude. The impulse response function was used in this work to determine the dynamic behaviour of electricity demand in response to shocks in other variables. A reasonable pattern was seen, with electricity demand responding favourably to value-added shocks and adversely to power prices. However, there was no direct relationship between household energy consumption and GDP.

Using 1673 Chinese manufacturing enterprises, Zue and Wang (2020) investigate how firms respond to electricity shortages and the impact on productivity. The authors discovered that self-generation of electricity and investment in Research and Development (R&D) had a substantial beneficial association with power shortages. Further analysis revealed that self-generation is the most typical method of dealing with energy shortages. However, it exacerbates productivity losses. Though investment in R&D can increase productivity, it cannot compensate for the detrimental impact of energy shortages on productivity. Subsample analyses suggested that the effects of energy shortages vary among companies, with large firms being more likely to spend in R&D than small and medium-sized enterprises. Large firms are also the ones that experience considerable productivity losses as a result of self-generation of power. Medium-sized businesses can mitigate productivity losses through R&D, but they are unlikely to invest in R&D in response to electricity shortages.

Qudrat-Ullah and Nevo (2021) parametrically quantified the impacts of renewable energy consumption and environmental sustainability on African economic growth. Using panel data from thirty-seven African

nations and the System Generalized Method of Moments approach, the study discovered that renewable energy adoption and development boosted African economic growth in both the long and short run, with a one percent increase in renewable energy consumption resulting in 0.07% and 1.9% increases in economic growth in the short and long run, respectively. The study also discovered that environmental sustainability through emission reduction might not be Africa's current goal for attaining all-inclusive development because the study's CO2 emission coefficient is not statistically significant.

With the use of data from the CBN Statistical Bulletin and the World Bank Development Indicator for 1980, Omotosho and Ogu (2021) investigated the impact on electricity usage on Nigeria's manufacturing sector performance. Auto Regressive Distributed Lag (ARDL) approaches were used to analyse variables such as manufacturing output, electricity supply, credit to manufacturing, human capital development, and exchange rate as independent variables. However, the findings demonstrated that variables such as electricity supply, exchange rate, credit to the manufacturing sector, and human capital development had both long and short-run effects on manufacturing output.

Asaleye et al. (2021) used Canonical Cointegrating Regression to explore the long-run influence of electricity consumption on manufacturing sector performance as measured by output, employment, and capital from 1981 to 2019. The results of the output equation demonstrate that electricity consumption and credit to the manufacturing sector have a negative connection with output. In the employment equation, electricity and interest rates have a negative impact on employment. In the capital equation, electricity use is statistically insignificant. To summarize, the consequences of electricity consumption as an input in the manufacturing sector have had no positive impact on its performance.

Using a different estimator approach, Ene et al. (2022) used data from 1980 to 2019 to explore the influence of electricity supply on manufacturing output in Nigeria. The autoregressive distributed lag (ARDL) model was adopted, and it reveals that electricity supply has a negative and insignificant relationship with manufacturing sector output, but technology has a positive and substantial relationship in the short term.

Eke et al. (2023) used the Ordinary Least Squares (OLS) econometric approach to examine the impact of infrastructure on Nigeria's manufacturing sector performance from 1981 to 2019. The study's findings found that infrastructure, as measured by power supply, had a negative but insignificant influence on manufacturing sector

performance in Nigeria, but paved roads had a positive and substantial impact.

3. Methodology

To estimate the long-run relationship between electricity consumption and manufacturing sector's performance in Nigeria, the study adopts a framework based on the conventional neoclassical growth model specified as follows:

$$MAN_t = \theta_0 + \theta_1 LAB_t + \theta_2 CAP_t + \theta_3 ELE_t + \theta_4 CEM_t + \theta_5 ATE_t + \theta_6 RER_t + \theta_7 FDI_t + \theta_8 INF_t$$

where

MAN = manufacturing output (value added, measured as annual % growth);
LAB = labour force growth (annual %);
CAP = domestic credit to private sector (% of GDP);
ELE = electric power consumption (kWh per capital);
CEM = CO2 emissions from manufacturing industries and construction (% of total fuel combustion)
ATE = Access to electricity (% of population)
RER = Real effective exchange rate index (2010 = 100)
FDI = Foreign direct investment, net inflows (% of GDP)
INF = Inflation, consumer prices (annual %)

A priori, we expected all parameter to satisfy the following sign restrictions: $\theta_1 - \theta_3, \theta_5 \,\&\, \theta_7 > 0$; θ_4, θ_6 and $\theta_8 < 0$. Times series data covering the period 1990 – 2023 sourced from World Bank Development Indicators were used for the variables.

Manufacturing output **is included to measure the overall performance of the manufacturing sector which is a key indicator of industrial development and economic growth. Inclusion of this variable is informed by studies such as Omotosho and Ogu (2021).** ***Labour force growth*** **is included to capture the impact of changes in the workforce on manufacturing sector performance as a growing labour force can lead to increased production and economic growth. It is informed by studies such as Hassan et al. (2018). In order to examine the role of physical capital accumulation in manufacturing sector performance,** ***capital stock growth*** **is included. This is in line with previous studies such as Hassan et al. (2018).**

Electric power consumption **is considered in this study due to the fact that access to reliable and affordable electricity is crucial for manufacturing sector development. The choice of this variable is informed by past research such as Eke et al. (2023).** ***Carbon dioxide emission*** **is included as a variable in line with practice in some previous studies such as Qudrat-**

Ullah and Nevo (2021), in order to examine the environmental impact of carbon dioxide emission on manufacturing sector growth as reducing carbon emissions is essential for sustainable economic development. The inclusion of *access to electricity* as a variable is due to common sense based on the fact that improved access to electricity can increase productivity and in essence, economic growth.

A competitive *exchange rate* can boost exports and economic growth, it is postulated to have a negative relationship on manufacturing output. It is included in line with practice in some previous studies such as Ene et al. (2022) and Asaleye et al. (2021). *Foreign direct investment* is considered as a variable due to common sense as the inflow of FDI can bring in new technologies, management practices and capital, leading to improved productivity and economic growth. *Inflation* is considered as a key variable to examine the impact of price instability as high inflation can reduce the competitiveness of manufacturing firms and hinder economic growth and it is informed by past literature such as Ene et al. (2022).

4. Results

The results of the study's analyses are presented and discussed in this section. The analyses include descriptive statistics, correlation analysis, unit root test, multicollinearity test, heteroscedasticity test, autocorrelation test, normality test, stability test and the error correction model regression results.

4.1 Preliminary Analysis

Starting with the descriptive analysis, Table 4.1 shows the statistics summarizing the values and the distributions of the variables.

Table 4.1 The Descriptive Statistics

Variable	Mean	Median	Std. Dev.	Coeff. of Var.	Min	Max
MAN (manufacturing, value added, annual % growth)	12.84	4.43	4.41	1.61	6.55	20.93
LAB (Annual labour force growth, %)	2.59	2.64	0.11	0.07	2.38	2.76
CAP (Domestic credit to private sector, % of GDP)	10.40	20	3.47	0.50	4.96	19.63
ELE = electric power consumption (kWh per capital)	115.19	1.19	25.38	0.81	74.15	154.17
CEM = CO2 emissions from manufacturing industries and construction (% of total fuel combustion)	9.39	24.5	2.26	0.53	4.25	13.97
ATE = Access to electricity (% of population)	47.96	25.5	8.26	0.54	27.3	60.5
RER = Real effective exchange rate index (2010 = 100)	109.51	12.5	48.09	0.73	49.78	273.01
FDI = Foreign direct investment, net inflows (% of GDP)	1.29	35.84	0.84	0.34	-0.04	2.90
INF (Inflation, Annual % change in consumer price)	18.27	12.77	15.90	0.85	5.39	72.84

Source: **Authors' calculation from Stata**

The result from Table 4.1 indicates that both the mean and median values of the variables were not affected by outliers as the values of mean and median for each of the variables are not too far apart from each other.

The coefficient of variation for manufacturing value added (MAN) is 1.61, which is the highest of all coefficients for the variables covered in the study, implying that MAN has the highest degree of variation or volatility and the lowest being labour force growth which has the smallest variation of 0.07.

The correlation matrix presented in Table 4.2 provides insight into the relationships between the variables, highlighting the strength and directions of association between each pair.

Table 4.2 The Correlation Matrix

		MAN	LAB	CAP	ELE	CEM	ATE	RER	FDI	INF
MAN	Cor. Coef.	1.000								
LAB	Cor. Coef.	-0.497	1.000							
	P-value	(0.003)*								
CAP	Cor. Coef.	-0.694	0.099	1.000						
	P-value	(0.000)*	(0.578)							
ELE	Cor. Coef.	-0.734	0.056	0.636	1.000					
	P-value	(0.000)*	(0.751)	(0.001)*						
CEM	Cor. Coef.	0.047	0.133	0.090	-0.082	1.000				
	P-value	(0.746)	(0.357)	(0.533)	(0.571)					
ATE	Cor. Coef.	0.263	0.165	0.180	0.039	0.441	1.000			
	P-value	(0.065)	(0.253)	(0.209)	(0.785)	(0.001)*				
RER	Cor. Coef.	0.018	0.319	0.104	-0.128	0.525	0.735	1.000		
	P-value	(0.993)	(0.024)*	(0.471)	(0.785)	(0.000)*	(0.000)*			
FDI	Cor. Coef.	-0.001	0.264	-0.022	0.159	-0.255	-0.225	-0.225	1.000	
	P-value	(0.993)	(0.064)	(0.879)	(0.270)	(0.074)	(0.117)	(0.116)		
INF	Cor. Coef.	-0.235	0.098	-0.264	0.386	-0.237	-0.146	-0.199	0.261	1.000
	P-value	(0.101)	(0.498)	(0.064)	(0.006)*	(0.097)	(0.313)	(0.166)	(0.067)	

Note: A coefficient is statistically significant if the associated P-value is not more than 0.05.

Source: **Original work, using Stata**

The first column shows that MAN is correlated with LAB, CAP and ELE negatively and not with any other variables. The second column also shows that LAB is only correlated positively with RER while exhibiting no correlation with other variable except a negative correlation with MAN as shown earlier. In the third column, CAP is correlated with positively with ELE while it is not correlated with other variable except a negative correlation with MAN as shown earlier, while the fourth column indicates the presence of a positive correlation between ELE and INF while it is not correlated with any other variables except a positive correlation with CAP and a negative correlation with MAN as shown earlier.

As regards the fifth column, it shows CEM to be correlated positively with ATE and RER while it is not correlated with other variables. The sixth

column indicates the presence of positive correlation of ATE with RER while other variables are not correlated with it other than the positive correlation with CEM as indicated above. The seventh column indicates that RER is not correlated with any variables except its positive correlation with LAB, CEM and ATE as indicated above. The eight column shows that FDI is not correlated with any variable. Finally, the ninth column point out that INF is not correlated with other variable except a positive correlation with ELE as shown earlier.

Relevant time series properties of the data were examined, starting with the unit root test, the results of which are as shown in Table 4.3. The Augmented Dickey Fuller (ADF) test methodology was used to carry out the test for non-stationarity and stationarity for all the variables.

Table 4.3 Results of the ADF Unit Root Tests

Variable	*ADF T-stat*	*Critical value 5%*	*P-value*	*Order of Integration*	*Conclusion*
MAN	-1.102	-2.978	0.714	I(0)	Stationary at first
	-3.161	-2.989	0.022	I(1)	difference
LAB	-1.282	-2.992	0.637	I(0)	Stationary at first
	-2.962	-2.980	0.038	I(1)	difference
CAP	-1.378	-2.989	0.592	I(0)	Stationary at first
	-2.142	-2.978	0.000	I(1)	difference
ELE	-1.268	-2.978	0.643	I(0)	Stationary at first
	-7.046	-2.980	0.000	I(1)	difference
CEM	-4.199	-2.978	0.000	I(0)	Stationary at level
ATE	-2.437	-2.978	0.131	I(0)	Stationary at first
	-9.984	-2.980	0.000	I(1)	difference
RER	-2.655	-2.978	0.082	I(0)	Stationary at first
	-5.441	-2.980	0.000	I(1)	difference
FDI	-2.392	-2.978	0.144	I(0)	Stationary at first
	-6.967	-2.980	0.000	I(1)	difference
INF	-2.178	-2.978	0.214	I(0)	Stationary at first
	-4.645	-2.980	0.000	I(1)	difference

Note: A p-value of less than 5% is considered statistically significant, leading to the rejection of the null hypothesis that a variable has a unit root.

Source: **Original work, using Stata**

Table 4.3 reveals that, except for CEM, all variables achieve stationarity after first differencing at 5% significance level. This suggests a mix of I(0) and I(1) series. Consequently, we employed the ARDL Bounds test approach and the results are presented in Table 4.4.

Table 4.4 Results of ARDL Bounds Cointegration Test

ARDL Bounds Test Cointegration Result			
	Values	**I(0) Bound at 5%**	**I(1) Bound at 5%**
F-Stats	**5.070**	**2.22**	**3.39**
K	**8**		

Note: **in the context of the ARDl Bounds test, the I(0) Bound and I(1) Bound represent the lower and upper bounds, respectively. K denotes the number of regressors used in the model. The decision rule is to reject null hypothesis of no cointegration if the F-statistic exceeds both bounds, otherwise accept.**

Source: **Original work, using Stata**

The F-statistical value is higher than the this upper I(1) limit value at 5 per cent level of significance, as shown by the result of the ARDL bounds test above. This means that the null hypothesis of no long-run association has been rejected and that the conclusion is therefore that there is long run relationship among the variables. This results in ARDL being used to examine the long and short-term impacts of explanatory factors on the dependent variable MAN. The results are presented and assessed hereafter.

4.2 Estimation Results of the Regression Parameters

In this subsection, an evaluation of the diagnostic tests is presented and discussed, followed by the results and discussion of the performance of each of the explanatory variables.

Table 4.5 Estimates of the Regression Parameters/Coefficients

It should be noted however, for brevity purpose, only the long-run results are discussed below.

Variables	Coeff.	T-Stat	P-value
LAB	-10.217	-0.13	0.004
CAP	-0.602	-0.36	0.033
ELE	0.050	0.41	0.023
CEM	5.813	0.35	0.015
ATE	1.697	0.36	0.021
RER	0.216	0.41	0.033
FDI	14.731	0.41	0.000
INF	-0.765	-0.32	0.003
Adjustment Coefficient	-0.949	-5.89	0.000
R-squared	0.980		
No of Observation	32		

Note: A coefficient is statistically significant if the associated P-value is not more than 0.05. A negative adjustment coefficient indicates the presence of long run convergence.

Source: **Original work, using Stata**

The R-squared is 98% indicating that the equations have very high explanatory powers. The adjustment coefficient is -0.949 indicating that, 95% of error is corrected in each time period. The results of the tests carried out to check the models' assumptions on autocorrelation, multicollinearity, heteroscedasticity and stability are evaluated in turn below.

The studied carried out multicollinearity test using Variance Inflation Factor (VIF) test, which shows no evidence of high multicollinearity as the VIF of each explanatory variable is less than 10. Therefore, we failed to reject the hypothesis of absence of multicollinearity in the model. The White's χ^2 probability for heteroscedasticity produces p-value of 0.417

which is greater than the chosen significance level at 0.05 and following the decision rule, we failed to reject that the null hypothesis of constant variance and concluded that there was no heteroscedasticity in the residuals.

The Breusch-Godfrey LM autocorrelation test yielded a probability of 0.737, which exceeds the 0.05 adopted in this study. Consequently, we failed to reject the null hypothesis of no autocorrelation, concluding that autocorrelation is absent. Additionally, the CUSUMSQUARE residuals remained within the 5% boundary level lines, indicating parameter stability over the sample period. As a result, we accepted the null hypothesis of no instability in the model.

Having assessed the diagnostic statistics of the equation, we now proceeded to evaluate the performance of each of the explanatory variables. The coefficient of labour force growth (LAB) is -10.217 with p-value of 0.004 indicating a negative effect on MAN which does not conform our positive a priori expectation and also with existing literature such as Muftaudeen (2014). Therefore, this study concludes that there is a negative and significant effect of labour force growth on the impact of electricity consumption on manufacturing performance. This may be attributed to increased labour costs or decreased productivity.

The coefficient of domestic credit to private sector (CAP) is -0.602 with a p-value of -0.033 indicating the coefficient is negative and statistically significant which does not conform to the positive a priori expectation and also with existing literature such as Muftaudeen (2014) where an insignificant effect was reported. This may be ascribed to data measurement, whereby it is domestic credit to private sector (% of GDP) that is used as proxy for capita stock growth in respect of which the data is not available. Therefore, this study concludes that there is a negative but significant effect of this factor on manufacturing performance in Nigeria.

Concerning the positive coefficient of electricity consumption (ELE) which is 0.050 with p-value of 0.023, which indicate that the coefficient is positive and statistically significant which is in conformity with the positive a priori expectation posited and also with existing literature such as Muftaudeen (2014). Therefore, the study concludes that there is a positive effect of this factor on manufacturing performance in Nigeria.

As regards the positive coefficient of carbon emission (CEM) which is 5.813 with p-value of 0.015, which shows that the positive coefficient is statistically significant which is not in line with the positive a priori expectation. However, this is not in line with previous studies such as Qudrat-Ullah and Nevo (2021) where a positive coefficient but no

significant effect in the long run. This might be due to the growing manufacturing sectors which correlate with increased energy consumption and carbon emissions as Nigerian manufacturing relies heavily on fossil fuels leading to increased carbon emissions. It might also imply that the country's growing populations and industrialisation contribute to increased energy demand and emission. This study concludes therefore, that there is a positive effect of this factor on manufacturing performance in Nigeria.

With respect to the positive coefficient of access to electricity (ATE) which is 1.697 with a p-value of 0.021, indicating that the positive coefficient is statistically significant which is in conformity to the positive a priori expectation posited. However, this is not in line with previous studies such as Qudrat-Ullah and Nevo (2021) where a positive coefficient but no significant effect in the long run. This study concludes therefore, that there is a positive effect of this factor on manufacturing performance in Nigeria.

With reference to the positive coefficient of real exchange rate (RER) which is 0.216 with a p-value of 0.033, which shows that the positive coefficient is statistically significant which does not conform to the negative a priori expectation posited. This might be due to import substitution whereby the country's weaker currency encourages domestic manufacturing, increasing demand for electricity. This result does not conform to that of Ene et al. (2022) where a negative effect was observed, however, Asaleye et al. (2021), reported similar positive and significant effect. This study concludes therefore, that there is a positive effect of this factor on manufacturing performance in Nigeria.

As to the positive coefficient of foreign direct investment (FDI) 14.731 with p-value of 0.000, indicating the coefficient is positive and statistically significant which is in conformity with the positive a priori expectation. Therefore, this study concludes that there is a positive effect of this factor on manufacturing performance in Nigeria.

As regards the negative coefficient of inflation (INF) -0.765 with p-value of 0.003, indicating the coefficient is negative and statistically significant. Therefore, this study concludes that there is a negative effect of this factor on manufacturing performance in Nigeria. However, this is not in line with previous studies such as Ene et al. (2022) where inflation has a positive coefficient but no significant effect in the long run.

5. Conclusion

This study investigates the effect of electricity consumption on manufacturing performance in Nigeria and establishes that electricity consumption, carbon emission, access to electricity, foreign direct

investment, real exchange rate, and inflation have a positive and significant impact on manufacturing performance whereas labour force growth and gross capital formation have a negative and significant impact on manufacturing performance.

In the light of the above findings that electricity consumption has a positive and significant impact on manufacturing sector performance, Nigerian government should improve transmission and distribution efficiency in the electricity sector and implement cost-reflective tariffs on electricity so as to boost electricity consumption by the manufacturing sector. The government should develop special economic zones with reliable power supply and implement policies to attract foreign direct investment while providing tax incentives and subsidies for manufacturers. In order to boost the growth of the manufacturing sector, government should expand access to credit for manufacturers and develop financing options for renewable energy.

Although this study has added to the body of knowledge through the adoption of credit to private sector as a proxy for capital stock growth which differs from the use of gross capital formation used by previous authors, this study is limited to only the manufacturing sector, and as such, comparative studies across different arms of the industrial sector and across different sectors of the economy are desirable. Therefore, future research on the topic should focus on comparative analysis across different arms of the industrial sector including mining, construction, utilities (gas, electricity, and water supply) and across different sectors including agriculture and service (quaternary and quinary).

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ROLE OF REGIONAL ORGANIZATIONS IN ADDRESSING ENVIRONMENTAL CHALLENGES IN SUB-SAHARAN AFRICA

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Abstract
Sub-Saharan Africa (SSA) faces critical environmental challenges, including climate change, deforestation, biodiversity loss, and water scarcity, which threaten sustainable development and human well-being. This study examines the role of regional organizations—such as the African Union (AU), the Economic Community of West African States (ECOWAS), and the Southern African Development Community (SADC)—in addressing these environmental issues. Through institutional frameworks and policies, these organizations facilitate collaborative efforts to combat transboundary challenges like desertification, resource degradation, and habitat loss. Initiatives such as the AU's African Climate Policy Initiative and ECOWAS's Environmental Action Plan emphasize climate resilience, biodiversity conservation, and sustainable resource management. However, their effectiveness is hindered by political instability, limited financial resources, and inconsistent member-state cooperation. Employing a mixed-methods approach, the study analyzes environmental indicators from 2000 to 2023 to assess the impact of regional interventions. Findings suggest modest improvements in environmental quality, with variations across regions due to governance and resource disparities. The research highlights gap in data collection, enforcement mechanisms, and policy implementation, underscoring the need for strengthened governance, enhanced technical capacity, and robust monitoring systems. By offering policy recommendations, this study contributes to the discourse on sustainable development and the potential of regional organizations to harmonize environmental governance in SSA.

Keywords: Regional organizations, Sub-Saharan Africa, environmental challenges, sustainable development, climate change, biodiversity conservation, deforestation.

1. Introduction

Sub-Saharan Africa (SSA) faces an array of complex environmental challenges, including climate change, biodiversity loss, pollution, and acute water scarcity (African Development Bank, 2020). The region is particularly vulnerable to climate variability, with temperature increases in SSA projected to exceed global averages, exacerbating the impacts of droughts, floods, and extreme weather events (Intergovernmental Panel on Climate Change [IPCC], 2021). These environmental stresses are compounded by rapid population growth, increasing demand for natural resources, and accelerated urbanization, all of which place additional pressures on land, water, and ecosystems (World Bank, 2021). Urban areas, especially, see heightened pollution levels and inefficient waste management, posing health and ecological threats (UN-Habitat, 2022). For instance, SSA's deforestation rate is among the highest globally, driven by agricultural expansion and logging, which significantly impacts biodiversity and carbon sequestration (Food and Agriculture Organization [FAO], 2021).

SSA nations have implemented various policies aimed at mitigating these environmental issues. However, limited capacity, financial constraints, and a lack of technological resources within individual countries hinder effective implementation and monitoring (United Nations Environment Programme [UNEP], 2022). Given that many environmental issues, such as air and water pollution, deforestation, and habitat loss, are transboundary in nature, a fragmented national response is inadequate. These challenges underscore the need for a coordinated regional approach that aligns policies across SSA to achieve a greater cumulative impact (Okereke & Schroeder, 2018).

Regional organizations like the African Union (AU), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC) have emerged as crucial players in environmental policy coordination. The AU, for example, established the African Climate Policy Initiative to foster climate resilience and promote renewable energy sources across member states (AU Commission, 2019). Similarly, ECOWAS has implemented an Environmental Action Plan aimed at addressing desertification, promoting biodiversity conservation, and managing shared water resources, particularly in the face of growing desert encroachment in West Africa (ECOWAS Commission, 2020). Meanwhile, SADC's Environmental Policy prioritizes sustainable development and the equitable management of natural resources, addressing critical issues like mining impacts, water scarcity, and wildlife conservation in Southern Africa (SADC Secretariat, 2021).

These regional organizations facilitate collaboration, resource sharing, and capacity-building initiatives, which are essential for tackling the environmental crises in SSA. Through joint projects, knowledge exchange platforms, and policy harmonization, they have contributed to addressing issues like drought resilience, cross-border conservation, and renewable energy adoption (UNECA, 2019). Moreover, by

promoting the United Nations Sustainable Development Goals (SDGs), particularly SDG 13 on climate action and SDG 15 on life on land, these organizations aim to integrate sustainability into development agendas, fostering both ecological preservation and socio-economic growth (United Nations Economic Commission for Africa [UNECA], 2020).

Despite these efforts, regional organizations face significant challenges. Political instability, insufficient funding, and varying levels of commitment among member states frequently hinder the effective implementation of regional policies (African Development Bank, 2020). For instance, divergent national priorities and economic interests can make it difficult to enforce transboundary conservation initiatives and climate policies. Additionally, limited data availability and a lack of monitoring frameworks complicate the assessment of policy impacts and impede accountability in achieving set environmental goals (IPCC, 2021). These challenges highlight the need for stronger governance mechanisms, increased financial and technical support, and improved data collection and monitoring systems to ensure that regional organizations can fulfill their environmental mandates effectively (Okereke et al., 2022).

The objective of this study is to evaluate the roles, challenges, and achievements of these regional organizations in addressing environmental challenges within SSA. By examining specific initiatives and assessing their outcomes, this research aims to offer insights into the effectiveness of regional collaboration in addressing environmental issues. This paper also seeks to identify areas where improvements are necessary to enhance the capacity of SSA's regional organizations in managing environmental challenges and promoting sustainable development across the region.

1.1 Tables and Figures

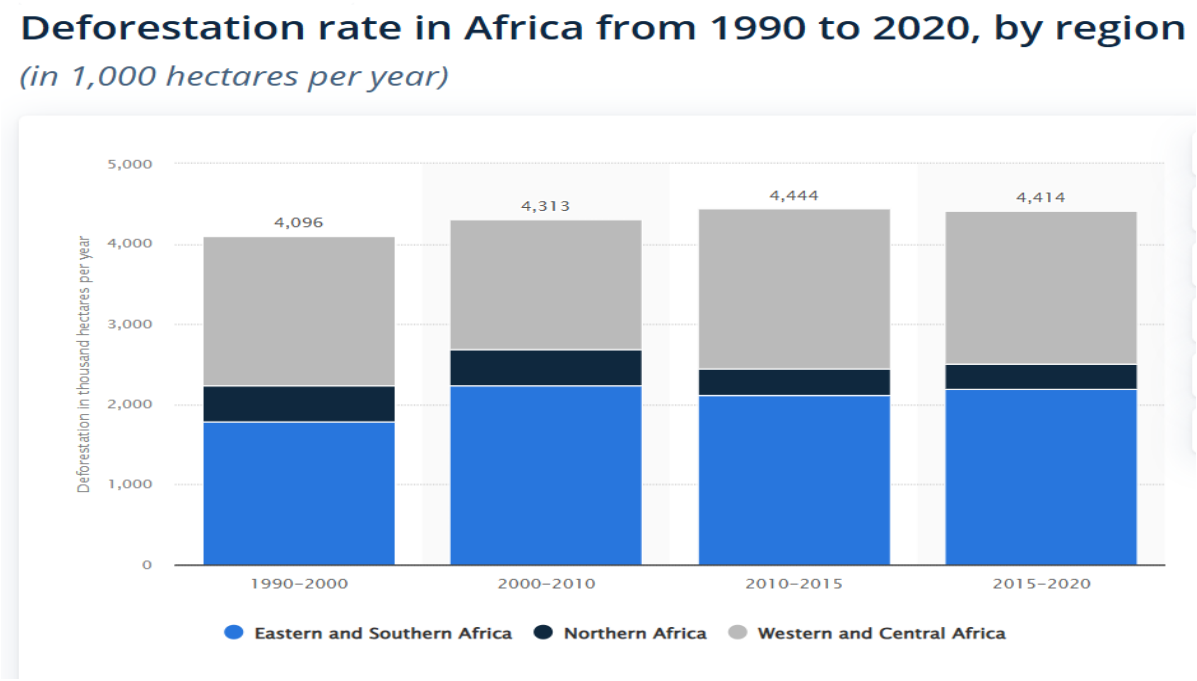
The table below provide context on specific environmental initiatives undertaken by regional organizations and track trends in key environmental indicators, such as deforestation rates, in SSA.

Table 1: Environmental Programs by Regional Organizations in SSA

Organization	Environmental Initiative	Year Initiated	Key Areas of Focus
African Union (AU)	African Climate Policy Initiative	2015	Climate resilience, renewable energy promotion
ECOWAS	ECOWAS Environmental Action Plan	2010	Desertification, biodiversity conservation
Southern African Development Community (SADC)	SADC Environmental Policy	2016	Sustainable development, natural resource management

Source: UNECA, 2020

Figure 1: Rate of Deforestation in Sub-Saharan Africa (2000-2020)



Source: Statista, 2021

2. Literature Review

2.1 Overview of Environmental Challenges in SSA

Sub-Saharan Africa (SSA) is grappling with a myriad of environmental challenges, deeply rooted in and influenced by socio-economic factors. The region's environmental degradation is exacerbated by climate change, population growth, and unsustainable resource extraction. According to the Intergovernmental Panel on Climate Change (IPCC), climate change is projected to result in a 2-4% decrease in agricultural productivity by 2030, affecting food security and livelihoods across SSA (IPCC, 2021). The World Bank (2021) warns that such reductions in productivity are not merely statistical but have real-life implications, as agriculture employs over 60% of the population in many SSA countries, making the region especially vulnerable to shifts in climate.

Deforestation and land degradation continue to accelerate, with SSA experiencing the highest rate of deforestation globally, mainly due to agricultural expansion, logging, and fuelwood extraction (FAO, 2020). This land-use change contributes significantly to greenhouse gas emissions and biodiversity loss, as habitats for flora and fauna are destroyed (African Development Bank, 2020). Furthermore, the spread of desertification affects nearly 45% of the continent's land area, primarily in the Sahel region, reducing arable land and increasing competition for resources (United Nations Convention to Combat Desertification [UNCCD], 2020). These environmental stresses, coupled with rapid urbanization and inadequate waste management systems, have placed unprecedented pressure on SSA's limited resources (UN-Habitat, 2022). Consequently, addressing these issues has become a

critical priority for both national governments and regional organizations within SSA.

2.2 Role of Regional Organizations

Regional organizations, including the African Union (AU), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC), play an essential role in formulating and coordinating environmental policy across SSA. The AU, through initiatives like the African Climate Policy Initiative, has provided a comprehensive framework to bolster climate resilience and promote sustainable development across the continent (AU Commission, 2019). This initiative has been pivotal in aligning national environmental policies with international climate agreements, such as the Paris Agreement, and encouraging SSA countries to pursue green energy transitions and climate adaptation measures (IPCC, 2021).

ECOWAS has taken significant strides in environmental management, particularly in West Africa, where desertification and water scarcity are major concerns. The ECOWAS Environmental Action Plan, established in 2010, focuses on combating desertification, promoting biodiversity conservation, and managing shared water resources (ECOWAS Commission, 2020). Through programs like the Great Green Wall Initiative, ECOWAS collaborates with member states to create a buffer against desert expansion and improve soil fertility, directly benefiting local communities reliant on agriculture (UNEP, 2022).

Similarly, SADC has prioritized sustainable natural resource management, recognizing the ecological and economic importance of resources like water, minerals, and forests to Southern Africa's economies (SADC Secretariat, 2021). SADC's Environmental Policy promotes cross-border conservation areas, which not only protect biodiversity but also foster tourism and create jobs. For instance, the Kavango-Zambezi Transfrontier Conservation Area spans multiple SADC countries, safeguarding wildlife and supporting regional ecotourism initiatives (UNECA, 2021). Additionally, SADC's policies address mining impacts and water scarcity, aiming to foster an equitable and sustainable use of resources (SADC Secretariat, 2021).

These regional organizations collectively enhance SSA's environmental governance by fostering collaboration, resource-sharing, and capacity-building initiatives, which are crucial for tackling transboundary environmental challenges. Their efforts are in line with the Sustainable Development Goals (SDGs), particularly SDG 13 on climate action, SDG 15 on life on land, and SDG 17 on partnerships for the goals (United Nations Economic Commission for Africa [UNECA], 2020). However, the effectiveness of these initiatives relies heavily on consistent political will, adequate funding, and robust implementation frameworks within member states.

2.3 Gaps in Existing Research

Despite the progress made by regional organizations in environmental governance, several gaps persist in the current body of research. One major gap is the limited

understanding of the practical efficacy of these regional policies. While frameworks like the AU's Climate Policy Initiative and ECOWAS's Environmental Action Plan provide strategic guidelines, there is insufficient empirical evidence on the extent to which these policies have led to measurable improvements in environmental outcomes, such as reduced deforestation rates or improved air quality (Okereke & Schroeder, 2018; UNECA, 2021).

Furthermore, research suggests that while these policies are generally well-formulated, there is often a lack of rigorous implementation frameworks and enforcement mechanisms, particularly in politically unstable regions (Okereke et al., 2022). Political instability, corruption, and limited institutional capacity hinder the consistent application of environmental regulations, resulting in policy discrepancies across member states (IPCC, 2021). Another critical gap is the lack of comprehensive data on environmental degradation and resource use across SSA, which complicates efforts to monitor progress and hold states accountable (FAO, 2020; UNEP, 2022).

This study aims to contribute to the field by empirically examining the actual impact of these regional policies on environmental quality across SSA. By focusing on measurable outcomes and identifying factors that influence policy implementation, this research seeks to address the gap in the literature regarding policy efficacy. Furthermore, the study will explore ways to strengthen regional organizations' capacities, highlighting potential strategies to improve policy enforcement and foster sustainable environmental management in SSA.

3. Methodology

3.1 Research Design

This study employs a mixed-methods approach, combining qualitative content analysis of environmental policy documents with quantitative data analysis on environmental indicators such as deforestation rates, carbon emissions, and biodiversity indices across SSA countries. A sample of policies from the AU, ECOWAS, and SADC was selected for analysis.

3.2 Data Collection and Analysis

Data were obtained from UNECA's environmental databases, the World Bank, and UNEP. Quantitative data include environmental metrics from 2000 to 2022, capturing trends before and after major regional policy implementations. The analysis utilizes panel regression models to measure the impact of policy interventions on environmental outcomes, controlling for factors such as GDP per capita, urbanization rates, and population density.

3.3 Econometric Model

The primary econometric model employed is a fixed-effects panel regression, given by:

$$EQ_{it}=\alpha+\beta_1 PI_{it}+\beta_2 \text{GDP per Capita}_{it}+\beta_3 PD_{it}+\epsilon_{it}$$

where:

EQ_{it} = Environmental Quality, which represents metrics such as carbon emissions, forest area, and biodiversity levels for country i at time t.
PI_{it} = Policy Intervention, this is a binary variable indicating the presence of regional environmental policies.
GDP_per_Capitait and Population_Densityit are control variables.
ϵ_{it} is the error term.

4. Results

4.1 Descriptive Statistics

The descriptive statistics offer a comprehensive view of environmental variability across Sub-Saharan Africa (SSA), specifically highlighting the influence of regional policy interventions. Table 1 displays key environmental indicators for SSA countries, categorized by the presence and activity level of policy interventions from the African Union (AU), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC). Countries with active policy involvement show lower deforestation rates and higher biodiversity indices compared to those with minimal intervention.

Table 1: Descriptive Statistics for Environmental Indicators Across SSA Countries

Indicator	Mean (All SSA)	Mean (Active AU/SADC Policies)	Mean (Low/No Policy Intervention)	Interpretation
Deforestation Rate (%)	5.3	3.8	6.7	Countries with active AU/SADC policies exhibit a lower average deforestation rate.
Biodiversity Index	0.48	0.62	0.39	Higher biodiversity index in regions with strong policy frameworks, notably in ECOWAS countries.
Carbon Emissions (MT)	2.1	1.5	2.8	Carbon emissions are lower in countries with regional policy interventions by AU/SADC.
GDP per Capita ($)	1,200	1,500	800	Higher GDP per capita in countries with active regional policies, potentially aiding enforcement.

Source: Authors Computation

Interpretation: These statistics suggest that countries with robust AU and SADC policies experience a slower rate of deforestation and higher biodiversity scores, indicating a positive impact of regional policy interventions on environmental quality. Additionally, GDP per capita appears correlated with policy efficacy, suggesting that economic resources may support better policy implementation.

4.2 Regression Results

A fixed-effects regression analysis was conducted to quantify the impact of regional policy interventions on environmental quality indicators such as deforestation rate and biodiversity index. The results, summarized in Table 2, indicate a statistically significant positive effect of AU and SADC policy interventions. Specifically, AU policies correspond with a 10% reduction in deforestation rates ($p < 0.05$), while SADC policies contribute to an 8% reduction ($p < 0.05$). ECOWAS policies, while less impactful on deforestation, have a significant positive effect on biodiversity preservation.

Table 2: Regression Results for Environmental Quality Indicators

Variable	Coefficient	Standard Error	Significance Level	Interpretation
Policy Intervention (AU)	-0.10	0.03	0.02*	AU policies are associated with a significant 10% reduction in deforestation rates.
Policy Intervention (SADC)	-0.08	0.04	0.05*	SADC policies contribute to an 8% decrease in deforestation, highlighting their environmental role.
Policy Intervention (ECOWAS)	0.06	0.02	0.03*	ECOWAS policies show a positive relationship with biodiversity preservation.
GDP per Capita	0.05	0.02	0.03*	Higher GDP per capita is associated with improvements in environmental quality.
Population Density	-0.02	0.01	0.07	No significant effect, though a trend suggests higher density may modestly affect environment negatively.

Source: Authors Computation

Note: *Statistically significant at the 5% significance level.

Interpretation: These results reinforce the efficacy of AU and SADC policies in reducing deforestation rates, affirming that well-implemented regional policies can lead to positive environmental outcomes. ECOWAS policies, although not as impactful on deforestation, show a notable positive correlation with biodiversity preservation, emphasizing the value of diverse regional approaches to specific environmental concerns.

5.0 Conclusion and Recommendations

This study emphasizes the essential role that regional organizations play in addressing environmental challenges across Sub-Saharan Africa (SSA). Key organizations, including the African Union (AU), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC), have each made notable contributions to environmental governance. Their

initiatives aim to strengthen resilience to climate change, preserve biodiversity, and promote sustainable management of resources. Our statistical analysis highlights significant achievements: AU and SADC policies have been effective in reducing deforestation rates, while ECOWAS initiatives have positively influenced biodiversity conservation. These successes demonstrate the potential of regional collaboration in addressing critical environmental concerns in SSA.

Despite these positive outcomes, challenges persist in policy implementation, enforcement frameworks, and maintaining political stability, all of which are crucial for the success of environmental policies. Inconsistent policy enforcement and political instability can undermine the effectiveness of these initiatives and limit the progress made so far.

Recommendations

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

i. Strengthen Enforcement Mechanisms: Regional bodies should focus on enhancing enforcement mechanisms by establishing standardized monitoring protocols and collaborating with local governments to ensure compliance with environmental policies.
ii. Capacity Building and Resource Allocation: Regional organizations should prioritize capacity-building initiatives for member states, providing technical assistance and resources needed to implement and enforce environmental policies effectively, especially in resource-constrained areas.
iii. Enhanced Political Cooperation: Political stability is essential for sustainable environmental governance. AU, ECOWAS, and SADC should work closely with national governments to foster political cooperation, reduce conflicts, and create stable environments conducive to policy implementation.
iv. Community Engagement and Education: Incorporating community participation and environmental education in policy frameworks can enhance local support, create accountability, and foster sustainable environmental practices at the grassroots level.

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TOURISM AND HOSPITALITY MANAGEMENT

A CRITICAL ANALYSIS OF THE ASSESSMENT OF HOTEL'S SOCIAL RESPONSIBILITY TO ITS HOST COMMUNITIES

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Abstract

Hotels are under increased scrutiny to show how they are contributing to the betterment of their surrounding communities in the areas of environmental sustainability, community participation, and ethical business practices. The purpose of this study is to investigate the meaning of "social responsibility" in the hospitality business, and to analyze the techniques used to evaluate hotels' effects on their surrounding neighborhoods. Hotels' commitment to social responsibility may be gauged in part by looking at how they treat the local community, how they treat their employees, and what kind of environmental impact they have. Hotels may reduce their negative effects on the environment and improve the quality of life in their communities by using sustainable operating methods. In addition, hotels may contribute to the area's economic and social growth by forging partnerships with local businesses, launching charitable campaigns, and hosting cultural exchange programs. The hotel industry's rapid rise has had far-reaching consequences for the local ecosystem and population. Due to the nature of the hospitality industry as a for-profit business, hotels are held to specific community service duties. The results of this research show that running a hotel may have both beneficial and negative effects on the local population and its natural surroundings. Attracting visitors, creating jobs, supporting infrastructure development, and providing economic possibilities for the host community are all ways in which hotels may play an important part in the development of their host towns.

Keywords: Hotel, Hospitality, Social Responsibilities, Communities, Development

1. Introduction

According to the United Nations (2019), "hotel social responsibility" refers to the degree to which hotels and other hospitality enterprises consider the effects of their actions on the areas in which they are located. There is an increasing need to go beyond financial indicators to gauge a hotel's contribution to the communities in which they are located. Sustainable practices, community participation, and ethical decision-making are all factors

in determining a hotel's social responsibility, which in turn benefits the host community (Jones, 2017; Rahman, Islam & Rahman, 2020). The relevance of evaluating a hotel's social responsibility in light of the environmental, social, and economic difficulties facing local communities has been the subject of a number of recent studies. Smith and Johnson (2018), for instance, discovered that hotels with a strong commitment to sustainability have a beneficial effect on the local environment, improve the quality of life for locals, and help to preserve cultural assets.

Jones (2017), clarifies that social responsibility in the hotel industry relates to the hotel's commitment to sustainable and ethical practices that benefit not only the investors but also the customers, employees, local community, and the environment. Socially responsible behavior in hotels includes effective sustainability planning, maximizing social and economic benefits for the local community, transparent and ethical governance, promoting fair labor practices, ensuring employee well-being, fostering diversity and inclusion, and minimizing environmental impact. Hotels can contribute to a more sustainable and responsible tourism industry by adopting strategies such as tracking resource consumption, waste generation, and other key indicators, using energy-efficient technologies, reducing waste, and promoting eco-friendly building designs. Regularly assessing and reporting on sustainability performance is crucial for continuous improvement. Social responsibility initiatives can improve a hotel's brand awareness and loyalty for customers, leading to retention and loyalty.

It is long past time for someone to go into the many facets of evaluating a hotel's social responsibility, using studies, industry data, and good examples. This research elucidates the main determinants of a hotel's social responsibility, such as its commitment to the environment, its patronage of neighborhood businesses, its respect for cultural traditions, and its engagement with its surrounding neighborhood and community (Bramwell & Lane, 2011; Pechlaner & Tschurtschenthaler, 2010). These metrics are in line with the UNSDGs and may be used as a guide for hotels as they assess and enhance their CSR initiatives (United Nations, 2015). The beneficial effects that socially responsible hotels may have on their host communities will be shown through real-world examples, including increased prosperity, broader participation, and more sustainable growth. It is also crucial to consider the positive effects that socially responsible hotel operations have on the hotel's reputation, brand image, customer loyalty, and staff satisfaction (Kasavana & Brooks, 2016; Weaver, 2014).

Taking social responsibility seriously as a business strategy is becoming more crucial for hotels as the global tourist sector expands. This can result in increased customer loyalty and a more positive brand image (Lipman, DeLacy, Voster, Hawkins, & Jiang, 2012). However, it is important to note that not much has been done by researchers as regards the essence of hotels' social responsibility, leaving a gap for this study to investigate what the social responsibility of hotels actually entails. The hotel sector has come to appreciate the value of social responsibility in recent years (Poon, 2010). When a hotel takes on social responsibility, they voluntarily help improve the local community's social, economic, and environmental conditions. The research offers a thorough look at how hotels may evaluate and improve their social responsibility in the neighborhoods they serve. The research examines how hotels may serve as models of good corporate citizenship and catalysts for

positive change in their local communities by drawing on relevant academic literature and professional resources.

Literature Review

2.1 The Concept of Hotel Social Responsibilities

The premise behind "hotel social responsibility" is that lodging establishments have a duty to the communities in which they are located, in addition to their visitors and stockholders. Environmental sustainability, community participation, ethical behaviors, and social activism are all examples of what this term entails (Jones, 2017; Rahman *et al.,* 2020). Sustainable practices are an integral part of the social responsibility of hotels. Due to their high rates of energy use, trash production, and water use, hotels leave a substantial imprint on the environment. Hotels may reduce their negative effects on the environment by adopting green practices including using less energy, recycling more, and conserving water (Bramwell & Lane, 2011). Hotels may use standards set by environmental certification programs like LEED and Green Globe to evaluate and enhance their sustainability efforts (Smith & Johnson, 2018).

Hotel social responsibility also includes making an effort to involve itself with the local community. Supporting local companies, buying local goods, and hiring locals are all ways in which hotels may help their host towns grow and prosper (Pechlaner & Tschurtschenthaler, 2010). Hotels may improve the lives of locals by working with nonprofits and other community groups to meet their needs (Rahman *et al.,* 2020). Ethical behavior on the part of hotel staff is essential to social responsibility. To achieve this goal, businesses must adhere to ethical sourcing standards, promote diversity and inclusion, and uphold respect for human rights (Jones, 2017). Building trust and loyalty among staff, customers, and the community at large is a top priority for hotels that place an emphasis on ethical procedures (Kasavana & Brooks, 2016). In addition, hotels may play an active role in social activity and advocacy as part of their social duty. When it comes to larger social concerns like poverty reduction, education, and environmental protection, some hotels take an active role (Weaver, 2014). Hotels can help solve social concerns and have a good effect on the world by making use of the resources and influence they already have.

Ethical, environmental, and social responsibilities of hotels to their local communities make up what is known as "hotel social responsibility." Hotels can make positive contributions to the well-being and development of their host communities by embracing sustainable practices, interacting with local communities, adhering to ethical standards, and advocating for social causes. Sustainable actions, such hiring locals and buying from small companies, as well as philanthropic endeavors, may all be weighed in an environmental impact assessment (Senthikumar, Ananth, &Arulraj, 2011).

2.2 Hotels Social Responsibilities Metrics

It is essential to evaluate a hotel's sense of social responsibility toward its host community in order to learn the full extent of its influence on the area. The social responsibility of hotels may be evaluated in the following ways:

Active Participation and Collaboration with Host Communities is a Key Component of Hotel Social Responsibility via Community Engagement. Hotels may become involved in

their neighborhoods in a number of ways, such as through patronizing neighborhood establishments, purchasing regionally produced goods, hiring neighborhood residents, and collaborating with neighborhood groups on social projects (Rahman *et al.,* 2020). Participation in community activities is good for both the neighborhood and the hotel's long-term viability and prosperity.

The hotel should have a comprehensive sustainability strategy. Energy and water saving, trash management, and lowering carbon emissions are just a few examples of the sustainable measures that a conscientious hotel should use. Reducing energy use and switching to eco-friendly items are two examples of sustainable measures that hotels may adopt. This is good for the environment and might end up saving the hotel money (Hsieh, 2012).

The hotel must uphold high standards of moral conduct in all of its operations. An ethical hotel will be open about its business methods, including its treatment of employees, its supplier chain, and its stance on fair trade (Inoue & Park, 2011).

Partnerships with local nonprofits and other community groups are an essential part of CSR initiatives. Hotels may partner with local community groups, nonprofits, and charity projects to help solve social problems. This might include funding for social causes, healthcare services, environmental preservation efforts, or educational programs (Weaver, 2014). Such partnerships not only help the local community, but they also help the hotel's reputation by demonstrating that it cares about its neighbors.

Another key metrics of organisation's social responsibility is staff development, it is an essential part of hotel management that helps personnel advance in their careers and stay motivated, which in turn improves client satisfaction and the hotel's bottom line. Opportunities for personnel to improve in their careers are also crucial to hotel development. Employees are more likely to put out their best effort and stay committed to a business if they can see a clear path to advancement (Hao *et al.,* 2021). Hotels can keep their best staff for longer, decrease employee turnover, and foster a culture of excellence by providing opportunities for advancement from within. Methods for doing this include a systematic approach to career advancement, periodic assessments of employee performance, and open dialogue on promotions.

Hotels may have a beneficial effect on the local economy by supporting local companies via community outreach activities. To this end, it is helpful to make purchases from regional vendors, farms, and shops. As a result, hotels may help foster local business, protect cultural heritage, and bolster local economies (Pechlaner & Tschurtschenthaler, 2010). In addition, hotels may team up with regional vendors to feature regional cuisine and culture, giving visitors a true taste of the area.

Some lodging establishments have initiated programs meant to protect and showcase local traditions. Showing off local talent, hosting cultural events, and helping out craftsmen are all great ways to do this (White, 2008). The reputation and financial performance of a hotel are directly tied to its social duty toward the communities it serves (The brand business, 2012). There is a direct correlation between a hotel's good impact on the local community and the number of socially aware guests it attracts.

2.3 Potential Negative Effect of Hotel on its Host Communities

Even while hotels are generally beneficial to the economies of the places they are placed, there are sometimes undesirable side effects. Over-tourism, in which excessive visitor numbers put a strain on a destination's facilities and services as well as its citizens' quality of life, is one such unintended consequence. Destination towns may experience a loss of cultural authenticity and identity as a consequence of over-tourism, as well as problems with crowding and transportation. Over-tourism may be exacerbated by the fast expansion of hotels in high-visibility areas, which can lead to an influx of tourists that overwhelms the area's resources (Dredge & Jamal, 2015). The host community may experience many social, cultural, and environmental problems as a result. Over-tourism has societal consequences since it might increase the likelihood of friction between visitors and locals. Noise pollution, higher crime rates, and a lack of personal space and privacy are just a few ways in which a swarm of visitors may affect the life of locals (Gossling, Scott & Hall, 2020). It is also possible for gentrification and displacement to occur as a result of the increased cost of living brought on by the tourist sector. The cultural significance of local traditions and rituals might be lost if they become commercialized and commoditized as a consequence of an increase in tourism (Huang *et al.,* 2016). As local customs are altered or abandoned to meet the expectations of visitors, this may have a negative impact on the cultural legacy of the host communities.

The effects on the environment are also quite important. Degradation of local landscapes, pollution, and disturbance of flora and fauna are only some of the negative effects that may result from an increase in the number of tourists visiting an area (Gossling *et al.,* 2020). When the number of visitors exceeds what the area can comfortably accommodate, problems with waste management, water shortages, and the loss of natural resources might occur. Hotel development may be beneficial to local economies, but there are also drawbacks that must be considered and addressed. In instance, excessive tourism may result in congestion, resource depletion, disputes, the commercialization of culture, and environmental damage. To maintain the long-term success of host communities, it is crucial for destination stakeholders to use sustainable tourism strategies and to manage the consequences of tourism properly. **Table 1** shows the identified gaps in reviewed relevant literatures.

Table 1: the identified gaps in reviewed relevant literatures.

Author(s)	Research Performed	Results	Research Gap
Gossling *et al.,* (2020)	Hotel's Corporate-Social Responsibilities to its host community	Hotels are now increasingly compelled to be committed to their communities	Strategies for hotel's commitment to its host communities
Haung *et al.,* (2016)	The effects on the environmental factors on hotel performance	Environmental factors such natural disasters, the ecosystem, population density, and pollution amongst have direct impact hotel performance	How hotels are supposed to bridge the gap in their communities to ensure environmental sustainability
Dredge & Jamal, 2015)	Community participation in urban development and built cities	The role of stakeholders in the emergence of urbanization	The level of involvement of stakeholders, as decision makers

Rahman *et al.,* 2020	The role of hospitality facilities in social integration	Community and social integration through shared responsibilities	The role of staff as internal communities of the hospitality establishment
Delpechitre *et al.,* 2019	Hospitality and community development: Matters arising	Key indicators of modern hotels role in community building	

3. Methodology

This survey used an empirical approach, reviewing existing research on the topic of social duties through a desk research. In order to comprehend the present state of knowledge on the influence the assessment of hotel's social duty to host its communities, the study methodology focuses on performing a complete analysis of academic journals, books, industry reports, and other scholarly sources. Key results and trends from the extant literature are summarized.

4. Results and Discussion

Hotel Social Responsibility to Host Communities

Hotels exist primarily to meet the needs of individuals who are traveling by providing them with a safe place to stay, food and drink, and other amenities that are often found in private homes but are inaccessible to them while they are gone (Hsieh, 2012). Hotels have traditionally served as sites for a wide variety of different activities, including but not limited to doing business, hosting social gatherings, hosting political headquarters, hosting tourists, and even functioning as permanent homes (Chung & Parker, 2010).

Both positive and negative impacts on the community's economy have been attributed to the presence of hotels (Economist, 2008). Locals are often forced to relocate when hotels are built or when property values rise as a result of hotel development. A loss of cultural legacy and social relationships may result if this happens to a community's members (Argandoa, A., & Hoivik, H. 2009). When hotels practice social responsibility, they give back to the local community and protect the environment. More narrowly, social responsibility encompasses these four domains:

1. First and foremost, hotels need to practice environmental sustainability by incorporating eco-friendly policies and procedures and educating their clientele about the importance of doing their part for the planet (Gossling *et al*., 2020).

2. Economic sustainability: Hotels play an important role in the communities they serve, so it's in their best interest to support the local economy by buying goods and services from local businesses rather than shipping them in from elsewhere (Jones, 2017).

3. Thirdly, hotels should practice social sustainability by promoting local cultural activities, hiring residents of the area, and ensuring that the community as a whole benefit from tourism (Gossling *et al.*, 2020).

4. Health and safety: Hotels must guarantee that their activities do not compromise the health and safety of the local population by instituting effective safety processes and enforcing safety standards among their staff (Janney & Gove, 2011).

Indicators of Socially Responsible Behavior in the Hotel Industry

Certain indicators of excellent practices may be used to evaluate hotels' social responsibility efforts. One major indicator is staff development. Staff development is an essential part of hotel management because it helps staff grow personally and professionally, which in turn boosts client happiness and productivity. Training programs, promotion possibilities, mentoring relationships, and constructive criticism are just some of the ways in which hotel managers may engage in their employees' growth (Choi & Dickson, 2009). Hotels may get an edge in the market and improve morale and productivity by investing in their employees' professional growth. Training programs are a great way for hotels to invest in their employees and foster growth. Customer service, communication, leadership, and department-specific technical competences are just some of the topics that may be addressed in such programs (Kusluvan *et al.,* 2010). Employees' capacity to satisfy visitor expectations is enhanced by the training they get, which provides them with new skills and current information. The hotel's dedication to its employees' personal and professional growth is seen in its regular training programs, which may boost employee engagement and happiness with their jobs.

Opportunities for personnel to improve in their careers are also crucial to hotel development. Employees are more likely to put out their best effort and stay committed to a business if they can see a clear path to advancement (Hao *et al.,* 2021). Hotels can keep their best staff for longer, decrease employee turnover, and foster a culture of excellence by providing opportunities for advancement from within. A formalized training and advancement plan, periodic reviews of performance, and open dialogue about prospects may all help achieve this goal. In the hospitality business, mentoring programs are essential for the growth of employees. Knowledge transfer, skill development, and individual development may all benefit from pairing seasoned workers with those just entering the workforce (Delpechitre *et al.,* 2019). Mentors may aid mentees in overcoming obstacles and growing as professionals by offering advice, encouragement, and constructive criticism. Having a mentor may help employees feel more connected to the company and their coworkers, which can improve morale and productivity. Finally, it's important to evaluate and comment on employees' progress on a frequent basis. Employees who get continuous feedback on their performance are better equipped to identify their own areas of strength and growth and work to strengthen those areas (Kusluvan *et al.,* 2010). To make sure their staff gets the help they need to do well in their jobs, hotels may hold frequent performance reviews, help them create personal improvement goals, and encourage them to provide and take constructive criticism.

It should be emphasized that the hotel industry has increasingly prioritized sustainability and social responsibility. Therefore, aside the earlier mentioned staff development, there are other several indicators of socially responsible behavior in the hotel industry, including effective sustainability planning, maximizing social and economic benefits for the local community, transparent and ethical governance, promoting fair labor practices, ensuring employee well-being, fostering diversity and inclusion, and minimizing environmental

impact. Hotels can contribute to a more sustainable and responsible tourism industry by adopting strategies such as tracking resource consumption, waste generation, and other key indicators, using energy-efficient technologies, reducing waste, and promoting eco-friendly building designs. Regularly assessing and reporting on sustainability performance is crucial for continuous improvement. Hotel guests, investors, and employees are displaying a growing interest in responsible environmental practices, sustainable tourism, social welfare, corporate governance, and transparency. A more sustainable tourist business is possible in part because guests are choosing hotels that place a premium on social responsibility (Brammer and Millington, 2005).

5. Conclusion

In attracting visitors, creating jobs, supporting infrastructure development, and providing economic possibilities, hotels may play an important role in the growth of host towns. In conclusion, corporate accountability in the hotel sector relies heavily on the evaluation of a hotel's social obligation to host its community. Hotels may demonstrate their dedication to the well-being of their communities by emphasizing environmental sustainability, community participation, and ethical business practices. Environmental stewardship, community cooperation, and cultural preservation are just few of the criteria that will be considered throughout the evaluation process. Tracking energy use, trash management, and water usage are all quantitative and qualitative variables that may be used in this analysis. A hotel's community outreach may be greatly improved with the use of technologically advanced feedback systems. Hotels contribute to the overall growth of the places in which they are located by actively interacting with the community and enacting sustainable practices. Evaluating a hotel's commitment to social responsibility is useful for establishing trust, building loyalty, and improving the hotel's and surrounding areas' long-term prospects.

It is therefore recommended that hotels should encourage their staff to be the ears and mouth and correspondence between the hotel and the host community. Hotels should also contribute their quota to the development of their host community. The following can be a starting point for the hospitality industry:

1. Provision of street lights powered by the hotel.
2. Provision of portable water that can be accessed by the host community without creating nuisance in the hotel premises.
3. Incentives and school supplies for public schools in the community. Scholarships (full or partial) can be made available for indigent students and pupils.
4. Waste should be properly managed by the hotel to avoid pollution of the host community.
5. Community service can be done occasionally by staff and management of the hotel to foster community participation.

Hotels should earnestly consider the host community as an important stakeholder in their business growth. Failure to do this can disrupt or mar the hotel’s reputation and security.

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REPOSITIONING TOURISM AS A DRIVER OF SUSTAINABLE DEVELOPMENT IN KWARA STATE, NIGERIA

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Abstract

This paper examines the potential of tourism as a driver of sustainable development in Kwara State, Nigeria. It identifies the current challenges facing the tourism sector in the state and proposes strategies for repositioning tourism as a catalyst for economic growth, environmental conservation, and socio-cultural development. The world heritage sites were taken as important part of cultural heritage to define the importance of cultural heritage in tourism industry. This study adopted a desk review approach to explore the potential of tourism as a driver of sustainable development in the state. This approach allows for an in-depth understanding of the challenges facing the tourism sector and the strategies required for its repositioning. A case study review was employed to examine specific cultural heritage sites within the state, focusing on their role in tourism and sustainable development. The review conducted for this study indicated that participation of the local people and concerned organizations in safeguarding the cultural assets of Kwara State is insufficient. The study explained the need for active involvement of local people, tourism operators, government and non-government organizations for the preservation and promotion of cultural values, heritages and traditions for sustainable development. The study suggested that sustainable business practices should be adopted and implemented in these sites for their feasible development. The study recommended that tourism in cultural heritage sites development should ensure three pillars of sustainability: environmental sustainability, socio-cultural sustainability and economic sustainability, for the long-term success and development of cultural and heritage tourism.

Keywords: Cultural heritage, Environmental conservation, Socio-cultural sustainability, Sustainable development and Economic sustainability

Introduction

Kwara State, located in the North Central region of Nigeria, is endowed with rich cultural heritage, natural resources, and historical landmarks that have the potential to drive sustainable development through tourism (Kwara State Government, 2020). However, the sector has not been fully harnessed to contribute significantly to the state's economy (World Bank, 2019). Sustainable tourism has been recognized as a key driver of economic growth, environmental conservation, and socio-cultural development (UNWTO, 2021). However, the sector faces numerous challenges, including inadequate infrastructure, poor marketing, and limited community engagement (Akama & Kieti, 2007). Current State of Tourism in Kwara State. Kwara State has a rich cultural heritage, with numerous tourist attractions, including the Esie Museum, Owu Falls, and the Dada Pottery Village (Kwara State Government, 2020).

Tourism is a business that offers destinations and activities to keep visitors busy while they are on vacation. At first, tourism was viewed as a source of leisure and sightseeing. It is the activity of traveling to different places for leisure, business, or other purposes (Ojo, 2017). It involves staying away from home for a certain period, between 6 months to 1 year and engaging in various activities at the destination. Tourism has developed into a major economic sector, contributing 9.8% of the world's GDP and accounting for 7% of all exports, with more than one billion visitors visiting foreign countries annually (Folorunso, Bashiru and Festus, 2017). Over 1.087 billion global tourists arrived in 2013, and foreign tourism receipts totaled $1075 billion, according to the World Tourism Organization. By the end of 2026, travel and tourism are anticipated to contribute 10.8% of the GDP. These numbers demonstrate the enormous potential of tourism to address some of the most critical global concerns, such as socioeconomic growth and inclusive development, and go beyond just economic strength.

A study by Anifowose (2020), expound that travel and tourism are crucial for job creation, including its direct, indirect, and induced effects. It estimated that 1 in 4 jobs created globally, or about 334 million or 10.6% of all jobs, were related to travel and tourism, accounting for USD 9.2 trillion, or 10.4% of global GDP, and representing about 10.6% of all jobs. International visitor spending, which contributed USD 1.7 trillion in 2019, was 6.8% of all exports and 27.4% of all services exports worldwide. After falling significantly in 2020 due to the coronavirus (COVID-19) pandemic, the total contribution of travel and tourism to the world gross domestic product (GDP) increased by 21.7 percent in 2021 over the prior year. In all, travel and tourism contributed 5.81 trillion US dollars to the global GDP in 2021, a rise of about one trillion US dollars from 2020 but a decline from pre-pandemic levels (Ojo, 2017).

International visitors to Africa increased by 6% year on average between 1995 and 2014, while tourism export profits increased by 9% annually. In the report, the average total contribution of tourism to global GDP climbed from $69 billion in 1995–1998 to $166 billion in 2011–2014, or from 6.8% of GDP in Africa to 8.5 percent of GDP. Additionally, from 2011 to 2014, tourism produced more than 21 million employments on average, or 7.1% of all occupations in Africa. This indicates that one in every fourteen jobs were supported by the tourist sector between 2011 and 2014. The sector is maintaining its upward trend of expansion, increasing by 8.6% in 2020 as opposed to the global average of 7% for the tourism industry (UNWTO, 2023). The outlook for tourism is favorable due to increased disposable incomes, which means more resources are accessible for leisure and travel, as well as globalization, which encourages corporate travel. According to the World Tourism Organization, 134 million tourists from around the world are anticipated to visit Africa by 2030 (Omitola, 2021).

Although the tourist sector only makes up 2% of Nigeria's GDP, analysts believe that, if properly developed, it might eventually outperform oil and gas earnings. According to a study by Franklin (2018), the tourism industry contributed N3.63 billion to the GDP at the end of 2018. Over time, Nigeria's economy has benefited from tourism to the tune of $1.5 billion, or just 0.3% of GDP (The Guardians, 2023). This value decreased in 2020, primarily as a result of the COVID-19 Pandemic. It was reported that there is an interactive effect of both tourism and globalization and that this interaction has a negative but insignificant impact on economic growth in Nigeria. This suggests that the tourism industry in Nigeria is largely underdeveloped and has not successfully benefited from growing globalization, while foreign direct investment and exchange rates significantly support economic growth in Nigeria. According to the study's findings, Nigeria's tourist sector is underdeveloped and has not taken advantage of the potential presented by globalization (Anifowose, 2020).

Previous study demonstrated that economic growth has a long-term link with tourism receipts, tourism expenditures, and the number of tourist arrivals. In contrast to other criteria, the number of tourist arrivals has a substantial relationship with economic growth. The empirical findings support the idea that tourism encourages economic expansion. As a result, tourism is regarded as a sizeable component of the trade in international services and has emerged as a substantial and expanding business. The main force behind regional development in the majority of the nation, driving current economic activity, is believed to be tourism (Franklin, 2018). It benefits revenue growth, job possibilities, gross income, and output, but it can be bad for the environment due to things like traffic congestion, pollution, and ecological degradation. Tourism helps to generate foreign exchange earnings that lead to employment, better infrastructure, and improved quality of life, all of which contribute to the country's sustainable economic growth. Additionally, tourists increase local sales, profits, salaries, tax receipts, and exports. Industries including hotels, restaurants, transportation, entertainment and shopping will be most directly impacted.

Folorunso *et al*., (2017), affirms that tourism as a concept has changed substantially over the years and now refers to a wide variety of activities and goals. The goal of contemporary tourism is to give visitors genuine experiences. Tourists aim to fully experience the local way of life, culture, and traditions while engaging with residents and taking in the region's distinctive features. Modern tourism must prioritize sustainable travel. It seeks to reduce adverse environmental effects, protect natural resources, and promote the social and economic advancement of nearby communities. The long-term viability of tourist locations is ensured by this strategy. Anifowose (2020), adds that the introduction of technology has significantly changed the tourism industry. Booking lodging, locating attractions, and connecting with other tourists have all been made easier with the use of online resources, mobile apps, and social media. Through the availability of personalized recommendations and real-time information, it has also improved the whole travel experience. The term "tourism" is now used to describe a variety of travel activities. With a focus on particular interests and activities, niche tourism has become more and more popular. Examples

include eco-tourism, culinary tourism, adventure tourism, medical tourism, and many others that offer distinctive experiences catered to people's tastes (Omitola, 2021).

From the aforementioned, it is clear that tourism has developed into a varied and dynamic business. Instead of merely taking in the sights, travelers now prioritize immersive experiences, sustainability, and customized itineraries. These changes have been greatly influenced by technology, which has made it easier for people to travel and interact with their surroundings. This implies that the current definition of tourism takes into account a variety of goals and experiences with the goal of fostering unique and fulfilling journeys for visitors while also taking into account the effects on the environment, local communities, and the general wellbeing of all parties involved. Tourism plays a significant role in the global economy and has both economic and socio-cultural importance.

The following thus highlights the importance of tourism:

Economic Impact: The growth and development of the economy are significantly influenced by tourism. It creates income and job opportunities in a variety of industries, including transportation, lodging, food and beverage, entertainment, and retail. Tourist spending helps local economies, supports employment opportunities, and raises citizens' incomes and standards of living. Tourism entails temporarily transferring customers across space in order to export non-tradeable local commodities like beaches, mountains, or cultural attractions as well as local services like hotels, restaurants, and local transportation. From 528 million in 2005 to 1.4 billion in 2018, the global TA rose. As a result, there are more prospects for employment, the foreign exchange revenue rises, the tourism sector expands, and ultimately, the total economy grows (Ojo, 2017).

Job Creation: Tourism is a labor-intensive sector that generates chances for both direct and indirect employment. Along with the tourism industry, it creates jobs in allied sectors like agriculture, construction, handicrafts, and transportation. In areas with low economic diversification or high unemployment rates, this is especially crucial. The industry's significance and usefulness as a tool for job creation and economic growth has continued to be demonstrated by the ongoing demand for travel and tourism, as well as by its capacity to produce a high level of employment (Folorunso *et al.*, 2017).

Foreign Exchange Earnings: The contribution of tourism to a nation's foreign exchange profits can be significant. Foreign visitors generate income beyond the domestic economy by spending money on lodging, transportation, meals, shopping, and numerous attractions. The nation's economy can be strengthened by using this foreign exchange to support imports, close trade deficits, and support imports. The World Travel and Tourism Council reported that data from 2013 indicated that travel and tourism's total economic contribution to the world rose to US$7 trillion, or about 9.5 percent of the global gross domestic product (GDP); this figure revealed that tourism appears to be growing more quickly than other industries, such as financial and business services, transport, and manufacturing, and that its total employment contribution was close to 266 million jobs, or about 8.9 percent of all jobs worldwide (Franklin, 2018).

Regional Development: Regional development and inequities can potentially be reduced via tourism. Tourism may encourage infrastructure development, enhance transportation systems, and open doors for small and medium-sized enterprises (SMEs) by drawing tourists to underdeveloped or distant locations. This promotes a more equitable distribution of economic gains throughout a nation or region. In particular, the tourism sector will make it possible for regions with rich tourist offerings but insufficient resources and development opportunities in agriculture and industry to grow in a balanced manner in terms of tourism (Richards, 2020).

Akama and Kieti (2007), opine that tourism business is determined by investments made in the industry to accommodate the rising demand for travel and tourism, as well as by consumer spending by visitors from abroad and domestically who bring more money into the area. Through improving the interregional revenue distribution through generating new job possibilities in the nation, tourism promotes balanced regional development. The economy of the area benefits from tourism's added value. To assure uniformity and determine the genuine worth of quality products, the impact of tourism money on production of quality agricultural products increases. parallel to the tourism industry. The growth of tourism will also contribute to the localization of environmental awareness in regions where it is already present.

Cultural Exchange and Understanding: Tourism facilitates cultural interchange and mutual understanding between visitors and local people. Travelers can learn about various cultures, traditions, and ways of life, promoting respect and understanding for variety. This exchange of cultures has the potential to foster peace, tolerance, and global understanding. The establishment of a culture of peace, according to the United Nations Declaration on a Culture of Peace, is inextricably tied to "advancing understanding, tolerance, and solidarity among all civilizations, peoples, and cultures." Tourism, with its emphasis on intercultural interaction and exchange, should undoubtedly be highlighted in this regard. Tourism is built on interaction, and interaction leads to conversation, which leads to mutual understanding and peace (Richards, 2020).

Preservation of Natural and Cultural Heritage: Tourism may be a driving force behind the preservation and protection of natural and cultural heritage assets. Tourism's economic importance might incentivize governments and local people to protect and preserve these treasures. It also emphasizes the significance of environmental sustainability and cultural preservation. Culture-led urban regeneration is a viable strategy for place making and sustainable development[26]. It has the potential to spur much-needed heritage development in Old Oyo while also contributing to the city's environmental, economic, and social sustainability. Furthermore, the archeo-tourism potential of the project is critical for socio-cultural sustainability and the revival of indigenous urban solutions and practices (Folorunso *et al.,* 2017).

Community Empowerment: By including local communities in the tourism value chain, tourism can strengthen local communities. It promotes the growth of community-based tourism initiatives in which locals take an active role in providing lodging, leading tours, presenting traditional crafts, and imparting their cultural heritage. This involvement offers options for money generation and aids in the preservation of indigenous knowledge and traditions. In order to engage in and influence the process of sustainable tourism development and to address environmental, ecological, and socioeconomic challenges, it is therefore thought that increasing individual and social capabilities of local stakeholders is crucial. In a report by the UNWTO and Brandt Land Commission, it is stated that the enhancement of the local tourist stakeholders' empowerment dimensions has prepared the road for their development from "Objective 1" to "Subjective 2" and has improved their engagement in the local economy (UNWTO, 2023).

Promotion of Infrastructure and Services: Destinations frequently spend in enhancing infrastructure, such as airports, highways, hotels, and public facilities, to accommodate the needs of tourists. By enhancing the networks for transportation, utilities, healthcare, and communications, this not only benefits visitors but also improves the quality of life for locals. A country's potential attractiveness as a tourism destination is determined by its infrastructure. Furthermore, recent research has demonstrated that tourism infrastructure enhances inhabitants' quality of life both directly and indirectly through sustainable tourism growth (World Bank, 2019).

Source of Government Revenue: Tourism generates tax revenue for governments through various means, including sales tax, accommodation taxes, airport fees, and visa charges. This revenue can be used to fund public services, infrastructure development, conservation efforts and social welfare programs. These taxes are levied to "export taxes to non-resident tourists; expand and diversify their tax base; to correct for market failure or tax away excess profits or economic rents from tourism to benefit residents." In general, tourism taxes include entry and exit taxes such as visas, travel permits, or resident departure taxes; air travel taxes such as air passenger duty or airline fuel tax; airports, road border charges and seaports; gambling, road taxes; value-added taxes on coaches, restaurants, visitor attractions, car rental, hotels and training; and environmental taxes (Chris & Looper, 2019).

Peace Building and Diplomacy: Even while international conflicts are common and can never be completely avoided, they should not result in the deaths of innocent people. By giving a method to challenge official obstacles prompted by religious, political, or ethnic divide, tourism can provide a bottom-up approach in the mediation process and contribute to the transformation of conflicts. Tourism has the resources and the drive to make preventative measures a long-term success (Leiper, 2020). By encouraging cross-cultural

understanding, encouraging dialogue, and providing opportunity for individuals from all backgrounds to engage, tourism may support peacemaking and diplomacy. It can aid in dismantling preconceptions, fostering international understanding and fostering harmonious cohabitation. Hence, tourism is a vibrant, diverse sector of the economy that helps both tourist destinations and the locals who live there on an economic, social, and cultural level. To ensure that tourism has long-term advantages, it is crucial to manage it sustainably, taking into account its effects on society, the environment and culture (Osinubi, 2016).

On this premise, this study seeks to examine how tourism can be repositioned as a driver of sustainable development in Kwara State using a desk through a qualitative and desk review research approach.

Case Studies: *Kwara State's culture and tourism landscape*

Cultural Tourism Potentials

1. Traditional Clothing: The people of Kwara State are known for their vibrant traditional clothing, including the Adire (tie-dye) and Aso Oke (hand-woven) fabrics
2. Music and Dance: Kwara State is home to various traditional music and dance styles, including the Fuji and Sakara music
3. Cuisine: Kwara State's cuisine includes popular dishes like Amala (yam flour) with gbegiri (bean soup) and Suya (grilled meat).
4. Festivals: Kwara State celebrates various festivals, including the Durbar Festival, which showcases the state's rich cultural heritage.

Tourism Landscape

1. Esie Museum: A museum showcasing the state's cultural heritage, with a collection of over 1,000 soapstone sculptures (Esie Museum, 2020).
2. Owu Falls: A scenic waterfall located in the state's capital, Ilorin (Owu Falls, 2020).
3. Dada Pottery Village: A village known for its traditional pottery-making (Dada Pottery Village, 2020).
4. Jebba: A historic town with ancient relics and artifacts (Jebba, 2020).

Sustainability Theory

Triple Bottom Line Theory

Ige (2017), documents that John Elkington first introduced the Triple Bottom Line theory in his 1999 book, “Cannibals with Forks: The Triple Bottom Line of 21st Century Business”. According to his argument, businesses should have three distinct bottom lines in order to manage and analyze their genuine economic worth effectively. Profitability as well as the company’s social and environmental impacts should be emphasized in these. Leiper, (2020), stressed that organizations are able to measure their full impact, which goes beyond just financial gain. Although the Triple Bottom Line theory was initially introduced

more than 25 years ago, it is still a well-liked method for establishing strategy, monitoring effect and engaging in corporate social responsibility.

The triple bottom line, which focuses on holistic investment outcomes along the interlinked dimensions of profits, people, and planet, is an important indicator of how effectively a company is achieving its sustainability objectives. The triple bottom line is a tool for accounting and reporting, but it is also a way to think about the future of capitalism and next-generation market solutions. The concept of the triple bottom line "captures the essence of sustainability by measuring the impact of an organization's activities on the world, including both its shareholder values and its social, human, and environmental capital." "Sustainability is the key idea here." "In other words, it can be defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs."

A sustainability-based accounting technique called the triple bottom line (TBL) places equal emphasis on people, profit, and the environment. The triple bottom line is different from conventional reporting frameworks in that it takes into account ecological and social factors, which are frequently challenging to measure. The premise is that by strengthening any one area, you will strengthen the business as a whole. The three Ps—people, planet and profits are another name for the TBL pillars. According to Josh Prigge, principal and senior sustainability consultant at Sustridge (Omitola, 2021), "the triple bottom line can be visualized as a three-legged stool, with one leg representing people, one leg representing the planet and one leg representing profit".

People: This key performance indicator evaluates how businesses affect human capital. A corporation that adheres to the triple bottom line has obligations not just to its shareholders but also to its staff, suppliers, clients, the neighborhood in which it operates, and anybody else the organization may have an impact on, either directly or indirectly. It acknowledges the interdependence of every human connection and interaction necessary for the business to function. This can be expressed by deeds like offering workers good employee benefits and flexible work schedules, providing chances for career or educational progression, establishing a safe workplace, and employing fair labor practices.

Planet: The TBL concept encourages businesses to lessen their environmental impact. They understand that a business may function for a longer period of time the less influence it has on the environment. This entails avoiding the production of goods that are harmful to the environment or the people living on it. But it also involves lessening the carbon footprint of your company. It entails taking particular steps, such as utilizing renewable energy sources, lowering energy consumption, appropriately disposing of toxic waste, and implementing a variety of green business policies.

Profits: All businesses are concerned about their financial health, but those that adhere to the triple bottom line view profits not only in terms of what they can do for their

shareholders, but also in terms of how they can benefit the larger community. According to this approach, a business contributes to economic growth and wealth creation by paying people fairly, doing business with local suppliers, innovating, and paying its fair share of taxes. It also chooses how and where to acquire materials, goods, or labor while maintaining a commitment to morality.

Strengths and Weaknesses of TBL Theory

The TBL theory's ability to provide a thorough viewpoint by taking into account the three dimensions of economic, social, and environmental factors is one of its strongest points. It promotes a more comprehensive approach to tourism and decision-making by going beyond a narrow focus on financial performance and taking social and environmental factors into account. The TBL theory places an emphasis on long-term sustainability by taking social and environmental effects of tourism activities into account. It inspires businesses to accept accountability for their deeds and pursue sustainable practices that benefit multiple generations. The TBL theory also emphasizes the significance of including and taking the interests of numerous stakeholders, such as employees, communities, visitors, and the tourism sector, into consideration. This stakeholder-centric approach can lead to improved relationships, increased trust and better decision-making that considers broader societal needs.

One of the TBL theory's setbacks is its subjectivity and difficulties in measuring and quantifying social and environmental factors. While assessing economic performance using financial metrics can be relatively straightforward, assessing social and environmental impacts frequently involves more qualitative and subjective assessments, making it difficult to compare and evaluate performance across different organizations. Furthermore, balancing the three components of the TBL theory can be difficult, and trade-offs between economic, social, and environmental goals may exist. Organizations may confront situations in which achieving one facet of sustainability may jeopardize another. This necessitates careful prioritization and decision-making, both of which can be difficult and subjective.

There is no defined framework for measuring and reporting TBL theory. While numerous frameworks and recommendations exist, there is no globally acknowledged technique for analyzing and reporting performance across the three aspects. This might result in inconsistencies and make comparing and assessing firms' sustainability initiatives challenging. Finally, despite its goal to balance the three elements, economic interests may still eclipse the TBL theory. In practice, corporations may prioritize economic performance over social and environmental concerns since financial measures are frequently more concrete and immediately related to short-term success. Despite these limitations, the TBL theory continues to be a useful framework for firms to measure their sustainability performance and consider the larger consequences of their actions. It encourages a more

holistic and responsible approach to business, promoting long-term value creation for both organizations and society.

Methodology

This study adopted a qualitative research design to explore the potential of tourism as a driver of sustainable development in Kwara State, Nigeria. A case study approach was employed to examine specific cultural heritage sites within the state, focusing on their role in tourism and sustainable development. The qualitative approach allows for an in-depth understanding of the challenges facing the tourism sector and the strategies required for its repositioning, while the desk review provides the strength of existing literature relevant to the context of this study.

Results and Discussion

Sustainable Tourism Development

The term "sustainable tourism" is the most common concept used in the development of tourism. It is a broad topic encompassing economic, environmental and socio-cultural issues as well as certain ethics and platforms of intra and inter-generational equity that are used for the debate in sustainability scope. Any form of business that involves the process of productions and consumptions will have sustainability implications and therefore sustainable development is essential to encompass all the activities. Tourism involves a process of production and consumption of the fragile resources such as historical buildings, areas of natural beauty, environment and culture. So, sustainable development is a focal point in tourism industry. (Folorunso *et al.*, 2017)

United Nations World Tourism Organizations (UNWTO, 2023) defined sustainable tourism as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, and the environment and host communities". UNWTO further elaborated the needs of sustainable tourism in tourism development. Sustainable tourism is essential to make optimal use of environmental resources through maintaining a proper ecological process and by preserving the natural heritage and biodiversity. Sustainable tourism is also necessary to respect the socio-cultural authenticity of the host communities through protecting the built heritage, cultural, traditional practices and understanding cultural diversity and furthermore ensuring long-term socio-economic benefits that are fairly distributed to all stakeholders by providing employment and job opportunities to eliminate the poverty alleviation. (UNWTO, 2023)

There is not a single universal definition for the term "sustainability". Different experts working in conservation areas, government offices, tourism organizations and the tourists themselves all carry out their own definition of sustainability (Pirie, 2009). The definition of sustainable tourism varies from regions to individual countries. For example, the Organization of East Caribbean States (OECS) defined sustainable tourism as the optimal

use of natural and cultural resources for national development on an equitable and self-sustaining basis to provide a unique visitor experience and an improved quality of life through partnership among government, the private sector and communities. (Folorunso *et al.*, 2017). Although there are many definitions of sustainable tourism, the key concept of sustainable tourism is to maintain long-term economic, environmental, socio-cultural and political well-being of all the stakeholders (Ojo, 2017). These long-term goals can be achieved only through dedicated participation and engagement of all the stakeholders in the process of sustainability. In some countries, sustainable tourism and ecotourism are defined in such a way that they have the same meaning which is resulted due to confusion (UNWTO, 2023). Ecotourism is a product niche of sustainable tourism that constitutes the principles of sustainability, mostly focused on the natural areas.

Pillars of Sustainable Tourism Development

Sustainable tourism should ensure the optimal use of environmental resources maintaining proper ecological phenomena through conserving natural resources and biodiversity (UNWTO, 2021). The quality of the landscapes should be maintained properly by avoiding the physical and visual degradation of the environment. Proper restoration of the historical buildings should be done. National parks, botanical gardens and marine parks should be built in order to protect the biological diversity. Sustainability should also focus on saving the non-renewable resources through producing alternative energy sources for example solar and wind. Proper waste management is necessary to control the pollution and avoid the degradation of the environment (Caribbean Tourism Organization 2010).

Long-term economic operations are necessary for the development of tourism. Socioeconomic benefits to all the stakeholders should be fairly distributed to eliminate poverty. There should be stable employment and job opportunities for the local people. Sustainable tourism development should strengthen the number and quality of local jobs including the level of pay and services and furthermore the jobs should be available without discriminating them according to gender, race and disability. Local prosperity includes maximizing economic prosperity of the host destination including the proportion of the visitors spending which is retained locally (CTO, 2010).

Social sustainability refers to the ability of a host community to absorb tourists and function tourism activities without the creation of social disharmony. Cultural sustainability refers to the ability of people to create and continue cultural diversity (Pirie, 2009). The socio-cultural sustainability in tourism should ensure the protection of the cultural, historical and religious heritage values of the host community. Tourism introduces the foreign elements given as traditional values, which may conflict with the social and cultural values of the host communities. The attitudes and behaviors of the local people, tourists and tourist organizations come under social sustainability. Sustainable tourism should be able to preserve the local customs, traditions and cultural and religious values without overshadowing the concept of tourist satisfaction.

The emphasis on maintaining and strengthening the life support systems of local communities along with respect and recognition of their cultures without any exploitation is crucial to maintain tourism socially sustainable (UNWTO, 2023). Social sustainability is marked by a strong sense of social cohesion which assists to bring society together and provides equal opportunities to access life sustaining services such as health, education, income, employment, transportation, and recreation and housing facilities (Kwan, 2018). Social sustainability should pay proper attention to balance the needs of an individual in comparison to the needs of the group (Handy and Niemeier, 2013).

Challenges of Sustainable Tourism Development

Adeleke (2017) notes that Tourism Development in Cultural and Natural Heritage sites has always been controversial and some countries often hesitate to expose endangered sites to tourism. On the other hand, Governments often neglect the potential impact of an uncontrolled tourism development. At the 2009 workshop meeting in Mogao, the UNESCO World Heritage Committee has identified a list of potential risks related to tourism at World. Heritage sites. In the resulting 2010 report, the Committee emphasizes that Tourism is critical in relation to:

- The potential of tourism infrastructure to damage heritage values;
- The threat that heritage properties may be unsustainably managed in relation to their adjoining communities;
- Sustaining the conservation objectives whilst engaging with economic development;
- Realistic aspirations that heritage can attract tourism.
- Concerns about the threats posed by the fast-growing tourism industry identified at the Mogao workshop include:
- Alteration of social structures;
- Loss of physical fabric by uncontrolled development within and nearby sites;
- Quality of visits and values at risk;
- Impacts on local cultures;
- Low suitability of some sites with living heritage for large scale tourism;
- Benefits of mass tourism not trickling down to local communities.

Pirie (2019), posits that planning for sustainable tourism development requires integrating heritage site planning with other planning instruments at the local, national and regional levels. Additionally, governance mechanisms need to be strengthened for effective policy implementation. It is important to bridge the gap between official policy and sustainable tourism. Initiatives can furthermore be driven by short-term benefits with insufficient focus on sustainability, e.g.: Links between sustainable site conservation and use may not be clearly understood by all stakeholders, often with a lack of shared values; there is no consensus on what management means or entails; the balance between use and conservation requirements needs to be better achieved.

Leiper (2020), submit that managing the tangible and intangible heritage values of a site (including conflicting values) is an essential tool in planning for sustainable tourism. This management approach can empower the various stakeholders, representing a variety of interests and values, and can create equitable conditions for decision making. It should be used to encourage broad participation in both decision-making and implementation. Indicators should be developed to monitor visitor management actions, to anticipate problems and to manage change. Best practice in heritage management must include meaningful visitor experiences and should convey conservation messages and the spirit of the place. Education plays a key role in achieving a better balance between use and conservation. Visitors are not the problem; rather negative impacts are created through a lack of adequate visitor management. Dynamic growth management, climate change, poverty alleviation and support for heritage protection are the main challenges of achieving sustainable tourism. The growth of tourism is expected to double during the next few years. That will impose considerable pressure on all resources of tourism development. The careful planning of the destination, effective management of environmental quality and greater influence of consumer behavior of tourists are necessary to avoid serious damage to the core resources of tourism.

Secondly, climate change is also a major issue in developing sustainable tourism as climate change has adverse effects on cultural heritage assets where it includes the erosion of structures and decorated surfaces of historical buildings, loss of the heritage sites and salt weathering of irreplaceable archaeological assets (UNWTO, 2021). Tourism is a factor to influence climate change. The emission of greenhouse gas is estimated to 5.3 percent due to tourism whereas 90 percent are accounted by transportation. (UNWTO, 2023). Reducing poverty and collecting necessary support for the preservation of heritage are also the key challenges of promoting sustainable tourism. The United Nations Millennium Goal is to reduce poverty by half in 2015. The challenge of alleviating poverty remains in channeling tourists towards poor countries and reversing the tendency in low paid jobs and quality of tourism opportunities for poor people. The conservation of heritage assets needs sufficient financial resources and finding the necessary financial support is a worldwide issue. It is very essential to provide an alternative form of livelihood for local communities who are more responsible and dependent on the natural resources for the sustainable land management (UNWTO, 2023).

Despite the above-mentioned challenges, sustainable tourism also involves the challenges of understanding the concept of sustainable tourism and implementation and adoption of sustainable tourism practices. The term sustainability is ambiguous and there is not a single solution to make tourism sustainable (Leiper, 2020). Tourism industry is a complex adaptive system involving many independent actors. The implementation of sustainable tourism requires interchange of all the stakeholders and that could result in a bigger challenge. The adoption of sustainable tourism practices does not only mean the destination level implementation but also the adoption of a set of practices by each and every actor involved in the tourism industry (Ige, 2017).

Strategies for Repositioning Tourism:

- Infrastructure Development: Invest in tourist infrastructure, including roads, accommodations, and amenities (Kwara State Government, 2020).
- Marketing and Promotion: Develop effective marketing strategies to promote Kwara State's tourist attractions (UNWTO, 2023).
- Community-Based Tourism: Empower local communities to participate in and benefit from tourism development (Akama & Kieti, 2007).
- Public-Private Partnerships: Collaborate with private sector investors to develop and manage tourist attractions (World Bank, 2019).
- Capacity Building: Provide training and capacity-building programs for tourism stakeholders (UNWTO, 2019).
- Policy and Regulatory Framework: Develop and implement policies and regulations to support sustainable tourism development (Kwara State Government, 2020).

Implementation Roadmap

Short-term (0-2 years):

- Infrastructure development
- Marketing and promotion
- Community engagement

Medium-term (2-5 years):

- Public-private partnerships
- Capacity building
- Policy development

Long-term (5-10 years):

- Sustainable tourism development
- Economic growth
- Poverty reduction

Conclusion

Repositioning tourism as a driver of sustainable development in Kwara State requires a multi-faceted approach that involves infrastructure development, effective marketing, community engagement, and policy support. By implementing these strategies, Kwara State can unlock the potential of tourism to contribute significantly to its economic growth and sustainable development.

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ROLES OF EATERIES ON THE GROWTH AND DEVELOPMENT OF HOSPITALITY SECTOR IN ILORIN METROPOLIS OF KWARA STATE, NIGERIA.

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Abstract
Eateries are a subset of the hospitality sector and have been known to play a major part in developing the sector but its major role(s) has not being clearly defined. Therefore, this study sought to access the roles eateries play on the hospitality sector in Ilorin metropolis, Kwara state. The study applied the questionnaire survey method to obtain data from 40 respondents comprising of 2 members of staff (manager and staff) of twenty (20) randomly selected registered eateries in the study area. The data obtained was analysed using statistical frequency, percentages and mean of responses in a likert scale. Some of the eateries are Kilimanjaro, Chicken Republic, Item 7 Eatery, Pizza Jungle, Captain Cook's Eatery, The Claypot eatery. From the selected respondents, 52.5% are males and 47.5% are females. Also, 35% are managers of the eateries while 57.5% are staff of the eateries and 7.5% are owners of eateries amongst the respondents. Some of the services rendered by the eateries are fast food, outdoor services, snack bar, food canteen, home delivery and buffet services. The roles played by the eateries on the hospitality sector include Increase in patronage of guests in hotels/event centre, Employment opportunities for the hospitality sector, Completes/complements the Hospitality cycle, Creation of awareness of hotels and event centre, Promotes food safety and fosters collaboration between the eateries and other sub-sectors of the hospitality industry. On this note, the eateries in the study area have played major roles on the hospitality industry in the study area.

Keywords: Eateries, Growth, Development, Hospitality Sector.

Introduction
Eateries are business franchises which predominantly deal in the sale of prepared food (Olumide and Amobichukwu, 2013). Also, Mathias and David, (2015) asserted that eateries are business that prepares and serves food and drinks to customers; virtually in every nooks and corners of the country. Fast food ventures are found and located everywhere with round the clock services where applied e.g. in convenient shops, drives, filling stations, schools, cashpoints, etc. The fast food industry can be divided into two: the formal sector and the informal sector. The formal fast food industry consists of the newly emerging organized

and registered outlets of different sizes providing large scaled standardized eat-in and take-away services to consumers. The informal sector consists of the plethora of usually unregistered small operators and restaurants providing unstandardized fast but casual services to consumers. In this category are the traditional food vendors, cafeterias and casual dining restaurants (Farrell, 2007). However, the focus of this study is the former.
According to Olutayo and Akanle (2009), the number of fast food outfits in Nigeria is increasing at a geometric rate and expected to double in five years. Now the result show that over 1012 outfits are currently in operation in Nigeria. Notwithstanding, this rapid increase in growth and proliferation of fast food restaurant in Nigeria can be excused on the basis that it is a worldwide phenomenon (Olutayo and Akanle, 2009). The need to provide fast, on-the-go meals for those in hectic, busy and fast-paced work and lifestyle made the sector an attractive one to many entrepreneurs, investors and business people. As a result; small food canteen owners got inspired and pursued funding to expand to larger multi-branch players in the industry (Mathias and David, 2015). Research has shown that the presence of diverse eateries contributes to a stronger local cultural identity and provides platforms for celebrating heritage and diversity (Ogunleye, 2023). From a tourism perspective, eateries play a pivotal role in shaping visitor experiences and perceptions of a location. High-quality and varied dining options are crucial for attracting and satisfying tourists, influencing their overall impression of the city (Ibrahim and Musa, 2024). The dining scene in a city often serves as a major component of the overall tourist experience, with eateries contributing to the unique charm and hospitality of the destination.

Research questions

i. What are the various eateries in Ilorin Metropolis?
ii. What kind of services is rendered by the eateries?
iii. What is the impact of these services rendered on growth of hospitality in the study area?

Specific Objectives

The specific objectives of this study are to:

1. Identify the various eateries in Ilorin Metropolis
2. Examine the services rendered by these eateries
3. Determine the impact of these services on the growth of hospitality in the study area.

Significance of the study

This study revealed the currents eateries in the study area and this information will be added to the world of research. Subsequently, the various services rendered by these eateries would be documented as well. This would inform prospective customers and guests on the kind of services rendered and would most likely increase the number of guests and customers alike. Lastly, this study will bring out the impact of these eateries and its services on the growth of hospitality and tourism alike.

Scope of the study

This study covers Ilorin Metropolis which comprises of Ilorin West, East and South. However, only standard, registered eateries within the study area were used for this study. Standard, registered eateries were determined by the level of structure put in place, cuisine, packaging and number of employees. Therefore, road side or informal restaurants were not considered for this study.

Study Area

Ilorin is located between latitude 8°30′ and 8°50′ N and Longitude 4°20′ and 4°35′ E with an area of about 100km^2 (Kwara State Diary 2008). The city is situated in the transitional zone between the forest and savannah regions of Nigeria. The city comprises part of three Local Government Areas (LGAs): Ilorin East, Ilorin West and Ilorin South LGAs with about twenty political wards (Figure 3.1). The city has continued to grow rapidly over time, particularly after it gained the status of a state capital in 1967. The population of Ilorin is projected to be 1,049,168 by 2013.

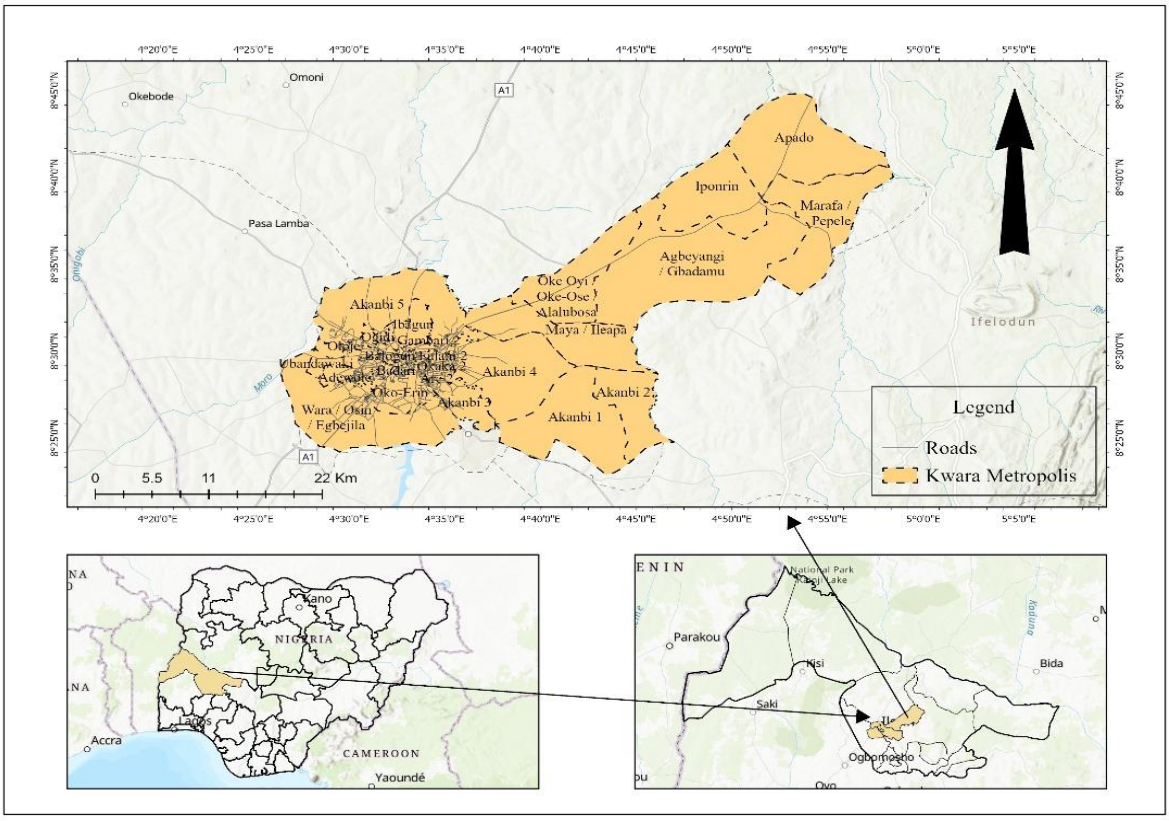


Fig 1: Map of Ilorin Metropolis (Source: Adapted from Administrative map of Kwara state)

Study Population and Sample size

For the purpose of this research work, the study population comprised of purposively selected staff of eateries and purposively selected staff of hotels and event centre in the study area. The sample size for this study was put at forty (40) respondents. This is broken down to two (2) respondents each who are selected staff of twenty (20) eateries. Therefore, the final respondents for this study stood at forty (40).

Sampling techniques

The eatery outlets considered for this study were selected by simple random sampling. The researcher visited the study area and randomly selected eateries that were legally registered within Ilorin Metropolis, Kwara State, Nigeria. A total of 20 eateries were randomly selected. These eateries served as the study points. Subsequently, two (2) members of staff (Manager and a staff) were purposively selected from each of the selected eateries making a total of forty (40) members of staff. The selected staff of the eateries were issued questionnaire as related to the set objectives of this study. On that note, forty (40) respondents were issued questionnaire.

Research Instrument

The data for this study was drawn from two main sources; primary and secondary sources. The researcher collected primary data by using a survey questionnaire. The secondary source was obtained from journals, books, internet, publications, manuscripts and other sources where information related to this study could be obtained.

Method of Data Analysis

Data for this study was subjected to statistical computation using descriptive statistical measures via frequency and percentages, tables and mean of responses from the respondents in a likert scale.

Result

Table 1: **Socio-demographic Characteristics of respondents**

S/No.	Name	Category	Eatery staff Frequency	%
1	**Gender**	Male	21	52.5
		Female	19	47.5
			40	**100**
2	**Age**	18-27 yrs.	22	55
		28-37 yrs.	17	42.5
		38-47 yrs.	1	2.5
		48-57 yrs.	0	0
		58 yrs. and above	0	0
			40	**100**
3	**Religion**	Christian	26	65
		Muslim	14	35
		Traditional	0	0
			40	**100**
4	**Marital status**	Single	26	65
		Married	14	35
		Divorced	0	0
		Widowed	0	0
			40	**100**
5	**Educational status**	No formal education	0	0
		Primary	1	2.5
		Secondary	12	30
		Tertiary	27	67.5
			40	**100**
6	**Position**	Manager	14	35
		Staff	23	57.5
		Owner	3	7.5
			40	**100**
7	Experience	1-3 years	2	5
		4-7 years	23	57.5

8-11years	12	30
12 years and above	3	7.5
	40	**100**

Source: Field Survey, 2024

Table 2: Selected Eateries and their type of ownership

Selected Eateries	Ownership type	Address	Year of establishment
Item 7	Sole Proprietorship	Challenge road, Ilorin	2018
Pizza Jungle	Sole Proprietorship	FHQ7+6HG Post office	2020
Tasty Jollof Eatery	Private limited liability company	FHJ3+5WH, New Yidi Rd, 240101	2018
Kilimanjaro	Private limited liability company	Opposite Post office	2013
T and K eatery	Private limited liability company	60 University Rd, Tanke	2016
Edible Restaurant	Private limited liability company	Shoprite Kwara Mall	2018
Chronicles Restaurant and Karaoke Bar	Private limited liability company	The Palms Shopping Mall, beside NTA, Ilorin	2019
The Place Eatery	Sole Proprietorship	14B Umaru Audi Rd, G.R.A	2022
Charcoal and Bakery Restaurant	Sole Proprietorship	25 Umaru Audi Rd.	2022
Chicken Republic	Private limited liability company	130 Ibrahim Taiwo Rd, 240101	2004
The Metro Eatery	Private limited liability company	FG26+WP5, Airport Rd, 240281, Ilorin, Nigeria	2016
Captain Cook Eatery	Private limited liability company	Unity Rd, Ilorin	2017
The Claypot Eateries	Sole Proprietorship	6 Beatrice Anike Street, behind Bovas Filling St	2017
Xtra Plate Eatery	Sole Proprietorship	Akanbi Roundabout, Ilorin, 240242	2024
Aroma Place	Private limited liability company	Unity road, Ilorin	2018
The Commodores Café and Grill	Private limited liability company	Yoruba Rd, Ilorin, 240212	2016
Ace Eatery Lounge and Bar	Private limited liability company	FHJ5+RRP Unity Cresent	2017
Blue Flamengo Eatery	Private limited liability company	FHJR+RR Oko-Erin, 240102	2019
The Sidney	Private limited liability company	9 Catchment Rd, close to G.R.A Ilorin, 240102	2021
Chop Central	Private limited liability company	Shop 19, Plot 8 Fate Rd, Opp Awele House	2021

Source: Field survey, 2024

Table 3: Sservices rendered by the selected eateries

SERVICES / EATERY	Restaurant	Fast food	Food Canteen	Cafeteria	Coffee shop	Snack bar	Bukataria	Liquor Sales/Bar	Outdoor services	Buffet services	Waiter services	Lounge service	Home delivery	Room service
Item 7	1	1	0	0	0	1	0	0	1	0	0	0	1	0
Pizza Jungle	1	1	0	0	0	1	0	0	1	0	0	0	1	0
Tasty Jollof Eatery	1	1	1	1	1	1	1	0	1	1	1	1	1	0
Kilimanjaro	1	1	1	0	1	1	0	0	1	0	0	0	1	0
T and K eatery	1	1	1	1	1	1	1	0	1	1	1	1	1	1
Edible Restaurant	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Chronicles Restaurant and Karaoke Bar	1	1	1	1	1	1	1	1	1	1	1	1	0	0
The Place Eatery	1	1	1	0	0	1	1	1	0	1	1	1	1	0
Charcoal and Bakery Restaurant	1	1	0	1	0	1	1	0	1	0	0	1	1	0
Chicken Republic	1	1	1	0	1	0	0	0	0	0	0	0	1	0
The Metro Eatery	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Captain Cook Eatery	1	1	0	1	0	1	1	1	1	1	1	1	1	0
The Claypot Eateries	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Xtra Plate Eatery	1	1	1	0	0	1	1	0	1	0	0	0	1	0
Aroma Place	1	1	0	0	0	1	0	0	0	0	0	0	1	0
The Commodores Café and Grill	1	1	1	1	1	1	1	1	1	1	1	1	1	0

Ace Eatery Lounge and Bar	1	0	1	0	1	1	0	1	1	1	1	1	1	1
Blue Flamengo Eatery	1	1	1	1	1	1	0	0	1	1	1	0	1	0
The Sidney	1	1	1	1	1	0	1	0	1	1	1	0	0	0
Chop Central	1	1	1	1	1	1	0	0	1	1	1	0	1	0
Avg. %	**100**	**95**	**75**	**55**	**60**	**85**	**55**	**35**	**80**	**60**	**60**	**40**	**75**	**10**

Source: Field survey, 2024 Key: 1=yes; 0=No

Table 4: Impact of Eateries on Hospitality sector

Impact	SD		D		U		A		SA		MEAN	STD	Remark
	F	%	F	%	F	%	F	%	F	%			
Boosts revenue generation	1	2.5	3	7.5	0	0	32	80	4	10	**3.88**	3.42	AC
Delivers high quality meals	0	0	0	0	1	2.5	37	92.5	2	5	**4.03**	3.5	AC
It attracts tourists to the area	2	5	29	72.5	3	7.5	5	12.5	1	2.5	**2.35**	1.97	R
Increases employment opportunities	0	0	2	5	0	0	21	52.5	17	42.5	**4.33**	3.86	AC
Acts as a major support system	2	5	9	22.5	1	2.5	17	42.5	11	27.5	**3.65**	3.34	AC
Increases growth prospects for the sector	7	17.5	11	27.5	0	0	12	30	10	25	**3.18**	3.02	AC
Creates potential expansion/establishment of more outfits of the sector	3	7.5	9	22.5	1	2.5	26	65	1	2.5	**3.33**	2.98	AC
Increases the potential to diversification of the hospitality sector	1	2.5	0	0	2	5	33	82.5	4	10	**3.98**	3.49	AC
Reduces dependency on hotels for food/drinks	0	0	2	5	1	2.5	32	80	5	12.5	**4**	3.51	AC
Creates competition in the hospitality sector	3	7.5	20	50	0	0	15	37.5	2	5	**2.83**	2.54	R
Creating opportunities for collaboration with hotels and other aspects of the sector	13	32.5	15	37.5	0	0	8	20	4	10	**2.38**	2.26	R

Source: Field survey, 2024 Expected mean≥3.0

Key: [(F- frequency; STD-Standard Deviation) (**SD-Strongly disagree, D-disagree, U-Undecided, A-agree and SA-Strongly agree) (AC- accepted; R- rejected)**]

Discussion of Findings

From table 1, it can be seen that the respondents are a mixture of males and females. However, there are fewer females than males amongst the respondents. Alabi, (2014) reported more males than female; therefore, this study is in tandem with that of Alabi, (2014). Also, the age range shows that they fall between the age of 18-27 years and 28-37 years. Their religious status also shows that they are most likely sincere and devoted to their jobs as they have chosen a particular way of worship and they are more likely to incline to the morals they are taught in their religious place of worship. Most of them are single while the others are married showing their sense of responsibility. This study is in line with the study of Alabi, (2014) who reported that there were more singles than married. Education wise, majority of the respondents are graduates of tertiary institutions making them fully knowledgeable and qualified to respond to questions on this study. Their experience in the job also buttresses the fact they are qualified to be respondents for this study seeing that most of them have at least 4-7 years and 8-11 years' experience working in the hospitality sector.

4.2.1 Research objective 1: Identification of selected eateries in Ilorin Metropolis.

From table 2, most of the eateries and hotels are either sole proprietor owned or by Private Limited Liability company. Therefore, this study has shown that eateries in the study area belong to at least a type of ownership (as entrepreneurs) that would promote and support the progress of the business. Entrepreneurship has been discovered as the veritable tool for economic growth, job creation, and poverty reduction in developing countries (Sauser, 2005; Harris and Gibson 2006).

4.2.2 Research objective 2: Examine the services rendered by these eateries

Table 3 shows the services rendered by the hotel. The table shows that all the eateries offer fast food services. Other major services rendered by these eateries are outdoor services, snack bar, food canteen, home delivery and buffet services. All these services are related to quick service food provision. Gbigbi and Oghotomo, (2020) opined that a restaurant is a public place which offers services of food and beverages on commercial basis. (Ajala, 2006; Aladelokun, 2006) noted that in many cities in Nigeria, one can find numerous fast food restaurants where most of the foods sold are usually snacks, burgers, fries, chicken, cola drinks, ice cream, fruit drinks and other foods that are high in fat, sodium and sugar. Coffee shop, waiter services, cafeteria services, Bukataria and lounge services are the other services some of the Eateries offer. Most fast-food outlets offer on-demand delivery and catering services from dawn to dusk (Eneyo *et al*., 2018).

4.2.3 Research objective 3: Determine the impacts of these services on the growth of hospitality in the study area.

Table 4 reveals the impacts of the services eateries offer on the hospitality sector. The most major impact of these services is that it Increases employment opportunities in the hospitality sector.

Another impact of the eatery services to hospitality sector is Delivers high quality meals to meet guest expectation. According to Ugo and Idongesit, (2021), any service provider that seeks to enjoy competitive edge must respond to customer needs so as to promote satisfaction and secure continuous customer patronage. The third impact of eatery services on the hospitality sector is it Reduces dependency on hotels for food/drinks in the area. Ugo and Idongesit, (2021) asserted that the hotel sub-sector is

not alone when it comes to growth and the importance of their role as chain operators. Restaurants and the fast-food sector have added to major growth in multiple operations worldwide.

The next impacts are it Increases the potential to diversification of the hospitality sector, Acts as a major support system to the sector, and Boosts revenue generation in the hospitality sector. NBS (2015) supported this finding by stating that the hospitality sector is diversified into accommodation and food services whose sub-sector primarily engages in hosting services such as restaurants, hotels, bars, cruise lines and many other related businesses. (Fabayo, 2009; Yusuf 2014) asserted that small-scale business restaurants contribute to social and economic benefits for communities and geographic regions. Fast food restaurant managers who effectively deploy survival strategies in their restaurant businesses attract and retain more loyal customers, thereby increasing their businesses'revenue, creating jobs in the community and strengthening the economy (Mahoney and Kor, 2015).

Also, the other impacts are it creates potential expansion/establishment of more outfits of the sector in the area and Increases growth prospects for the sector. According to Salami and Ajobo (2012), the expansion in the fast food industry may be attributed to the following: increasing urban migration which affect the younger population who are also more receptive to the fast food concept; increasing Western acculturalization among the populace; the increasing affluence among the people.

In addition to these impacts, the other roles eateries play in the hospitality sector are Creation of awareness of hotels and event centre as well as it Promotes food safety and Collaboration with the hotel sub-sector. Firstly, most fast food provides meals in a few minutes, and they have become the preferred eating spot, particularly for wealthier urban residents and visitors (Akin, 2013; Liu *et al*., 2022). The taste, presentation, healthiness, and variety of food on the menu were important factors to customers (Agarwal and Dahm, 2015). . Eneyo *et al.,* (2022) found out that proximity to places of interest draws prospective customers and maintains a significant market share and profit from other facilities. These facilities draw customers who can afford the food prices at the fast food.

Conclusion

Based on the results obtained, it can be concluded that eateries have a high impacts on the hospitality sector and plays major roles such as profit making, providing employment in support of the hospitality sector, increasing patronage in the sector, creating room for growth, expansion and establishment of more outfits in the sector, providing high quality food services for guests in hotels, events and residents alike as well as creating diversification and awareness in the sector. In spite of the numerous challenges eateries might face, their impacts to the hospitality sector is still being felt and its roles are a major turning point for the sustainability of the hospitality sector.

Recommendation

From the foregoing, it can be recommended that:

1. Eateries should be given more freedom to operate freely as they can never be enough in an area. This will create competition and make way for better services offered to customers.

2. Laws prohibiting unhealthy food preparation should be enacted to prevent a shutdown of the eatery subsector and violators should be punished.

3. Roadside food vendors should be encouraged to upgrade to engaging in the eatery business for better management and food preparation as such persons might not really prepare healthy foods for the populace.

4. Government should avoid policies that could hamper the continuous progress of the hospitality sector and the eatery sub-sector by removing multiple taxation, regulating high price of food items/price control, addressing poor infrastructural deficit such as roads and power supply, and provision of take-off funds/loans/grants for eateries to start on a small-scale being a readily growing sub-sector.

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ASSESSMENT OF THE USE OF TECHNOLOGICAL GADGETS IN RECREATIONAL ACTIVITIES IN NEW BUSSA, NIGER STATE.

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ABSRACT
Technology, being an advancement of the way things are done, keeps evolving every day in every life's activities including leisure activities. New and advanced technological gadgets are used in recreational/leisure activities and this brings fun and other benefits to the users. This study sought to access the various and use of technological gadgets in recreational activities in New Bussa. A total of one hundred and twenty (120) residents were selected from different parts of the study area using a multistage sampling procedure as strata, random sampling. Each resident was issued a questionnaire from which primary data was obtained. Among the respondents, (64.2%) were males and (35.8%) were females. Also, the highest mean age of the respondents is (47.5%) of 28- 37 years. Equally, (41.7%) are civil servants while (28.3%) are artisans and (17.5%) are farmers. According to their responses, the technological gadgets used by the respondents are mobile phones, cameras and video recorder, computer, video games, head phones, laptops, television/satellite dish and gym equipments. The results also reveal that mobile phones are used always while laptops, head phones and satellite dish/television are often used. Poor internet access, lack of technical know-how, constant power failure and lack of awareness on the importance of gadgets for recreation are some of the challenges facing the use of technological gadgets in New Bussa. The study recommended that power supply and internet access should be improved in the study area in order to allow residents enjoy the use of these gadgets for recreation in the study area.

Keywords: Assessment, Technological Gadgets, Recreational Activities, New Bussa.

Introduction

Recreation means leisure activities chosen by an individual for the purpose of improving his life and living. These activities are of a constructive nature. They are not time-consuming but time-using. They are healthy-physically, mentally and socially (Gulam, 2016). According to Hurd and Anderson (2011), leisure time is defined as time independent of obligations, work, and tasks necessary for existence, such as sleep and eating. Leisure activities encompass various activities that we engage in for reasons such as enjoyment, relaxation, and satisfaction (Tutar & Turhan, 2023). Leisure time not only greatly influences quality of life but is also an integral part of one's lifestyle. Striking a balance between work and rest, and varying leisure activities, can help individuals maintain a healthy and fulfilling lifestyle (Junová, 2020).

Flow is a mental state in which individuals are fully immersed in an activity, losing track of time and their surroundings (Hurd & Anderson, 2011). Therefore, engaging in leisure activities that enable individuals to experience flow can have a positive impact on their well-being (Hurd & Anderson, 2011). It can be said to provide individuals with opportunities for pleasure, relaxation, and satisfaction (McManus *et al*., 2011).
Technology is prevalent in all areas of human life (Lindell, 2014). Abd Wahab *et al.,* (2012) define technology as the integration of the physical objects or artefacts, the process of making the objects and the meaning associated with the physical objects. From managing work responsibilities to facilitating leisure activities, technology permeates the fabric of human existence (Lindell, 2014). Both benefits and detriments of the fusion between outdoor recreation and mobile technology exist (Lindell, 2014). Technology, particularly social-media related, may help increase interest in parks and other outdoor recreation sites (Martin, 2017). Use of technology in sports has always presented a golden opportunity for the participants no matter if they were chasing performance or looking for a way to do exercise more comfortably. Of course, recreational activities can be categorized in different ways such as individual or group activities, therapeutic activities, workplace or campus activities, simple tourism acts or sports tourism activities, indoor or outdoor activities (Tribe, 2015). So, the use of technology in all these recreational activity types are different and getting more and more users all around the world (Tribe, 2015). All these activities have unique features which require unique equipment and unique technology (Yumuk, 2023). Gadgets, such as wrist bands, give statistical parameters and count events of a particular physical activity. Such gadgets usually acquire movements or physiological processes of the user with low frequency and low precision, what is at the end good enough for their intended use (Lindell, 2014).

Statement of problem

Recreation has a variety of benefits to both society and the individual. Benefits from participating in recreation, especially outdoor recreation include opportunities for physical activity, refuge from societal pressures, and interaction with nature (Clayton & Myers, 2009; Stanis *et al.*, 2009). According to Gulam (2016), in the modern world, a man is enjoying lot of luxuries provided by the advance technological development on one hand and facing lot of physical, mental emotional and social disturbances on the other hand. The advance technological development has provided all kind of comforts in all walks of life, may it be home or any other work place, agriculture or industries consequently, it has reduced lot of dependence on each other, caused social problems, reduced physical work, caused physical problems, working on machines causes mental problems, and working in shifts allows meeting family members like strangers, cause emotional problems. Gulam (2016) opined that collectively all these factors effect family life, society and nation adversely in the long run. Further, the technological advancements in all spheres of life has created lot of free/leisure time after the working hours. These free leisure time gotten from technological advancements ought to be utilised well and if possible, the same leisure time need to be enjoyed by applying the use of technology. But what level of technology is used for recreation in New Bussa? What are the kinds of technological gadgets used for recreation in New Bussa? This research is conducted to explore the kinds of technological gadgets used for recreation among residents of New Bussa.

Research questions

1. What are the kinds of technological gadgets used for recreation in the study area?
2. How much are these technological gadgets put to use for recreation?
3. What are the challenges facing the use of technological gadgets for recreation?

Objectives

The objectives of this study are as stated thus, to:

1. Identify the various technological gadgets
2. Assess the use of technological gadgets for recreation
3. Investigate the challenges facing the use of technological gadgets for recreation in the study area

Significance of the study

This study is important to the world of research as it would expose the level of sophistication in terms of technological gadgets for recreation in the study area. The study when carried out successfully will serve as an exposé to the use of the technological gadgets for recreation and the challenges faced with the use of these gadgets in the study area. At the end of the day, those in charge of coordinating recreation with the use of these gadgets will work to obtain more gadgets (if need be) and see how to encourage the use of these gadgets as well as proffer solutions to the challenges faced with the use of technological gadgets for recreation in the study area.

1.6 Scope of the study

This study covers the use of technology including internet, various forms of media and equipments for indoor and outdoor recreation within New Bussa. The study concentrates on residents who visit recreation centres with technological gadgets for recreation like those found in the Nigerian Airforce base, selected hotels and bars, as well as sport/recreation centres available in the study area.

STUDY AREA

New Bussa is a town in Niger State, Nigeria. It is the new site of Bussa after the Kainji Lake dam set the previous location underwater. As of 2007 New Bussa had an estimated population of 24,449.New Bussa is the headquarters of the Borgu Emirate and the Borgu Local Government Area. Its coordinates are 10°19′N 4°36′E (Wikipedia, the free encyclopedia)

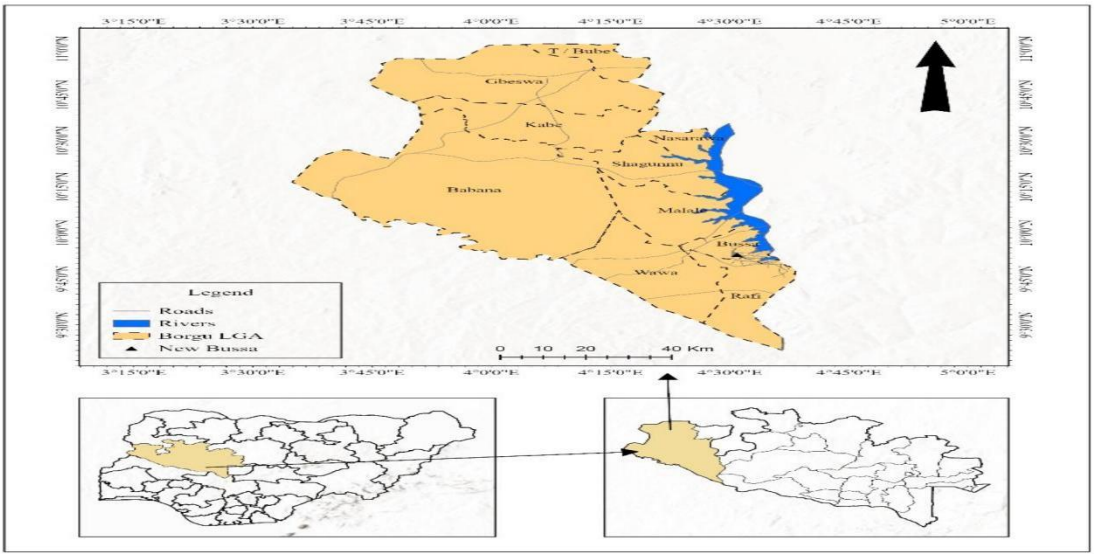


Figure 1: Location of the Study Area. (Source: Adapted from Administrative map of Niger state).

Study Population and Sample size

For the purpose of this research work, the study population comprised of randomly selected residents of New Bussa. The sample size for this study was put at one hundred and twenty (120) respondents. A total of 120 questionnaires were distributed to the respondents for this study.

Sampling techniques

The multistage sampling method was used to sample the respondents for this study. At the first stage, the study area (New Bussa) was divided into four strata starting from the Total filling station roundabout. The strata created were the Dogon Gari/FRSC stratum, the senior camp stratum, the General Hospital stratum and the Ibadan Way/Airforce base stratum. At the second stage, each of these stratum was subdivided into substratum. Therefore, the Dogon Gari/FRSC stratum was divided into the NIFFR quarters, Federal Road Safety sub-stratum and Dogon Gari sub-stratum. The senior camp stratum was divided into the Tudun-Wali, Senior camp and Millenium quarters sub-stratums while the Ibadan Way/Airforce base stratum was sub-divided into the Ibadan way, Airforce base and Wawa garage sub-stratums. Also, the General Hospital stratum was sub-divided into the Okpalagu sub-stratum, Dantoro road substratum and the General Hospital substratum. At the third stage, ten (10) houses were randomly selected from each substratum and subsequently one (1) resident from each selected houses was randomly selected to respond to the questionnaire. This implies that ten (10) respondents were chosen from each substratum and consequently thirty (30) residents were chosen from each stratum. Therefore, the respondents selected from the four strata is totalled one hundred and twenty (120). These respondents were issued questionnaires.

Research Instrument

The data for this study was drawn from the primary source only. The researcher collected primary data by using a survey questionnaire which was distributed to the selected respondents in the study area.

Method of Data Analysis

Data for this study was subjected to statistical computation using descriptive statistical measures such as frequency and percentages, tables and mean of responses from the respondents in a likert scale.

Results

Table 1: Socio-demographic status of respondents

S/No.	**Category**	**Sub-category**	**Frequency**	**%**
1	**Gender**	Male	77	64.2
		Female	43	35.8
			120	**100**
2	**Age**	18-27 years	11	9.17
		28-37 years	57	47.5

		38-47 years	38	31.7
		48-57 years	11	9.17
		58 years and above	3	2.5
			120	**100**
		Mean age	**37.37 years**	
3	**Religion**	Christian	53	44.2
		Muslim	67	55.8
		Traditional	0	0
			120	**100**
4	**Marital status**	Single	48	40
		Married	66	55
		Divorced	1	0.83
		Widowed	5	4.17
			120	**100**
5	**Occupation**	Civil servant	50	41.7
		Artisan	34	28.3
		Student	11	9.17
		Business man/woman	4	3.33
		Farmer	21	17.5
			120	**100**
6	**Educational status**	Primary	14	11.7
		Secondary	25	20.8
		Tertiary	77	64.2
		No formal Education	4	3.33
			120	**100**

Source: Field survey, 2024

Table 2: Technological gadgets that are used for recreational Activities

Technological gadgets and Source of energy
Mobile phones (to play music, map viewing, take pictures, etc.) Hydro and Solar energy)
Cameras and videos recorder(Hydro and Solar energy)
Computer (Hydro and Solar energy)
Video games (Hydro and Solar energy)
Head phones (Hydro and Solar energy)
Laptops (Hydro and Solar energy)
Television/satellite dish (Hydro and Solar energy)
Gym equipments

Source: Field survey, 2024

Table 3: Rate of use of these Technological gadgets

Technological gadgets	Never		Rarely		Often		Always		MEAN	STD	Remark
	F	%	F	%	F	%	F	%			
Mobile phones (to play music, map viewing, take pictures, etc.)	0	0	0	0	47	39.2	73	60.8	**3.61**	2.114	**Always**
Cameras and videos recorder	37	30.8	20	16.7	34	28.3	29	24.2	**2.46**	0.066	**Rarely**
Computer	51	42.5	34	28.3	29	24.2	6	5	**1.92**	0.811	**Rarely**
Video games	67	55.8	21	17.5	32	26.7	0	0	**1.71**	1.039	**Rarely**
Head phones	28	23.3	21	17.5	51	42.5	20	16.7	**2.53**	0.04	**Often**
Laptops	33	27.5	24	20	12	10	51	42.5	**2.68**	0.287	**Often**
Television/satellite dish	11	9.17	6	5	51	42.5	52	43.3	**3.2**	1.257	**Often**
Gym equipments	65	54.2	27	22.5	9	7.5	19	15.8	**1.85**	0.888	**Rarely**

Source: Field survey, 2024 Expected mean ≥2.5
Key: (0.0-1.5=Never; 1.51-2.49=Rarely; 2.5-3.49=Often; 3.5-4.0=Always)

Table 4: Challenges facing the use of technological gadgets for recreation in New Bussa

Challenges	SD		D		U		A		SA		MEAN	STD	Remark
	F	%	F	%	F	%	F	%	F	%			
Lack of technical know-how	9	7.5	15	12.5	12	10	33	27.5	51	42.5	**3.85**	1.67	**Accepted**
Constant Power failure	5	4.2	17	14.2	0	0	51	42.5	47	39.2	**3.98**	1.97	**Accepted**
Poor maintenance of gadgets	55	45.8	19	15.8	1	0.8	25	20.8	20	16.7	**2.47**	0.84	**Rejected**
Use of out-dated/expired gadgets	31	25.8	51	42.5	6	5	2	1.7	30	25	**2.58**	0.68	**Rejected**
Poor internet access	6	5	13	10.8	22	18.3	48	40	31	25.8	**3.71**	1.37	**Accepted**
High cost of gadgets	19	15.8	27	22.5	0	0	55	45.8	19	15.8	**3.23**	0.42	**Accepted**
Lack of replacement of obsolete gadgets	17	14.2	51	42.5	0	0	9	7.5	43	35.8	**3.08**	0.15	**Accepted**
Lack of awareness on the	13	10.8	3	2.5	1	0.8	60	50	43	35.8	**3.98**	1.95	**Accepted**

importance of gadgets for recreation									

Source: Field survey, 2024 Expected mean ≥ 3.0
Key: **(F-frequency; %-percentage; SD-Strongly disagree, D-disagree, U-undecided, A-agree and SA-Strongly agree)**

4.2 Discussion of Findings

The socio-demographic status of the respondents as seen in table 1 shows that males responded to the questionnaire than females. This does not imply that males are more in the study area. However, males are easier to approach and quick to respond to whatever is asked of them. Also, the mean age of the respondents (28-37 years) shows that the respondents are still in their active age and would have a lot of knowledge and practical experience with the topic of research (recreation and technological gadgets). Their educational status also qualifies them to serve as respondents to the study seeing that they can read and write just as they would be able to decipher between modern and old technological tools as well as the use of such gadgets for recreation. Therefore, the respondents are fit to play the role for this study.

4.2.1 Objective 1: Identify the various technological gadgets

The various technological gadgets identified by the respondents that can be used for recreation are mobile phones, cameras and video recorder, computer, video games, head phones, laptops, television/satellite dish and gym equipments (table 2). These gadgets have one use or the other and can each be used for recreational purposes. This finding aligns with the assertion of Cabi (2016) who opined that digital technology encompasses applications such as computers, the internet, mobile phones, cameras, video, and web technologies, which enable the electronic display, storage, and transmission of information. Tutar *et al.,* (2023) affirmed that leisure time is often dedicated to media technologies such as television, the internet, mobile phones, and tablets, turning homes into media centres. According to Encyclopedia (2023), other computer-based technologies such as personal computers, the internet, the World Wide Web, and video games have significantly influenced people's leisure lives in modern society. According to Hall (2022), technology has transformed how individuals engage in their hobbies and leisure activities. For example, people can now participate in virtual reality experiences that simulate real-life activities, including sports, travel, and social interactions. Technology has also facilitated access to information and resources for leisure activities, including online education programs, booking systems, and social media groups (Tutar *et al.,* 2023).

Pegarns and Zoralic (2006) asserted that anyone with a Smartphone is capable of realizing an endless source of entertainment and also education. Newer applications have made it possible for instant messaging and sharing of multi-media entertainment among friends. Mobile phones are generally used for playing music, taking pictures, surfing the internet, reading books online, and other recreational activities. Cameras and video recorder are used to take pictures and capture fun and special moments during events, picnics, exercise activities and any form of recreational moments that the participant wish to capture for record purposes. Computer and laptops are used to surf the internet, watch movies, play music, and other forms of recreational activities. Tutar *et al.,* (2023) suggested that online tools and technology can assist individuals in effectively managing their time and making the most of their leisure activities. Headphones are used to play music from devices like phones, laptops or computers with either a connected wire or a wireless connection. This headphone makes it easy to play music or listen to audio-based programs. Television and satellite dish is used to watch audio-visual events/programs.

The satellite dish could be for local or international programs and is connected to the television for the viewing pleasure of the respondent. Football and other sports, movies, news, educational-based programs and music can be viewed through the television. Digital leisure encompasses a wide range of activities, including playing video games, watching movies, and browsing the internet (Przybylski *et al*., 2017). This finding is supported by the assertion of Flegal *et al*., (2002) that families with tight income and little disposable income wouldn't even afford to go for movies, or take a walk at the park, and instead cheaper options like playing video games in their computer and mobile devices were more preferable.

Gym equipments are used in gym centres to carry out body-building exercises as well as activities that relax the muscle. Very few respondents identified that this gadget is used in the study area.

4.2.2 Objective 2: Assess the usage of technological gadgets for recreation

Obviously, the gadget that is always in use according to the respondents is the mobile phone (table 3). Head phones, laptops and television/satellite dish are often used compared to cameras and video recorder, computer, video games and gym equipments. Mobile phones are portable hand-held gadgets that can be carried around by the owner and are therefore very easy to use. They can be used anytime and anywhere for recreation. This shows that it is the most used gadget. Head phones on the other hand can be carried around just like the mobile phone but its use is limited as the user may not want to play or listen to audio programs or messages every time. This has limited its use to "often". Laptops, though are portable, but is only needed at specific times when there is need to watch movies or surf the internet while the television/satellite dish too can only be used to watch audio-visuals at specific times based on the interest of the participant in recreational activity per time. This makes the laptops and television/satellite dish to be used often. Camera/video recorder may be sparingly used as it only captures special moments in pictures or video formats. In fact, its functions can be performed successfully with the use of mobile phones. This makes it sparingly used by participants of recreation. Computer (being mostly desktop) is not used often but sparingly being that it is stationary and cannot be carried about. Video games are mostly used by children and even when adults are interested, the mobile phone almost always performs the same function as the video games as there are downloadable games from the internet to the phone through 'Google Playstore'. This limits it's to being 'rarely used'. Templeton (2007) asserted that video and computer games enhance the development of certain areas of the brain Gym equipments are only used by those who are interested in building their body up. Very few persons are interested in this form of recreation and this limits its use.

4.2.3 Objective 3: Investigate the challenges facing the use of technological gadgets for recreation in the study area

The challenges affecting the use of technological gadgets for recreation in the study area is seen on table 4. Obviously, the most important challenge(s) are constant power failure and lack of awareness on the importance of gadgets for recreation. Every technological gadget identified by the respondents for use in recreation is powered by electricity or batteries which may be recharged by electricity. However, when there is constant power failure, these gadgets may not function properly and its use will be limited to when power is restored. This is a challenge for use of technological gadgets for recreation. Pergams *et al*., (2004) found that the modern generation of teens apart from sleeping, they spend more time interacting with the electronic media. In the same vein, lack of awareness on the importance of the use of technological gadgets is an issue because people might not be informed and when the use of something is not known, abuse is inevitable.

Another important challenge is lack of technical know-how. This goes along with the issue of lack of awareness on the importance of the use of technological gadgets. Most of the gadgets have technical directions for use and when these directions are not followed religiously, there is bound to be spoilage or destruction of the gadgets.

Poor internet access is another challenge bedevilling the use of technological gadgets for recreation in the study area. Gadgets such as mobile phones, laptops, computers, video games and even satellite dishes make use of internet to function or download different recreational based applications. However, without poor access to internet coverage and internet network outages, there is bound to be failure with the function of these gadgets thereby hindering the smooth flow of recreation.

Lastly, high cost of gadgets and lack of replacement of obsolete gadgets go hand in hand as another challenge facing the use of technological gadgets for recreation in the study area. The high cost of these gadgets has made it difficult for obsolete and out-dated or bad gadgets to be replaced leaving the bad ones for use and limiting or reducing the benefits of recreation.

Conclusion

From the findings of the study, it can be concluded that there is a clear connection between recreation and the use of technological gadgets. The gadgets, some of which serves multiple purposes, are very important to make recreation fun, enjoyable and also leave a long-lasting impression on the participant. Equally, these gadgets are meant to be updated accordingly as technology improves. Therefore, recreation can be better than how it has ever been.

Recommendations

From the findings obtained from this study, the following recommendations are made:

1. Efforts should be made to enlighten the public on the importance of technology and the use of gadgets for recreation
2. There should be opportunities to showcase the use of these gadgets for recreation to reduce the rate of lack of technical know-how.
3. Improvements should be made on the power supply of the area so that there would be constant or timely use of the gadgets for recreation.
4. The prices of these gadgets should be regulated for affordability and to aid replacement of bad or obsolete ones.
5. There should be provision of technological based schools which will train people for local manufacture/production of these gadgets. This will help reduce overdependence on importation of these gadgets from foreign countries.
6. More gadgets should be developed to create a better feel of recreation and gym centres should improve on their awareness levels as most residents do not know about their existence.

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SURVIVING DIGITAL DISRUPTION: STRATEGIES FOR NIGERIAN TRAVEL AGENCIES

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Abstract

As technology advances and consumer behaviors shift, the travel landscape is changing rapidly. Nigerian travel agencies are not exempted from this paradigm shift. As a result, the Nigerian travel industry is facing unprecedented challenges due to digital disruption, with online travel agencies (OTAs) dominating the market and threatening the survival of traditional travel agencies. This study aims to provide practical insights for travel agencies wanting to thrive in a digital world; it emphasizes the need for innovation and agility to successfully tackle the complexities of digital disruption in the travel sector. Using a descriptive research approach, this study seeks to investigate the impact of digital disruption on Nigerian travel agencies and explore strategies for sustainability in the digital age. This study adopts selected travel agencies in Ilorin metropolis, Kwara State, Nigeria as its case studies, and dives into the challenges and opportunities that digital disruption brings to travel agencies in Nigeria. The findings centres around digital trends that are reshaping the industry, such as the growth of online travel platforms, the rise of mobile technology, and the impact of social media marketing. Hence, to help agencies navigate this landscape, this study recommends strategic frameworks that can boost their resilience and competitiveness. These strategies include embracing digital transformation, partnering with tech companies, and enhancing customer engagement through personalized services.

Keywords: Digital Disruption, Paradigm shift, Social media, Technological advancement and Travel landscape

Introduction

Digital disruption has caused extraordinary transformation in the global travel business, owing mostly to the rise of Online Travel Agencies (OTAs), smartphone applications, and social media platforms. Digital transformation has transformed the tourist industry, making trip booking, planning, and customer service more accessible, efficient, and affordable. OTAs enable customers to book flights, lodgings, and other travel services instantaneously from anywhere in the world, altering consumer behavior. Traditional travel agencies, which used to dominate the travel booking landscape, have been significantly disrupted by these shifts. In many parts of the world, physical agencies are struggling to preserve their relevance and market

share in an increasingly digitalized environment (Aguiar-Quintana, Araujo-Cabrera, & Park, 2020).

The travel business in Nigeria is undergoing comparable changes, albeit at various rates depending on area. Larger cities, such as Lagos and Abuja, with higher internet penetration and greater digital literacy, have witnessed faster adoption of OTAs and other digital tools. Nigerian online travel agencies (OTAs) such as Wakanow and Travelstart are gaining traction, offering competitive pricing and convenience that physical agencies struggle to match. However, the impact of digital disruption on traditional travel companies in smaller cities like Ilorin has received little attention. While digital use is increasing in Nigeria, there are still substantial gaps in internet infrastructure and digital literacy, particularly in mid-sized cities, posing a unique challenge to traditional, physical-only organizations.

The rise of online travel agencies (OTAs) and other digital tools has posed significant challenges for traditional travel agencies globally, and Nigeria is no exception. As more consumers turn to the internet to book their travel needs, traditional agencies are increasingly losing market share to their online competitors. The issue for these organizations is not only keeping customers, but also adapting to a market that requires digital solutions. In Ilorin, where the travel sector is still dominated by physical-only agencies, the problem becomes even more pressing, as many of these agencies lack the technological infrastructure to migrate to digital platforms.

This study examines the influence of digital disruption on traditional, physical-only travel businesses in Ilorin, a mid-sized Nigerian city. Unlike larger cities such as Lagos and Abuja, where digital adoption is more widespread, Ilorin is a standout instance. The city's travel industry is still largely operated by physical agencies that have limited or no online presence. These agencies serve a consumer base that may not yet be fully reliant on digital travel services, due to either limited access to digital platforms or a preference for face-to-face interactions. This research aims to explore how travel agencies in Ilorin are coping with the pressures of digital disruption and to understand the strategies they are adopting to remain competitive in a rapidly changing industry.

This study is approached from three main objectives. The primary objective of this study is to examine how traditional, physical-only travel agencies in Ilorin are responding to digital disruption, Identify the specific challenges that these agencies face due to the rise of OTAs and other digital tools and Explore the strategies, if any, that these agencies are using to adapt to the changing digital landscape The novelty of this study lies in its specific focus on “physical-only” travel agencies in a mid-sized city like Ilorin. Most existing research on digital disruption in Nigeria’s travel industry has concentrated on major urban centers like Lagos and Abuja, where the digital infrastructure is more advanced, and both consumers and agencies are more likely to be digitally engaged. This study shifts the focus to a less explored region, examining the travel industry in a city where digital penetration may be lower and where traditional agencies still hold significant market share. By focusing on physical-only agencies, this research provides new insights into the resilience of traditional business models in the face of rapid technological change, particularly in regions where digital infrastructure is still developing.

Literature Review: Surviving Digital Disruption in Nigerian Travel Agencies

The travel industry is undergoing significant transformation due to digital disruption, which is characterized by the integration of advanced technologies and changing consumer behaviors (Deloitte, 2020). In Nigeria, traditional travel agencies are facing challenges from online travel agencies (OTAs) that leverage technology to provide more efficient services (Ike, 2021). This literature review explores the impact of digital disruption on Nigerian travel agencies and identifies strategies for their sustainability.

Digital Disruption and Its Impact

Digital Disruption and Its Impact Digital disruption refers to the transformation caused by emerging technologies that fundamentally alter the way businesses operate and deliver value to consumers (Bharadwaj *et al.,* 2013). In the travel sector, OTAs such as Expedia and Booking.com have reshaped the market landscape, offering consumers greater access to travel options and competitive pricing (Zhang *et al.,* 2020). This shift poses significant threats to traditional travel agencies, which often struggle to compete with the technology-driven efficiencies of OTAs (Ike, 2021).

As digital platforms gain popularity, they improve the overall consumer experience by allowing for quick comparisons and immediate access to booking possibilities. This transition is not only a change in company operations; it signals a fundamental shift in how customers interact with travel services, highlighting the necessity for traditional agencies to adapt quickly to remain relevant (Eze et al., 2022).

Challenges Faced by Nigerian Travel Agencies

Nigerian travel businesses have numerous problems when adapting to the internet market. A significant impediment is the low adoption of digital tools and platforms, which has led to a decrease in consumer engagement and satisfaction (Eze *et al.,* 2022). Furthermore, a lack of investment in technology and infrastructure limits agencies' ability to adapt and satisfy changing consumer demands (Obalola, 2021). Many agencies still rely on outmoded business models, worsening their vulnerability to digital competition (Omoniyi 2023).

Nigeria's regulatory climate also presents obstacles, with little support for digital efforts making it harder for traditional agencies to compete effectively with OTAs (Ike, 2021). This legislative landscape, along with a reluctance to invest in contemporary technologies, puts traditional travel agencies in jeopardy, resulting in lower market share and profitability. This regulatory landscape exacerbates the existing reluctance of traditional agencies to invest in modern technology. As submitted by Omoniyi (2023), the combination of these factors creates a precarious situation for these businesses, resulting in:

1. ***Decreased competitiveness:*** Traditional agencies struggle to match the efficiency and convenience offered by OTAs.
2. ***Reduced market share:*** As consumers increasingly turn to digital platforms for travel bookings, traditional agencies lose their customer base.
3. ***Diminished profitability:*** The inability to compete effectively and the loss of market share directly impact the financial performance of traditional travel agencies.
4. ***Limited innovation:*** The regulatory environment and lack of support for digital initiatives discourage traditional agencies from exploring and implementing new technologies.

5. ***Widening technology gap:*** As traditional agencies hesitate to invest in modern technology, the disparity between their capabilities and those of OTAs continues to grow.

To address these challenges, Obalola (2021), posits that traditional travel agencies in Nigeria may need to:

- Advocate for regulatory reforms that support digital transformation in the travel industry.
- Collaborate with industry associations to push for more favorable policies.
- Invest strategically in technology despite the challenging environment.
- Explore partnerships or collaborations with tech companies to bridge the digital gap.
- Focus on unique value propositions that differentiate them from OTAs.

By addressing these issues, traditional travel agencies can work towards improving their competitive position and ensuring their long-term viability in the Nigerian market.

Opportunities for Growth

Despite the challenges posed by digital disruption, Nigerian travel agencies have significant opportunities to innovate and differentiate themselves. Mobile technology adoption, which focus on development of mobile applications and responsive websites, and ensure a broader audience through smartphones and tablets are reached. This provide convenient booking and travel information services (Adeniran & Adebayo, 2021). Furthermore, social media engagement ensures the utilization of platforms like Facebook, Instagram, and Twitter which allows for engagement with customers directly and build relationships thereby promoting personalized travel experiences and packages (Khan *et al.,* 2020)

Another opportunity for growth is possible through the enhancement of visibility and customer loyalty. This can be ensured though the leveraging digital channels to increase brand awareness. Implementation of targeted marketing campaigns can also suffice and this can lead to the offering of loyalty programs and personalized recommendations. Furthermore, data-driven decision making such as collecting and analyzing of customer data to improve services, identifying trends and preferences to tailor offerings, and optimizing pricing and inventory management can ensure opportunity for growth of travel agency (Adeniran & Adebayo, 2021).

Khan *et al.,* (2020), stressed that collaboration and partnerships through partnership with local businesses and attractions and integration with online travel platforms and aggregators can sufficiently contribute to opportunity for growth for travel agencies. As a result of this, travel agencies tends to offer unique, curated experiences to differentiate from competitors. Part of this is digital customer service. Implementation of chatbots and AI-powered assistants is every essential as this can help to provide 24/7 support through messaging apps. Travel agencies may also offer virtual tours and augmented reality experiences for potential and existing clients. Omoniyi (2023), asserts that embracing these opportunities may enhance Nigerian travel agencies to adapt to the changing landscape, enhance their competitiveness, and build stronger relationships with their customers in the digital age. Furthermore, adopting data analytics can help agencies gain significant insights into consumer behavior and preferences. Understanding these patterns allows agencies to better personalize their products to fit the unique needs of their target audience (Eze *et al.,* 2022). This proactive strategy not only meets client

expectations, but also aids in the development of loyalty programs that encourage repeat purchases.

Strategies for Sustainability

To deal with the complexity of digital disruption, Nigerian travel agencies must implement strategic frameworks that foster resilience and competitiveness. First, accepting digital revolution is critical. This entails incorporating technology into every part of operations, from reservation systems to customer service (Bharadwaj *et al.,* 2013). Collaboration with technology businesses can improve capabilities by allowing agencies to use advanced data analytics, artificial intelligence, and customer relationship management systems (Deloitte, 2020). Collaboration with technology firms allows agencies to utilize breakthroughs that would be prohibitively expensive to create in-house, giving them a competitive advantage.

Furthermore, increasing client involvement through personalized services like tailored trip packages and targeted marketing can dramatically boost customer satisfaction and retention (Zhang *et al.,* 2020). Agencies should also implement data-driven decision-making procedures to better understand consumer preferences and adjust their offers accordingly. Continuous staff training in digital tools and customer service is critical for enabling employees to effectively use new technology and react to changing market dynamics (Omoniyi, 2023). Agencies should prioritize developing good online reputations through customer evaluations and testimonials, which are important in influencing potential travelers' decisions (Khan *et al.,* 2020).

Empirical Review

Global Context of Digital Disruption in Travel Agencies

The introduction of OTAs and mobile technologies has brought about considerable changes in the travel sector. Law, Leung, and Buhalis (2009) were among the first to recognize the internet's significant impact on the travel business. Their findings found that by providing more accessible, personalized, and cost-effective services, OTAs have lowered the market share of physical travel agents. OTAs, with their 24/7 availability and user-friendly interfaces, let clients to compare costs, read reviews, and book travel services instantaneously, making them a popular alternative to traditional agencies. In another study, Aguiar-Quintana, Araujo-Cabrera, and Park (2020) investigated the Spanish travel business and discovered that traditional agencies that did not integrate digital technology had a significant drop in market share. The survey found that agencies who used digital tools like online booking platforms and social media marketing were better positioned to compete in the changing market. These findings are consistent with global trends, indicating that digital disruption has prompted travel businesses around the world to innovate or face extinction.

Digital Disruption in the Nigerian Travel Industry

In Nigeria, where internet penetration and digital adoption are increasing, the travel industry has not been immune to the effects of digital disruption. However, there are fewer empirical research on the Nigerian situation than in more developed countries. The previous studies provide insight into the difficulties and opportunities that digital disruption presents to Nigerian travel businesses.

Nwachukwu and Nzewi (2016), investigated how the rise of OTAs has affected Nigerian travel agencies. They discovered that many Nigerian travel businesses were unprepared for the digital revolution since they lacked technology infrastructure, digital skills, and an online presence.

Many physical agencies struggled to compete with OTAs such as Travelstart and Wakanow, which offer greater convenience and reduced pricing. However, the study concluded that traditional agencies may continue to survive by focusing on customized services and creating unique travel packages that online platforms could not simply mimic.

Similarly, Obi, Umeh, and Abiodun (2019) examined digital transformation and client loyalty in Nigerian travel agencies. They discovered that Nigerian consumers are increasingly utilizing internet platforms for travel-related services. Nonetheless, physical organizations can cultivate loyalty by providing high-quality, individualized services. The survey underscored the value of digital marketing, particularly on social media, for traditional agencies seeking to recruit younger, tech-savvy customers.

Oji-Okoro and Ogbuagu (2021) investigated the readiness of Nigerian travel businesses for digital disruption. They discovered that, while most agencies recognized the threat posed by OTAs and other digital platforms, few had developed meaningful digital strategies due to a lack of financial resources, poor digital literacy, and opposition to change. To stay competitive, the authors suggested that agencies invest in digital tools including customer relationship management (CRM) software and online booking systems.

Challenges and Opportunities for Nigerian Travel Agencies

1. ***Increased Competition from OTAs:*** Nigerian travel firms are losing market share to online travel agencies (OTAs), which offer easy, user-friendly platforms for booking travel services at competitive pricing.
2. ***Technological and Financial Barriers:*** Many Nigerian travel firms lack the necessary financial resources and technical skills to implement digital solutions such as online booking systems or sophisticated client interaction platforms (Oji-Okoro & Ogbuagu, 2021).
3. ***Changing Consumer Behavior:*** The increasing demand for digital platforms, particularly among younger consumers, is making it more difficult for traditional agencies to attract and keep customers (Obi *et al.,* 2019).

While earlier research has examined the impact of digital disruption on Nigerian travel companies, this study fills substantial gaps in the existing literature. This study is unique in that it focuses on the Ilorin metropolis, a mid-sized Nigerian city that has gotten little attention in empirical research on digital disruption in the travel business. Most researches have concentrated on major urban areas such as Lagos and Abuja, where digital adoption is more prevalent. Using Ilorin as a case study, this study sheds light on how digital disruption affects travel companies in smaller cities, which frequently rely on conventional, face-to-face business models. Additionally, this study focuses on physical-only travel businesses that do not have an online presence. This tight emphasis allows for a more in-depth investigation of how digital disruption affects agencies that have not yet adopted digital transformation. Unlike previous studies that examined both physical and hybrid (online and physical) agencies, this study focuses on the particular problems and survival strategies of physical-only agencies in an increasingly digital environment.

Methodology

This research was carried out at Ilorin Metropolis, the capital of Kwara State in Nigeria. Ilorin is an important economic center in the region, with a variety of enterprises, including travel and tourism firms. Unlike bigger metropolitan areas such as Lagos or Abuja, Ilorin has a more conventional economic landscape, making it a good location for researching the impact of digital disruption on physical-only travel companies. The metropolis provides a mix of modern and conventional business methods, where many travel firms rely mainly on face-to-face interactions with clients and have low or no web presence. The purposive sampling strategy was used in this investigation. This non-probability sampling procedure was adopted to ensure that the sample comprised exclusively of travel agencies that matched the following criteria: The agency must primarily operate as a physical travel agency, with little emphasis on digital tools such as online booking systems, and must be properly registered with the Kwara State Ministry of Commerce and Industry while actively conducting business in the Ilorin city. Purposive sampling enabled the study to focus on the agencies most vulnerable to the effects of digital disruption, ensuring that the data acquired was relevant.

A structured questionnaire served as the major data collection tool. The questionnaire was created to collect information about many areas of the travel agents' operations, difficulties, and knowledge of digital disruption. It included both closed-ended and open-ended questions to elicit quantitative and qualitative information. The questionnaires were distributed at face-to-face meetings with agency personnel. This enabled for more in-depth data gathering and clarification of questions as needed, resulting in high response rates and valuable qualitative insights. The data gathered from the administered surveys were analyzed using descriptive statistics to offer an overview of the responses. The data was analyzed using the Statistical Package for the Social Sciences (SPSS) program. Frequency distributions and percentages were used to summarize the data, demonstrating the predominance of specific replies. Mean and standard deviation are used to measure central tendencies and variation in responses regarding agencies' awareness of digital disruption and preparedness to respond, while cross-tabulation is used to investigate relationships between different variables, such as agency size and perceived ability to adopt digital technologies. The use of The data was analyzed using the Statistical Package for the Social Sciences (SPSS) contributed to a clear and structured knowledge of how traditional travel businesses in Ilorin are responding to digital disruption, as well as the factors that drive their digital preparedness.

Results

The figure 1 below shows the length of operation of the sampled travel agencies, it as deduced that majority of the agencies have been in operation for well over a year, which makes their responses suitable for this research. Only 24% have been in operation for less than one year.

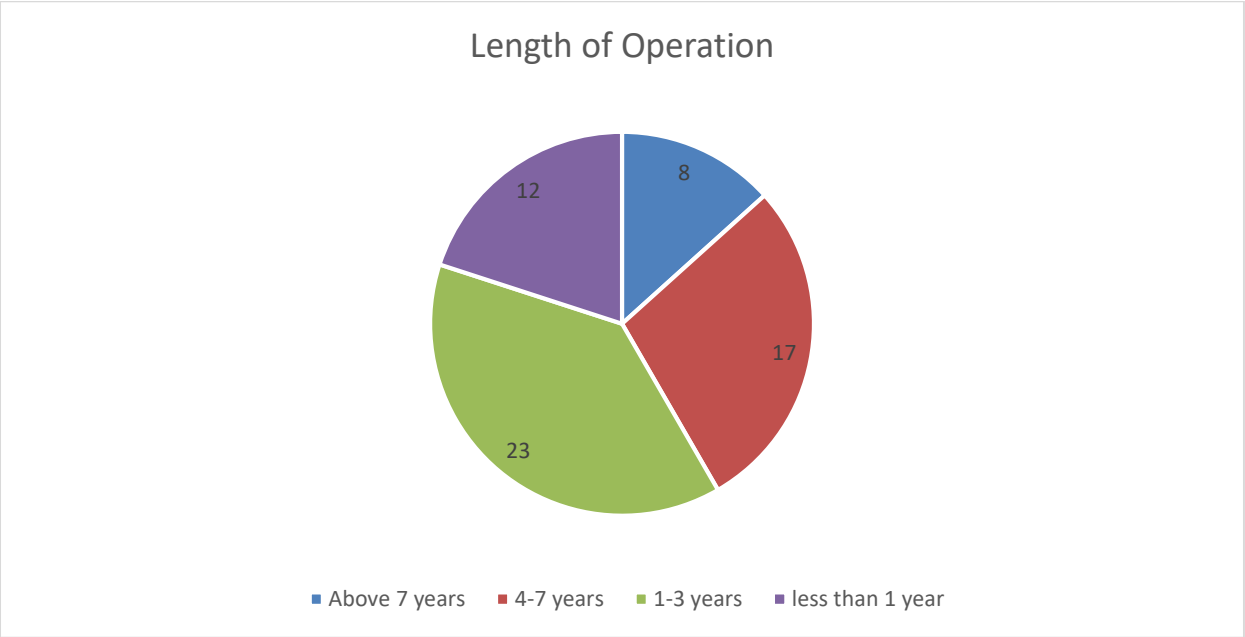


Figure 1: showing the length of operation of the travel agencies under consideration

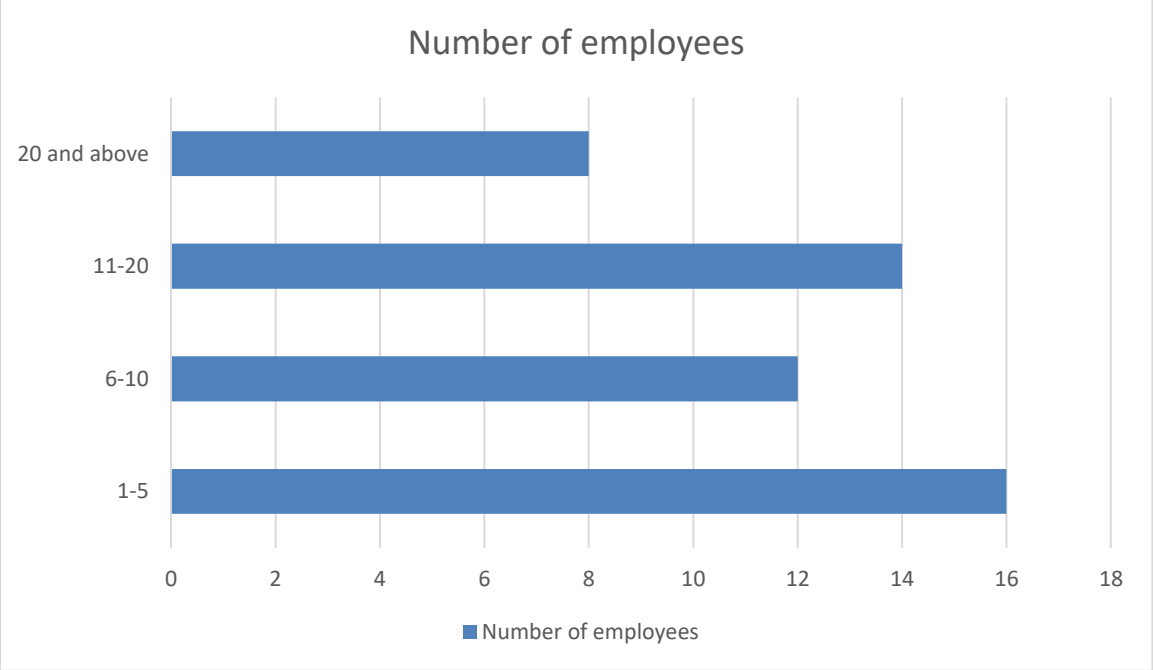


Figure 2: Showing the staff strength of the samples travel agencies

Table 1: the type of service and the perception of the agencies about OTAs and others

S/N	Questions	Responses	Frequency	Percentage
1.	**Primary Type of Service**	Domestic	19	38%

		International	06	12%
		Both	25	50%
		Total	50	100%
2.	**If the agency is threatened by OTAs**	Yes	29	58%
		No	12	24%
		Maybe	09	18%
		Total	50	100%
3.	**The extent of the impact of digital disruption mechanism**	To large extent	24	48%
		Moderately	12	24%
		To a small extent	09	18%
		Not all	05	10%
		Total	50	100%

It can be deduced from the table above that 50% of the agencies sampled offer both local and international travel services. The table shows that majority of the agencies are threatened by the OTAs and other travel apps that have caused digital disruption. 48% of the agencies are affected by this disruption mechanism to a large extent.

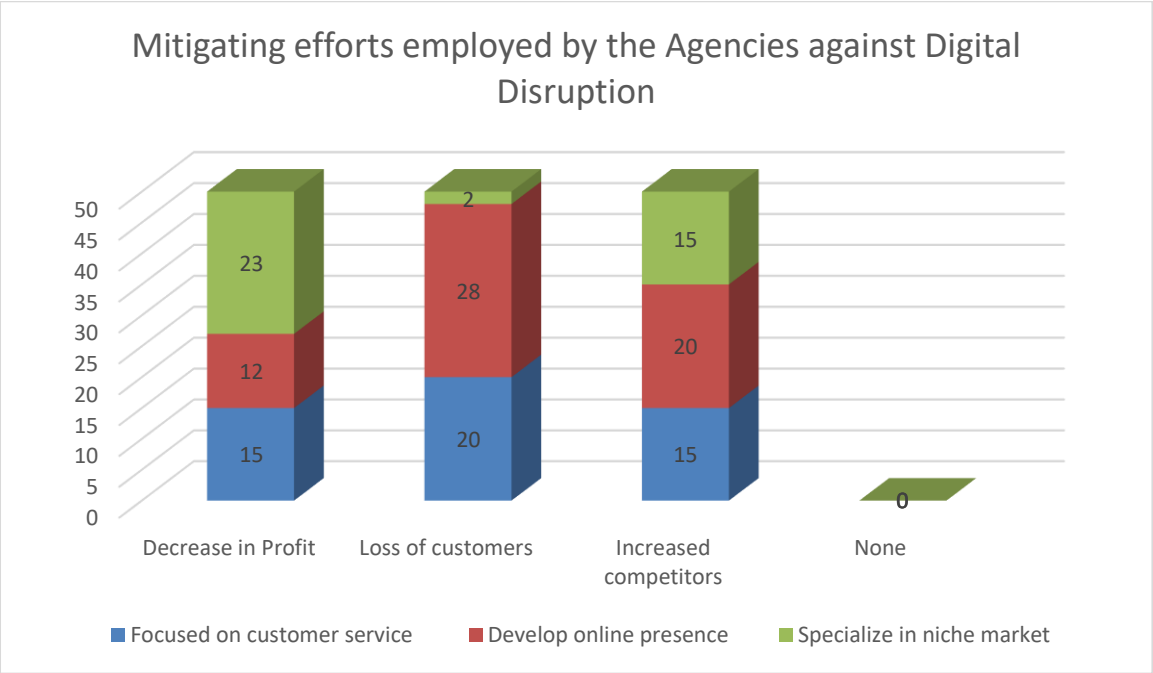


Figure 3: showing the ripple effect of digital disruption and agencies adopted solutions

The above result shows that the agencies all experience almost a similar fate in the aspects of decrease in revenue, as result of loss of customers and potentially, increased competitors. However, there approach to mitigating these challenges differs. 56% of those experiencing loss of customers focused on developing online presence, 30% of those experiencing decrease in profit and increased in competitor tends to focus on customer service; and 46% resort to maximizing the opportunities in niche market.



Figure 4: showing the competitive strategy of the travel agencies

The chart indicates that 44 respondents—the majority of travel agencies—adopt new technologies, while 32 focus on enhancing customer engagement. Additionally, 23agencies preferred partnering with technologically innovative agencies; and the smallest group, 18 of them shifts their focus to niche markets.

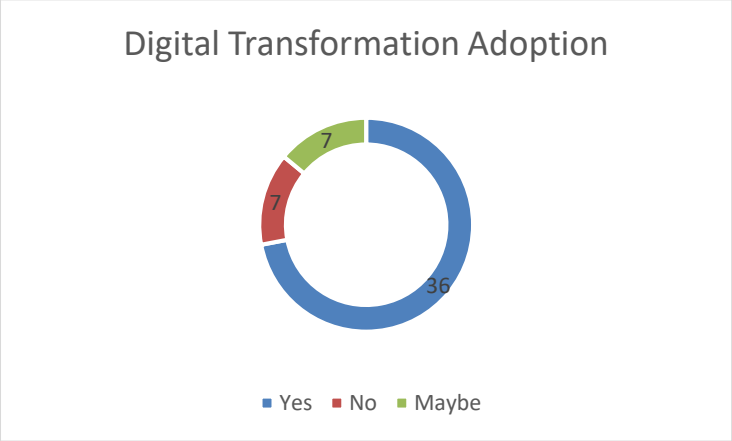


Figure 5: The chart clearly shows that the majority, 72% of respondents, are considering adopting digital transformation, while 14% have not considered it, and another 14% remain undecided

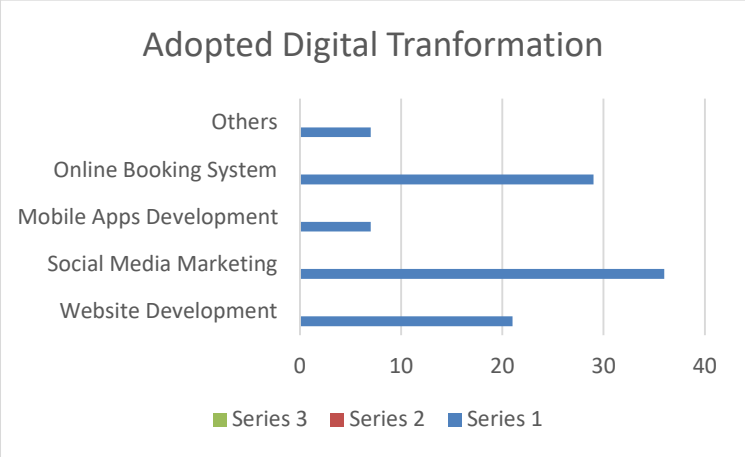


Figure 6: Showing Types of Digital Approach Adopted

From the above table, 36 agencies standing as the majority adopted social media marketing, 29 of them established online booking system, 21 preferred website development, 7 others went for mobile apps development; and another 7 respondents remain undecisive.

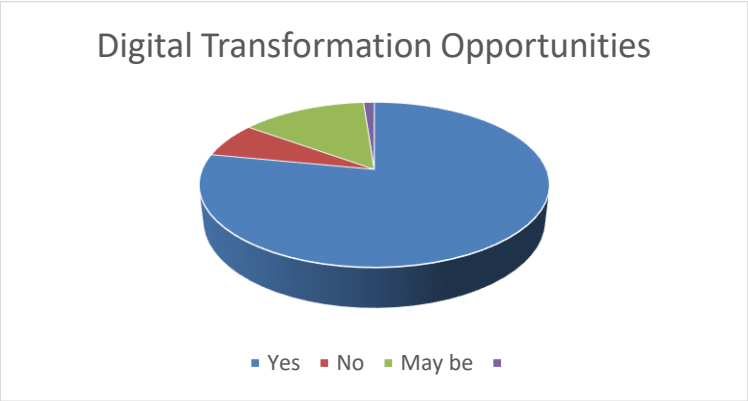


Figure 7: Showing Digital Transformation Opportunities

Going by the above chart, 79% of the respondents agreed to the fact that digital platform offer opportunities for travel agencies, 7% disagree and; 14% remain unsure of digital transformation opportunities for traditional agencies.

Conclusion

The research provides valuable insights into the adaptability of traditional travel agencies in the face of digital disruption, highlighting their varied strategic responses. It sheds light on how agencies are not only affected by OTAs and travel apps but are actively responding by diversifying their focus areas: leveraging digital presence, enhancing customer service, and targeting niche markets. This adaptability underscores the agency sector's resilience and resourcefulness in maintaining competitive relevance. Additionally, the research captures a clear shift toward digital transformation, with many agencies using social media as a marketing tool, suggesting an industry-wide recognition of the potential in digital engagement. These findings underline an evolving landscape where traditional agencies are rethinking their operational models and exploring hybrid approaches to remain viable in a digital-centric market.

Recommendations

Regardless of these limitations, the research indicates possible prospects for Nigerian travel agencies:

1. tailored Services: Physical agencies can use their knowledge to provide specific travel packages and tailored services that OTAs may struggle to reproduce effectively (Nwachukwu & Nzewi, 2016).

2. Strategic Partnerships: Collaborating with technology companies or implementing CRM software can assist traditional agencies better manage customer connections and improve service delivery (Oji-Okoro & Ogbuagu, 2021).

3. Niche Markets: By providing personalized services to specific consumer categories, traditional agencies may have a competitive advantage (Obi *et al.,* 2019). Examples include religious or educational travel.

4. Promoting synergy in Tourism Development: Achieving a thriving and sustainable tourism section requires collaboration among key stakeholders. Such partnership relies on government support to improve infrastructure and align policies while blending the wider reach of online platforms with the personalized touch of traditional agencies. This combination address challenges, streamline operations, and create a unified approach to tourism growth.

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SOLID WASTE MANAGEMENT IN HOSPITALITY BUSINESSES IN BIDA TOWNSHIP

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Hospitality is a major force of tourism and produces significant growth in the economy. The sector is a consumer of resources that contribute heavily toward excessive waste

generation.The main objective of the study is management of waste to create sustainable business and safeguard against health hazards. The issue of waste management cannot be overemphasized,with increasing outdoor activities, efficient waste management is an issue of priority.This study was carried out in Bida,Niger State.The exploratory study adopted a simple random sampling method to determine ten highly patronized hospitality businesses in Bida Town comprising of hotels and eateries. The study used semi structured checklists during observation and interview of key respondents to elicit information. The sample comprised of thirty supervisors and managers of these businesses. The result showed that the total disposal methods (comprising Incinerations, composting, sale of leftover foods.) had a positive significant relationship to total waste management(R square= 0.81).The coefficient of determination (81%)showed that waste disposal methods accounted for 81 % of the total waste management.The result also showed a negative relationship in which guests are not involved in sustainable waste Management Practices.(T=-2.21;P< 0.05).There is positive improvement in the perception of wastes as a resource with gradual recycling and reselling of food wastes, plastics and papers. More should be done by converting of waste to clean energy, animal feeds and other useful products as well as stakeholder engagement

Keywords : Hospitality, sustainable, waste,disposal,sorting, recycling.

1.0 INTRODUCTION

Human activities majorly create waste, and the way this waste is handled, stored, collected and disposed of can pose risks to the environment and to public health. Waste cost the hospitality and catering industry very much every year that is why it should be managed and controlled properly. The tourism and hospitality industry, renowned for its substantial global economic contributions, faces increasing scrutiny due to its environmental footprint. (Mbohwa and Bhila, 2019; Pham, Hoang and Fujiwara, 2018).

The wastes generated are of different categories ranging from solid biodegradable and non-biodegradable wastes through liquid organic and inorganic wastes down to gaseous poisonous pollutants that are capable of unleashing serious health hazard to man and his environment. Cooper (1998) defined waste management as the processes introduced by an organization for reducing, eliminating and ideally, preventing negative environmental impacts arising from its undertaking to environment. It encompasses management of all processes and resources for proper handling of waste materials, from maintenance of waste transport trucks and dumping

facilities to compliance with health codes and environmental regulations. Waste management practices include solid waste collection and decomposing, waste reduction, reuse and recycling and waste composting. Solid waste management according to Taiwo (2011), is a systematic control of generation, storage, collection, transportation, separation, processing, recovery and disposal of all kinds of wastes.

Effective waste management in the hospitality and catering sector contributes significantly to sustainability through several key ways which are as follows: Environmental conservation, organizational operations efficiency, regulatory compliance, learning and job opportunities and other positive outcomes. (Agesa, Kamau & Kivuva, 2022; Mensah, 2020; Kimeu,2015;Nath, 2014)

1.1.1 Integrated Waste Management approach: This is holistic, inter connective, goal oriented and strategic in nature in managing wastes. (Agesa, Kamau & Kivuva, 2022; Mensah, 2020; Kimeu, 2015;An integrated approach to waste management involves the diverse set of interconnected activities and issues related to wastes instead of just the simple transfer of waste to disposal sites (Nath, 2014; Jindal, Harada and Shikura 1998; Bartone, 2000). The anticipated benefits of an integrated approach to waste management include: lower costs, better cost management and cost recovery, fewer health hazards, less environmental pollution, conservation of natural resources, better coordination and performance, greater impact at the local level, improved public participation, better image, and more income from tourism. (Kimeu, 2015;Van de Klundert and Anschutz 2001).

1.2 Statement of Problem: The viability of recycling and other waste management operations depends on local circumstances and technical, organizational and economic considerations (Omidian & Hashemi, 2016; Nath, 2014;Jindal, Harada and Shikura,1998). Making recycling a viable endeavour is challenging because of collection, transportation, sorting, cleaning and processing costs involved with upgrading the quality of recycled materials.(Nath,2014; Jindal, Harada and Shikura, 1998).Waste management planners interested in the possibility of increasing waste recovery must address the challenges associated with “mixed wastes which make up most of the solid waste currently disposed of without recovery” (Nath,2014;Jindal, Harada & Shikura. 1998:94).

Waste is viewed as a resource when economic incentives exist. A clear economic incentive to recover materials exists when materials “are available in pre-separated, concentrated and relatively uncontaminated form. This aspect of seeing waste as a resource has been largely

ignored in Nigeria hospitality and tourism and hence the need for this study. The need for collaborative and sustainability of all three aspects been interconnected; cleaner environment, more revenue for the business and benefits to the community from these businesses operations. (Omidian & Hashemi, 2016; Nath, 2014)

1.3 Objectives of the study.

- The study seeks to know the existing waste management techniques.
- Identifying the waste composition of the hospitality businesses.
- The cost benefit ratio of wastes.

1.4 Scope of the Study: The promotion of all aspects of sustainability through the business operation cannot be over-emphasized but working with all relevant stakeholders scale up the success stories for all stakeholders, to promote cost efficiency,Employee and Customer Education and Positive Image of the Hospitality Businesses.

2.0 Conceptual Framework and Related Studies

This section examined the concepts/ models and theories that helped in explaining the study objectives and related studies

2.1 Tourism and Hospitality Concept According to World Tourism Organization (UNWTO) (2014), the tourism and hospitality industry plays a vital economic role in local communities throughout the world as it helps to transform those communities from a state of inactivity to a commercial and accommodating environment providing about 70% and 75% of international tourists' expenditure. People are directly or indirectly employed in the industry to offer services to the customers of hotels, restaurants, guesthouses, resort centers, tourist destinations, etc. Many accommodation and destination managers have subsidiaries, providing other services for them in the form of supplies of materials needed to serve their customers better. The industry's economic importance can be seen in foreign exchange generation and employment creation. Although it is not yet the main stay of Nigeria economy due to excessive neglect of the sector as result of over dependence on crude oil but it has been linked with other sectors of the Nigeria economy in providing direct and indirect jobs for the people.(Fagbolu, 2021a ;Ajani & Kalu, (2017;Adeola& Ezenwafor, 2016).

2.1.2 Mbohwa and Bhila,(2019) studied the impact of waste management in the hospitality industry Johannesburg north, South Africa, they highlighted the positive and negative influence of the tourism and hospitality industry and the escalating concerns regarding environmental

degradation and resource mismanagement. They found that poor waste management has a substantial negative influence on the environment in a number of ways in the hotel and catering sectors. Landfill volumes are exacerbated by inefficient waste disposal techniques, such as treating food waste improperly, not recycling enough, and using too much single-use packaging. All of these causes pollution of the land and water in addition to the release of dangerous greenhouse gasses like methane. They also found that environmental stress is further increased by the excessive use of resources, such as water and energy.

2.1.3 Pham, Hoang and Fujiwara, (2018): Their research provided insightful information about the state of waste management techniques among Hoi hoteliers in Vietnam. The study's method for identifying the waste composition in the hotel business is one of its main contributions. The results show that, on average, biodegradable materials make up 58.5% of hotel garbage, recyclable materials make up 25.8%, and other waste makes up 15.7%. The study explores further the relative variations in waste composition, taking climate, hotel features, and visitor kinds into account. Interestingly, a higher percentage of biodegradable garbage and a smaller percentage of recyclables are linked to larger hotels. The findings show encouraging progress: 76% of hotels sort their garbage, 39% recycle, 29% reduce their waste, and 0.8% compost.

2.2 Stakeholders Concept

Stakeholders in waste management are individuals or groups that have specific concerns and roles to play in managing wastes (Freeman, 2010; Fernandez1997a). There are a number of groups who have responded to the inadequacy of the existing waste management systems and become involved, such as the government, non-governmental organization (NGOs), community and industry stakeholder groups. Vitolla, Raimo, Rubino and Garzoni, (2019) elucidate that for any organization/businesses to be successful in a secure manner, its stakeholders must be willing to pursue the responsibility of implementing sustainable measures.

2.2.1 Chikezie, Adedeji, Onihunwa, Meduna &Joshua, (2023) study reported that waste management practices influenced the operational performance of hotels in Lagos State, The study found that waste reduction, reuse, recycling, waste collection, depositing, composting and treatment practices are important contributors in determining the operational performance of hotels. It was recommended that waste management guiding principles, framework and

policies be developed and communicated to all stakeholders for proper and effective implementation.

2.2.3 Eleshi & Olaitan.,(2020) examined pattern of solid waste generation and management in selected hospitality industries in Ilaro Township, with a view to looking at the type, size, rate, volume and composition of solid wastes being generated as well as the management method adopted among other vital issues. it was discovered that majority (75%) of the surveyed respondents(industries) did not take proper management of wastes generated so serious; also there are differences in the sizes or volume of wastes generated among these Industries which ranges between 40%(hotels and guest houses) and 60% (bars and canteens or restaurants). Likewise, the composition of wastes generated differs significantly where food remnants takes about 45% and nylon (30%), plastic bottles (15%), others (10%). They recommended that their should be strict monitoring for waste management.

2.2.3 Lagasi, Lagasi and Ndong, (2019 investigated practices of solid waste management in some selected hotels in Bauchi state. The study made an audit of the types of solid waste generated in large, medium, small and unclassified hotels; the result revealed that 55% of the volume of waste generated is from food. The study also revealed that 75% of the hotels do not have policy on waste disposal and recommended that the hotels develop waste management policies that can guard against indiscriminate disposal, bio-degradable waste generated should be processed and used as nutrient rich food for plants.

3.0 Research Methodology:

This section described the research design, method of data collection and analysis procedures used in this study.

3.1 Study Location: Bida is the Capital of Nupe People or Kingdom. It is located between the Niger and the Kaduna rivers; it has land area of 1,698Km2. It shares a border with Agaie by the South, Lemu by the North, Kutigi by the West and Doko by the East (Salahu, 2017) Bida is situated within the geographical coordinates of 9°03'N to 9°07'N latitude and 5°59'E to 6°03'E longitude. The city lies within the Guinea Savannah region of Nigeria, which is characterized by a tropical continental climate.

3.2 Research Design: This study is an exploratory survey that sought to explore and understand the waste management techniques, identifying the waste compositions of hospitality business and how are they are managing their wastes with the view of profitability to the businesses and preservation of the environment from pollutions and other negative outcomes

3.3 Population: The population of the study are hospitality businesses operating in Bida and operating certain standard of waste managements in their businesses.

3.4 Sampling Method: The businesses were randomly stratified into three blocks three or more hospitality businesses were purposely sampled from each axis based on their high patronage. Thirty managers and supervisors from these ten hotels and eateries were chosen

3.5 Method of Data Collection: The data were collected through interviews, observations and checklists of desired parameters of waste management techniques from relevant.

3.6. Analysis: The results were analyzed with SPSS 20.0 using the descriptive and inferential statistics in analyzing the demographics and parameters of the study

4 .0 Data Analysis and Interpretation of results

This section examined the result of the data analysis and the interpretation of results in line with the study objectives.

4.1 Demographics of the Respondents of Hospitality Businesses

Variables	Frequency	Percentage
Age		
21-30	3	10
31-40	22	73
40 &Above	5	17
Gender		
Male	19	63
Female	11	37
Marital Status		
Single	10	40
Married	20	60
Education		
SSCE	-	-
ND/NCE	2	7
Duration in org		
Lesser than 5Yrs	21	70
Greater than 5yrs	9	30
N =30		
HND/BSC	20	67
Others	8	26

4.1.1 Descriptive Analysis of Study Demographics.

- The age of the respondents revealed that 31-40 years accounted for 73% followed by 40 and above =17% and 21-30=10%.

- The gender showed that male were the highest with 63% and the females=37%
- The marital status showed that the married had the highest percentage of 60% and the single=40%
- The respondents education showed that the HND/BSC had the highest percentage of 67% followed by others qualifications=26%and the ND/NCE=26%
- Duration in Organization revealed that the respondents who have been working with organization for lesser than five years had the highest percentage followed by those with more than five years=30%

4.1.2 Parameters of the Study

- The result showed that food waste accounted for the highest waste generated=45% followed by plastics=20% ; paper and nylons =15%e respectively and other types of wastes=5%
- In waste disposal methods, 32%of the respondents reported that they dispose their wastes through incineration and only three percent compost their wastes. However a growing trend in the town is the sale of leftover food and vegetables to pet owners and 65% dispose their leftover foods that way. All of them agree that they resell plastic and paper wastes to recyclers
- In response to sorting 19% responded that they do not sort waste, 2% are indifferent while 79% agreed that they sort wastes into food, paper and plastics.
- In guest engagement in waste management practices 97% do not engage guests other than provision of waste baskets,3% engage them by putting up signs to keep the environment clean and use less plastics.

Table 4.2 Regression Analysis showing the Disposal methods adopted by Hospitality Businesses in Bida Town

** Significant at 0.01 and 0.05

R	R SQUARE	ADJUSTED R SQUARE	T	Beta	P

.902	.813	.806	11.04	0.92	<0.05

The result showed that the total disposal methods which is the independent variable (comprising Incinerations, composting, sale of leftover foods.) had a positive significant relationship to total waste management(R square= 0.81).The coefficient of determination (81%)showed that waste disposal method accounted for 81 % of the total waste management. The table also revealed that (β =0.90, p = 0.000 < 0.05) Waste disposal methods (comprising Incinerations, composting, sale of leftover foods) had a positive and statistically significant effect on total waste management.

Table 4.3 Analysis of Variance Showing The Relationship Between Waste Disposal Methods and Total Waste Management

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	35.371	3	35.371	121.829	.000
	Residual	8.129	27	.290		
	Total	43.500	30			

a. Dependent Variable: Total Waste Mgt

b. Predictors: (Constant): Incinerations, composting, sale of leftover foods.

The result revealed that (F= 121.83; P<0.05) indicated that waste disposal methods (comprising Incinerations, composting, sale of leftover foods.) are good predictors of total waste management

Table 4.4 showing T test of Engaging guests in Sustainable Waste Management Practices

Variable	Engaging Guests	N	Mean	Std. Deviation	T	Df	P
	Non engaging	29	6.5862	1.15007	-2.211	2	<0.05
	Engaging	1	4.0000	.			
	Total	30					

The result showed that (T=-2.21;P< 0.05) indicated a negative relationship in which guests are not involved in sustainable waste Management Practices

5.0 Conclusion, Recommendations, Suggestion for future Studies

The section examined the study findings, conclusion, recommendations and suggestions for further studies

5.1 Conclusion

From the study it can be deduced that waste management among the Hospitality and Tourism Businesses Bida is noticeably evident even though there is need for greater improvement. This result supported the work of Chikezie, Adedeji, Onihunwa, Meduna &Joshua, (2023): that waste management practices influenced positively the operational performance of hotels in Lagos State.

There is positive improvement in the perception of wastes as a resource and not just a disposable with gradual recycling and reselling of food wastes, plastics and papers.(Nath,2014)

There should be improvement on what is currently being practised for a more sustainable environment and industry by going more in to the converting of the wastes to clean energy, animal feeds and other useful products that will increase business revenue and also make the environment cleaner and healthier and provide job opportunities for the community and beyond. (Nath, 2014)

Conclusively, the results also agree with other works that advocated for the inclusion of all the stakeholders to work together in waste reduction, conversion and other positive waste managements.(Eleshi & Olaitan.,2020; Lagasi, Lagasi and Ndong,2019; Nath,2014)

5.2 Recommendations

It is recommended that the hospitality and tourism management practitioners be trained and retrained:

- Incineration should be reduced and other forms of reduction, reuse, recovery and waste to energy be encourage in managing wastes.
- Customers should be involved in waste management to achieve sustainability by providing waste bins all around the facilities with bold letters or pictures to indicate items to be trashed in each bins, this not only solves the problem of cleanliness, it also helps to sort waste into categories that will make for easy and efficient management of waste.

5.3 Suggestions Future Research.

- There is need to look in to proper auditing of wastes in the hospitality businesses
- Ascertaining the waste conversion level to useful products of the hospitality businesses and others.

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THE IMPACT OF RISK MANAGEMENT CAPABILITIES ON THE SUSTAINABILITY OF HOTELS IN SOUTHWEST NIGERIA.

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Abstract

The hospitality industry in Nigeria plays a crucial role in boosting the country's economy by creating employment opportunities, generating revenue for both investors and the government, promoting cultural exchange, and supporting local businesses. However, the industry is confronted with several obstacles such as inflation, unreliable power supply, currency exchange rate fluctuations, rising energy expenses, insecurity, and unfavorable public perceptions. These factors collectively create a difficult operating environment for the industry. The aim of this study is to investigate the influence of risk management on the sustainability of the hospitality industry in Southwest Nigeria. The research highlights Health, Safety, and Environment (HSE), Supply Chain Management, Hazard Analysis and Critical Control Points (HACCP), Budget Management, Security Management, and Insurance as crucial risk management competencies essential for the hospitality sector to effectively manage challenges. Out of 400 questionnaires distributed, 392 were completed and returned. Only nineteen (19) copies were identified as incomplete, leaving three hundred and seventy-three (373) copies deemed properly filled out and suitable for analysis. This constituted a response rate of 93.25%. According to the study, it was discovered that risk management capabilities had a statistically significant impact on the sustainability of hotels, which includes social, economic, and environmental sustainability. This conclusion aligns with resource abundance theory, dynamic capability theory, and contingency theory, which served as the theoretical framework for the study.

Keyword: Risk Management, Sustainability, Supply Chain, Insurance, Hazad Analysis

Introduction

The hospitality sector in Nigeria is increasingly challenged by sustainability issues driven by harsh environmental and socio-economic conditions. To stay competitive and resilient, stakeholders are encouraged to harness internal strengths, especially as the global hospitality industry—despite its economic relevance—is exposed to escalating risks such as insecurity, unstable governance, natural and man-made disasters, policy changes, and pandemics. These threats are particularly intense in developing nations like Nigeria.

To confront these uncertainties, industry operators must adopt proactive strategies, especially those centered on sustainable development (Chen & Chen, 2022). Scholars argue for the integration of robust risk management capabilities—including Health, Safety, and Environment (HSE); Hazard Analysis and Critical Control Points (HACCP); Budget Management; Security Management; and Insurance—as essential tools for survival and growth (Senbeto & Hon, 2020). HSE frameworks promote safe work environments through structured risk assessment and hazard prevention, while HACCP systems mitigate biological, chemical, and physical food risks through systematic controls during food production stages.

Financially, budgeting instruments like scenario planning and expert evaluations support predictive decision-making and resource optimization. Insurance mechanisms, by transferring risk for a premium, help businesses manage financial shocks and maintain operations during crises.

Exacerbating these challenges are inflation, unstable power supply, post-pandemic disruptions, fluctuating currency values, rising energy prices, insecurity, and negative public sentiment—all of which deter investment and influence tourists' destination choices (UNWTO, 2011; Estateintel, 2018). Although past studies have recognized that risk profiles vary across hotels, much of it emphasizes reactive rather than preventive strategies (Ljudmila & Maksym, 2023). This study, therefore, aims to fill this gap by assessing how risk management competencies can strategically enhance the sustainability of hotels in Southwest Nigeria through forward-looking and adaptive approaches.

Literature Review

Sustainability

Sustainability has become a critical discourse over the past two decades in both academic and practical fields. While interpretations differ—ranging from purely environmental views to broader approaches encompassing economic, ethical, and governance factors—the widely endorsed definition remains development that meets current needs without compromising future generations' ability to meet theirs. The hospitality industry has been particularly vulnerable to crises such as urban violence, health pandemics, and terrorism, all of which disrupt business continuity (Di Marco et al., 2020).

To address such challenges, firms are increasingly adopting strategic recovery plans aimed at long-term resilience and sustainable operations (Sharpley, 2020). Success in the modern hospitality sector now depends largely on an organization’s agility, resource optimization, and capacity for innovation. True sustainability in this context calls for the integration of ethical, social, cultural, environmental, and economic principles into business models. This involves ongoing monitoring of environmental and operational impacts and swift intervention where needed. Despite considerable scholarly interest, research in this area remains fragmented, often yielding conflicting conclusions on what constitutes effective sustainability practices (Sharpley, 2020)

Risk Management Capabilities

Risk in the hospitality industry refers to unforeseen events that pose threats to safety, environment, health, or financial stability, and potentially hinder performance (Huq & Stevenson, 2020). In light of increasing global uncertainties, risk management has become a fundamental aspect of strategic planning in the sector (Parida et al., 2023). Effective hotel management balances risk by pursuing actions where benefits outweigh potential losses. This study identifies six key risk management domains: Health, Safety and Environment (HSE); Hazard Analysis and Critical Control Points (HACCP); Supply Chain Management (SCM); Budgeting; Security; and Insurance.

Health, Safety and Environment (HSE)

HSE practices in hospitality are vital to safeguard staff—particularly vulnerable groups such as housekeepers who face chemical and ergonomic risks (Bourke-Martignoni, 2020). Poor working conditions can lead to long-term health issues. Employers are encouraged to reduce workloads and implement safety reforms to enhance workers' well-being and, by extension, organizational productivity.

Hazard Analysis and Critical Control Points (HACCP)

Hotels bear the responsibility of delivering safe and hygienic food, consistent with globally recognized safety standards (Whitla et al., 2007; Chen et al., 2020). HACCP protocols serve as a preventive framework to manage food risks during procurement, storage, preparation, and service. Without these

measures, hotels risk severe consequences from foodborne illnesses, including reputational damage and legal liabilities (Segbedzi et al., 2020; Galanakis, 2020).

Supply Chain Management (SCM)

SCM encompasses the flow of goods, services, and information from origin to customer. In hospitality, streamlined and integrated supply chains improve performance and reduce costs (Soratana et al., 2021). A centralized, technology-driven SCM approach enables hotels to respond efficiently to demand while supporting broader sustainability goals (Migdadi, 2023; Chen et al., 2021; UNWTO, 2021).

Budget Management

Budgeting is a strategic tool used to plan, monitor, and control organizational activities through financial forecasting (Sarwendi, 2021). It involves predicting revenue and expenses over time, guiding operational decisions and resource allocations (Anggraini, 2023; Kainthola, 2021). Effective budgeting supports goal-setting, identifies performance gaps, and ensures optimal use of limited resources (Yembergenov et al., 2022).

Security Management

Security in hotels is fundamental for safeguarding lives, protecting assets, and ensuring business continuity during crises (Cruz-Milán, 2022). Security protocols must evolve continuously to address emerging threats. Although risk and security management are intertwined, security practices emphasize prevention and preparedness against crises (Gill et al., 2002). A single security breach could undermine brand trust and competitive positioning.

Insurance

Operating in a volatile sector, hotels face diverse risks that are not always predictable. Insurance serves as a strategic buffer, transferring potential financial losses from events like fire, theft, or lawsuits to insurers (Cincala et al., 2023). Policies such as Commercial General Liability (CGL) and property insurance protect physical and financial assets, ensuring operational resilience. While risk can never be fully eliminated, strategic risk retention and transfer allow firms to remain flexible while hedging against catastrophic losses.

Methodology

This study adopted a quantitative research method to examine the statistical relationship between risk management capabilities and the sustainability of hotels in Southwest Nigeria. A cross-sectional survey design was employed to gather data at a single point in time, allowing for an objective assessment of current practices and perceptions among hotel personnel. The study sampled 400 participants from 80 hotels across the six states of Southwest Nigeria—Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti. Respondents were drawn from strategic departments including Audit/Internal Control, Front Office, Accounting & Finance, General Management, and Ownership, as these units are central to operational and risk-related decisions.

Due to the absence of consistent data on hotel numbers, the sampling relied on Hotels.ng, a reputable national hotel directory. As of April 4, 2024, the site reported 5,751 hotels across the region, with the majority concentrated in Lagos (3,487), followed by Ogun (745), Oyo (720), Osun (320), Ondo (252), and Ekiti (227). The sample was purposively drawn from each state capital to ensure urban representation. A census sampling technique was employed, mirroring the approach of Ogunnaike et al. (2022), to target all 400 respondents.

Data were collected using structured questionnaires focusing on various aspects of risk management and sustainability. Out of the 400 distributed, 392 were returned, and after screening, 373 were validated—yielding a high response rate of 93.25%. Descriptive statistics were used to analyze demographics such as gender, age, education, job level, and work experience. The core variable—risk

management competencies—was measured through indicators like Health, Safety and Environment (HSE), HACCP, budgeting, security, insurance, and supply chain management, rated on a four-point Likert scale. Metrics such as frequency, percentage, and mean were computed to assess the implementation level of these competencies.

Findings and Discussion

The demographic profile of the respondents revealed a fairly balanced gender distribution, with 52.8% male and 47.0% female participants. Most respondents (48.0%) were aged 31–40, followed by those aged 21–30 (26.5%) and 41–50 (21.8%). Educationally, the majority held BSc/BA/HND qualifications (56.4%), while 27.3% had ND/NCE, 15.7% possessed postgraduate degrees (e.g., PGD, MBA, MSc), and only 0.5% held doctoral degrees. In terms of job positions, 50.9% occupied middle management roles, 34.9% were in top management, and 14.2% worked at operational levels. Experience-wise, most had worked for less than 10 years, with 44.4% having under five years of service and 38.6% between six and ten years.

Respondents evaluated the extent of risk management competencies in their hotels across six key domains: Health, Safety and Environment (HSE), Hazard Analysis and Critical Control Points (HACCP), budgetary control, security management, insurance, and supply chain oversight. A four-point Likert scale was used, ranging from very low to very high extent. The responses were analyzed using descriptive statistics, including frequency, percentage, and mean, to gauge the level of implementation of these practices in hotel operations.

To examine the impact of these competencies on sustainability, a multiple linear regression analysis was performed. The hypothesis tested—H_{01}: Risk management competencies have no significant effect on the sustainability of the hospitality industry in Southwest Nigeria—was assessed by regressing the composite scores of risk management variables against aggregated sustainability indicators (economic, social, and environmental). This analytical approach enabled the study to statistically evaluate how risk management practices influence hotel sustainability in the region.

The regression test results are presented in Tables 3.1.3.

Table 3.1.3. : Summary of Multiple Regression Analysis for the Effect of Risk Management Competencies on Sustainability of Hospitality Industry in Southwest, Nigeria

Model	Beta	T	Sig.	R	R^2	Adj. R^2	Anova Sig.	F(df)
				0.746	0.556	0.549	0.000	78.059 (6,374)
(Constant)	0.480	3.538	0.000					
Health, Safety, & Environment	0.276	7.306	0.000					
Hazard Analysis & Critical Control Point	0.101	3.395	0.001					
Budget Management	0.244	7.212	0.000					
Security Management	.0196	4.934	0.000					
Insurance (IS)	-0.012	-0.512	0.609					

Supply Chain Management (SCM)	0.057	1.350	0.178

Dependent Variable: Sustainability
Predictors: (Constant), Risk Management competency
Source: Researcher's Field Survey Results (2024)

The regression analysis presented in Table 3.1.3 demonstrates that risk management competencies significantly influence the sustainability of the hospitality industry in Southwest Nigeria. The model showed a strong overall relationship ($R = 0.746$, $p = 0.000$), and the adjusted R-squared value of 0.549 indicates that 54.9% of the variation in sustainability outcomes can be attributed to the combined effect of the assessed risk management practices. According to Cohen's criteria, this constitutes a large effect size, confirming the robustness of the model (Russo & Stol, 2021). The remaining 45.1% of the variability is likely influenced by other external factors not included in this study.

The ANOVA results support the statistical significance of the model, with an F-value of 78.059 and a p-value less than 0.001, confirming that the inclusion of risk management variables significantly predicts sustainability outcomes. The regression coefficients further reveal that Health, Safety, and Environment (HSE), Hazard Analysis and Critical Control Point (HACCP), Budget Management, and Security Management all have a significant positive impact on sustainability. Specifically, HSE ($\beta = 0.276$), Budget Management ($\beta = 0.244$), HACCP ($\beta = 0.101$), and Security Management ($\beta = 0.0196$) were all statistically significant ($p < 0.05$). However, Insurance and Supply Chain Management did not show a statistically significant effect.

The derived regression model—SHI = 0.480 + 0.276HSE + 0.101HACCP + 0.244BM + 0.019SM—illustrates how changes in each of these variables affect sustainability scores when other factors are constant. Among the predictors, HSE had the strongest influence, followed by Budget Management and HACCP, while Security Management had the smallest yet still significant effect. Overall, these findings provide empirical support for the conclusion that well-implemented risk management practices are critical to enhancing the long-term sustainability of hotels in the region.

Discussion of Findings

The regression findings confirm that risk management capabilities have a meaningful and positive impact on the sustainability of hospitality enterprises in Southwest Nigeria. This supports theoretical arguments that organizations with strong internal risk mitigation strategies are more resilient and better positioned to navigate operational uncertainties. Businesses that proactively manage risks through internal competencies are more likely to maintain continuity and achieve long-term success than those lacking such frameworks.

This conclusion is backed by recent empirical studies. For instance, Khan et al. (2021) found that manufacturing firms with robust risk management systems reported higher financial performance, including greater profitability and market share. Similarly, Soratana et al. (2021) observed that construction companies with advanced risk management mechanisms encountered fewer project delays and recorded more successful completions, ultimately boosting financial outcomes. These examples highlight how risk management serves as a strategic asset, particularly in complex and unpredictable business environments.

Nonetheless, other scholars caution that the relationship between risk management and organizational success is not universally straightforward. According to UNWTO (2021), the effectiveness of risk management depends on specific industry conditions and external variables. In some contexts, the high cost of implementation may diminish its benefits. Additionally, the Journal of Risk Management notes that an excessive emphasis on risk avoidance could suppress innovation by promoting an overly

cautious corporate culture. Chen et al. (2021) further argue that the impact of risk management may vary depending on the firm's strategic goals and market dynamics. Alvarez et al. (2021) echo this view in their study of SMEs, warning that disproportionate focus on risk controls can lead to reduced entrepreneurial initiative and limit growth. These perspectives suggest that risk strategies should be context-sensitive, aligning with the unique characteristics of each organization and its operating environment.

Conclusion and Recommendations

The findings of this study confirm that various dimensions of risk management—namely, health, safety, and environmental practices; hazard analysis and critical control points (HACCP); budgetary control; insurance; and supply chain management—have a significant effect on the sustainability of hotel operations in Southwest Nigeria. Sustainability was examined from economic, social, and environmental perspectives. These conclusions are consistent with the resource abundance theory, dynamic capability theory, and contingency theory, which collectively form the study's theoretical framework.

Recommendations

Enhancing Supply Chain Management:

Although supply chain management contributes to hotel sustainability, its influence was found to be relatively limited. Hotel managers in Southwest Nigeria should prioritize improvements in this area. Efficient supply chain practices are vital for optimizing operations, reducing costs, enhancing guest satisfaction, and supporting sustainability initiatives. A well-managed supply chain not only streamlines procurement and inventory processes but also aligns with broader environmental and operational goals.

Strengthening Insurance Strategies:

The study found that insurance plays an essential but currently underutilized role in hospitality sustainability. Given the risk-prone nature of the industry—ranging from natural disasters to operational disruptions—hotels must view insurance not just as financial protection but as a strategic asset. Comprehensive insurance coverage, including property, liability, and business interruption insurance, is crucial for operational continuity and safeguarding reputation. Hospitality firms in Southwest Nigeria should therefore integrate robust insurance mechanisms into their overall risk management and strategic planning efforts. A deeper understanding of insurance's multifaceted role can enhance resilience and foster long-term sustainability.

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POLITICS AND GOVERNANCE

EXPLORING HUMAN DIMENSIONS OF CLIMATE MITIGATION, ADAPTATION AND RESILIENCE IN NIGERIA

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Abstract

Climate change has significantly threatened global populations, disproportionately impacting developing nations like Nigeria. Despite global awareness, policies and actions to reduce emissions and mitigate climate impact are often insufficient. Human activities in both developed and developing nations, such as greenhouse gas emissions, deforestation, and unsustainable resource use, drive climate change. This has led to rising global temperatures, frequent extreme weather events, and ecosystem disruptions. In Nigeria, vulnerable communities face severe consequences, including food insecurity, health challenges, and economic instability due to limited adaptation capacities. This study investigates how economic factors affect climate mitigation and adaptation in Nigeria and examines the role of stakeholders in enhancing resilience to climate challenges. Using a qualitative approach and secondary data, the analysis reveals those socioeconomic constraints, like poverty and limited climate awareness, hinder adaptation efforts. Stakeholders, including community and religious leaders and civil society organizations, remain underutilized in promoting sustainable environments. The study recommends that the government develop actionable poverty reduction initiatives and climate awareness programs. Furthermore, involving stakeholders in environmental sustainability efforts is crucial for resilience and adaptive capacity in Nigeria's vulnerable communities.

Keywords: Adaptation, Climate change, Nigeria, Stakeholders, Socioeconomic constraints

1. Introduction

In the World over, climate change and its attendant consequences has remained an emerging threat to socio-economic livelihood of the global population and perhaps the biggest challenge facing humanity. Undoubtedly, Anthropogenic activities across the world have increased the emissions of greenhouse gases into the atmosphere, leading to climate change. This implies that human activity, struggling for desirable livelihood and survival contribute largely to climate change. Climate changes have caused many physical and biological alterations across the globe. Such changes posit dangers to humans, affect the food supply change and degrade the natural environment. Developing countries in Africa are more vulnerable to climate change and they lack the capacity to build resilience and adapt to climate change (Elum & Momodu, 2017).

Adaptation is an aspect of the response to climate change at national and international levels. Though human systems and communities have a natural tendency to adapt to changes that occur in their physical environment and have been doing so for centuries, the availability of scientific knowledge on the likely extent of the impacts of climate change makes it possible for actions to be taken in anticipation of climate impacts within human systems (Zeirvogel, 2014). Such actions include incorporating adaptive measures into government policies, especially in line with Sustainable Development Goal 13 (SDG 13) which requires countries to take action to combat climate change and its impacts (Kotze, 2016). The tendency of climate change impacts to be so far-reaching as to affect every aspect of human endeavour and interactions further makes it important to bolster adaptive capacity at all levels of government, as well as among private sector stakeholders, groups and individuals. The importance of adaptation to climate change is further emphasized because the impacts are likely to continue over an extended period. Hence the need to formulate short-, mid- and long-term adaptation frameworks (Lim & Spanger-Siegfried, 2018).

Rural and poor communities are more vulnerable to climate change. This is because rural communities are primarily engaged in subsistence farming. Further, because of the poor living conditions, those areas are more prone to environmental degradations and natural disasters. Climate change has also been blamed for harvests, thus leading to increased poverty in rural communities. In the Sahel region of Nigeria alone, about 30 hectares of farmland are lost annually to desertification (Onyimadu & Uche, 2021). In Nigeria communities, the poor are more susceptible to climate change and may resist some of the strategies to mitigate against climate change if such strategies threaten their economic wellbeing. Thus, there is need to understand the determinants of climate change (especially economic determinants e.g. high upfront costs of low carbon technologies such as solar and wind power; dependence on fossil fuels for energy production and economic growth) in order to develop appropriate mitigation and adaptation strategies (Abraham & Fonta, (2018). The aforementioned economic factors in most cases made it difficult for Nigeria to transit to low-carbon economy and address the impacts of climate change. Furthermore, the high upfront costs of low carbon technologies can discourage investments in these technologies which can further hinder efforts to mitigate and adapt to climate change (Nigeria Climate Change Response Programme (NCCRP) Report, 2021).

Needless to state here that extant studies on Climate Change in Nigeria focused on evaluating the sensitivity of different attributes of bio-geophysical systems and places little emphasis on how economic factors impact climate change mitigation and adaptation efforts. This has partly led to an isolated assessment of CC impacts, presenting inadequate awareness of the how and what of the current coping (climate mitigation and adaptation challenges). It is against this background that the study explored human dimensions of climate mitigation, adaptation and resilience in Nigeria; with specific emphasis on how economic factors impact climate change mitigation and adaptation efforts as well as the role of local key stakeholders in fostering climate adaptation and resilience to climate-induced challenges. Arising from the problems highlighted earlier, the study put forward the following research questions:

i. How do economic factors impact climate change adaptation and resilience efforts in vulnerable Nigerian communities?

ii. What roles do local key stakeholders play in fostering climate adaptation and resilience to climate-induced challenges in vulnerable Nigerian communities?

This study was borne of knee interest expanding the horizon of knowledge, contribution to existing literature on sustainable development. Practically, this paper hopes to bring to fore how human activities contribute to climate change and its effects on vulnerable communities, particularly in developing countries. Nigeria, with its diverse ecosystems and economically reliant population, faces serious climate-induced challenges, including extreme weather events, food insecurity, health risks, and economic instability. Conversely, the study also hopes to provide insights for more effective, community-centred interventions, which are critical for empowering communities to adapt to and mitigate climate impacts. Furthermore, involving local stakeholders can strengthen policy initiatives and promote sustainable practices across vulnerable communities, making this research valuable to both national policymakers and local leaders.

Primarily, the study seeks to investigate the socioeconomic factors affecting climate change mitigation and adaptation in Nigeria and to assess the role of key stakeholders, such as community leaders, religious institutions, and civil society organizations, in promoting resilience and fostering adaptation to climate challenges. Also. to evaluate existing climate policies and identify barriers to effective implementation in Nigeria's communities.

2.0 Literature Review and Theoretical Framework

2.1 Resilience

Resilience is defined in numerous ways in many disciplines. The definition that is given by Holling (1973, p.17) marks one of the earliest and highly generalised definitions for resilience. He defined resilience as a measure of the ability of a system to persist by absorbing the changes in state and driving variables. This definition was modified by the same author in 1996 as the buffer capacity of a system to absorb agitation, or the amplitude of the unrest that the system can absorb before it changes its integral structure. Joseph Rowntree Foundation defines community resilience as a community's ability to reduce exposure to, prepare for, cope with, recover better from, adapt and transform as needed to, the direct and indirect effects of climate change, where these can be both shocks and stresses (Twigger-Ross, 2016). From the few definitions given, the core traits of resilience have focused upon not only the ability to anticipate and minimise loss during climate disaster events, but also post- climate disaster restoration along with community's and relevant stakeholders progressive learning from the self-experience (Patel, 2017 & Alam, 2018).

Adaptation and Climate Change Adaptation

Adaptation connotes and is used to mean different things in various disciplines. In the context of human adjustment to external stimuli, Charles Darwin applied the concept contextually by acknowledging the ability of organisms to modify themselves to suit their changing environment (cited in UN Agenda for Sustainable Development, 2021). John Dewey built on Darwin's theory by defining the term as meaning how individuals and groups gather knowledge about their environments in order to respond adequately to the environment and attain their own goals. Dewey's perception of adaptation in this context entailed acquiring knowledge of the environment, ability to respond effectively to the environment and the recurring changes happening within it, as well as modify the environment, as the need arises, to aid continued existence (cited in Adger, Lorenzoni and O'Brien, 2019).

In relation to climate change, adaptation was first defined by the Intergovernmental Panel on Climate Change (IPCC) (2001) as "adjustments in natural or human systems to a new or

changing environment … in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities". Adaptation is defined in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR5) as the process of adjustments to actual or expected climate and its effects. Specifically, in human systems, adaptation seeks to moderate harm or to exploit beneficial opportunities (Bulkeley & Tuts, n.d.).

From theoretical Perspective, Chukwuebuka, Charles, Christian, Chinelo, Festus and Nduji (2024). Reviewed climate change mitigation and adaptation in Nigeria. The aims are as follows: to identify commonly adopted climate change adaptation strategies (CCAS) and their determinants; and to identify the climate change mitigation strategies (CCMS) that are widely deployed to reduce emissions in Nigeria. This research adopts a mixed-method approach that consists of both quantitative and qualitative analysis for analyzing the selected literature. The study found that more emphasis on CC response seems to be on adaptation. Because from 1999 to the present, papers on climate change adaptation strategies (CCAS) and mitigation strategies (CCMS) have steadily increased. For example, 73.2% of the papers were published from 2018 to 2022. In all, 92.8% of the papers were 'research articles while 6.2% were 'review' articles. Most of the papers focused on CCAS (75.2%), 19.6% focused on CCMS, while 5.2% dealt with both CCAS and CCMS. In making recommendations, the study stated that although adaptation is essential to survive or live with the impacts of CC, there is a need for government and research institutes to encourage researchers to focus on mitigation measures to abate emissions that contribute to climatic change.

Olubunmi (2021) discussed climate change adaptation and its application at national and international levels. It also examines adaptation to climate change as a developmental challenge and how the principles of sustainable development can aid climate change action. The article analyses relevant aspects of national and international instruments relating to climate change adaptation and spotlights the commitment of Nigeria and South Africa to climate change adaptation. The study finds that integrating sustainable development into governance helps adaptation and increases resilience against the impacts of climate change. The article also emphasizes the necessity of good governance, particularly protection of human rights, climate finance and effective land use governance, to ensure climate change adaptation. The study argues that climate change adaptation should be viewed more as a developmental, rather than an environmental, challenge. It further asserts that coordinated action, especially in relation to land use governance and sustainable development is required to ensure sustainable climate action.

Economic Factors that Hinder Climate Change Adaptation Efforts

Several economic factors can hinder climate change adaptation efforts. Here are some of the most significant ones according to Kaswan, (2013):

- Funding and Investment Constraints: Many governments and organizations face budgetary limitations that restrict their ability to invest in climate adaptation projects. This is especially true in developing countries, where resources are often prioritized for immediate economic needs rather than long-term adaptation strategies.
- High Upfront Costs: The initial investment required for adaptation measures, such as building infrastructure resistant to climate impacts, can be substantial. This can deter public and private sector investments, particularly in regions with limited financial resources.

- Economic Priorities: In many cases, economic growth and development are prioritized over environmental concerns. This can lead to a focus on short-term gains rather than investing in sustainable practices that would enhance resilience to climate change.
- Lack of Financial Incentives: There may be insufficient financial mechanisms, such as tax breaks, grants, or subsidies, to encourage businesses and governments to invest in adaptation measures. Without clear economic incentives, stakeholders may be less likely to engage in such efforts.
- Market Failures: Issues such as information asymmetry, externalities, and misaligned incentives can prevent effective climate adaptation. For instance, businesses may not invest in adaptation if they do not fully bear the costs associated with climate risks etc.

Theoretical Framework: Theory of Change (ToC)

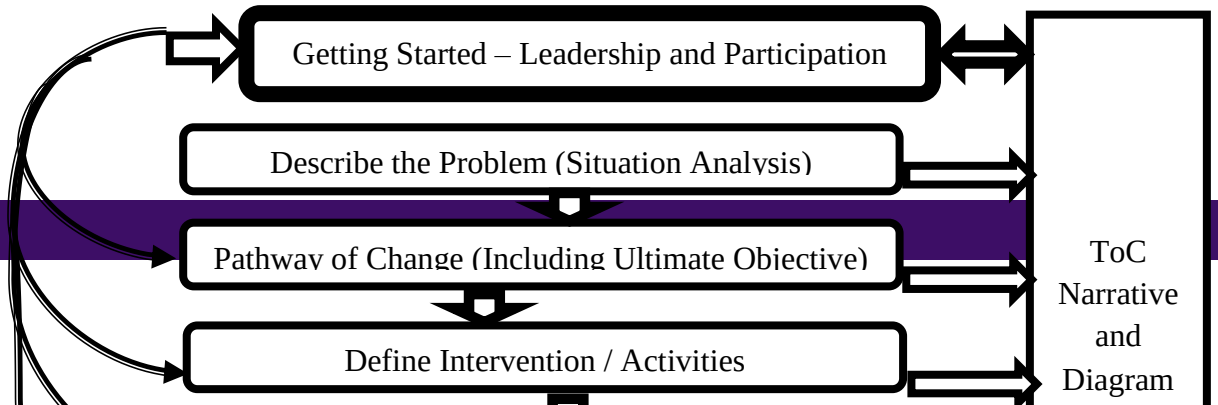
For many people, 'Theory of Change' is not a very helpful term; it sounds academic (theoretical) and vague. It is sometimes described as a roadmap as it helps in defining a 'destination', how you expect to get there, the challenges that may be faced and assumptions made about the nature of the journey. People talk about ToC in different ways, which often leads to confusion. Van-Es (2015) identify three different ways of viewing ToC: 1) as a way of thinking or an overall approach 2) a process (or enquiry) and 3) a product (usually a diagram). Often donors and practitioners focus solely on the need for a diagram, however the end-product will only be useful if you have an effective process in place. Further problems arise when ToC diagrams are developed for a proposal then abandoned; ToC only becomes useful if it is revisited and used to consider and evaluate progress. Theory of Change according to Anderson (2005) is "essentially an explanation of how a group of stakeholders expects to reach a commonly understood long-term goal" (Anderson, 2005).

The Usefulness of Toc for Climate Change Adaptation

Bours, (2014) highlight several reasons that made ToC is a useful tool for climate adaptation planning:

- ToC encourages contextual analysis which is consistent with adaptation planning. Climate change is a global issue, but adaptation is context specific.
- ToC is designed to be iterative and flexible and allows projects to respond to changes in the social, political, or natural environment. This is vital for adaptation programmes, which need to accommodate dynamic and emerging conditions.
- There is a strong focus on the assumptions that underline a programme and thresholds that identify what is needed to advance towards the desired change.
- By discussing the underlying logic and the change stakeholders wish to see, different views and perspectives are revealed at an early stage.
- ToC can be a valuable M&E tool. Due to the long-term nature of climate change, it can be difficult to determine whether outcomes are achieved.

Steps in developing a Theory of Change (Fig. 1)



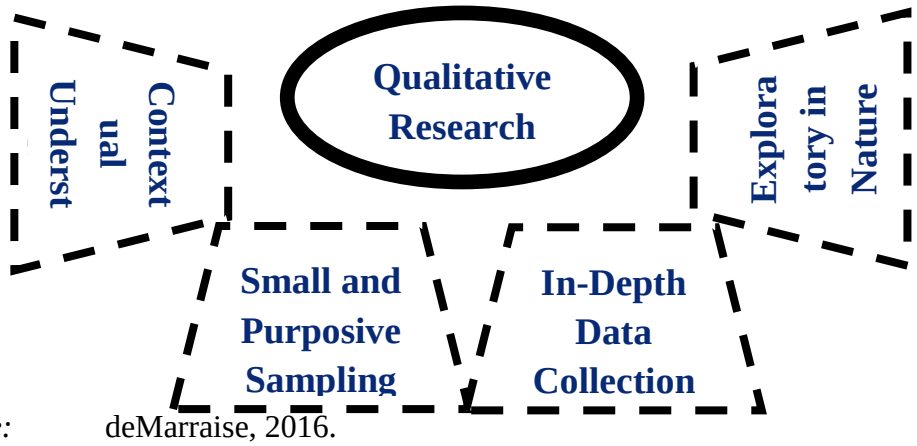
Source: Adopted from **Van-Es, 2015.**

3.0 Methodology

3.1 Research Design

This study was entirely qualitative in nature. Qualitative research worked out under the use of observations, interviews, and document reviews or combination of all (Kumar, 2005). This definition implies that data and meaning emerge "organically" from the research context. The diagram below briefly summarises qualitative research:

Fig. 2: Unique Attributes of Qualitative Research Adoption



Source: deMarraise, 2016.

3.2 Population and Sampling

The target population for the study includes selected principal staff of the Federal Ministry of Environment. They include among others the General Director; Head of: Provincial Department of Environment; Department of Planning and Legal Affairs; Department of Pollution Control; Department of Environmental Data Management and Department of Environmental Impact Assessment Review. Purposive and snowball sampling techniques were used in the course of this study. The purposive sampling technique was used to select principal staff. The rationale for the use of purposive sampling lies in the need to recruit or determine beneficiaries or participants who provide in-depth and in-house information about the phenomenon under investigation. The snowball sampling technique played a second-fiddle role in getting more information from important respondents that were hitherto left out. The snowball sampling technique helped in adding the Head of Department, Environmental Impact Assessment Review.

It is argued by Kumar (2011), that: the sample size in qualitative research does not play any substantial role as the purpose is to explore and describe in order to identify the spread of

diversity and not its magnitude (Kumar, 2011). In another view, he proclaimed that – the sample is inextricably related to the survey, that, for the hardness of a researcher to reach out to a diverse population. Hence, the need for a sample. The study sample size, therefore, was six (6) respondents. The sample size was determined during the data collection phase at a time when we realized we had reached a point of data saturation.

3.3 Method of Data Collection

Interview: The main source of data is interviews (both face-to-face interviews and online interview – web-based interviews which were conducted using online platforms like Google Meet and Zoom). The web-based allowed us to conduct our study with ease.

Secondary Documents: Secondary data corroborated the data obtained from primary sources. Some of the documents relied on are: Nigeria Climate Change Response Programme (NCCRP) Report, 2021 (D_1); Assessment Report of the Intergovernmental Panel on Climate Change [IPCC], 2001 (D_2); The National Climate Change Response White Paper, 2019 (D_3) and National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN, 2021 (D_4).

3.4 Method of Data Analysis

Thematic analysis was adopted for the study. Thematic analysis is a method of analyzing data by putting similar responses in the same category (Kerlinger, 1986). He added that … the goal of a thematic analysis is to identify themes, i.e. use these themes to address the research questions. The rationale behind the choice of thematic analysis was that 'the approach can produce an insightful analysis that answers the research questions'.

4.0 Results

Table1: Analysis of Interview Responses Using Thematic Analysis

S/N	Position	Code	Date
1.	General Director	(R_1)	24/01/2024
2.	Head of Provincial Department of Environment	(R_2)	24/01/2024
3.	Head of Department of Planning and Legal Affairs	(R_3)	23/02/2024
4.	Head of Department of Pollution Control	(R_4)	23/02/2024
5.	Head of Department of Environmental Data Management	(R_5)	23/04/2024
6.	Head of Department of Environmental Impact Assessment Review	(R_6)	22/04/2024
7.	Nigeria Climate Change Response Programme (NCCRP) Report, 2021	(D_1)	***
8.	Assessment Report of the Intergovernmental Panel on Climate Change [IPCC], 2001	(D_2)	***
9.	The National Climate Change Response White Paper, 2019	(D_3)	***
10.	National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN, 2021	(D_4)	***

Source: Research Survey, 2024.

Note: R = Respondent; and D = Document

5.0 Findings

Theme II (a): Economic factors that hinder climate change adaptation efforts

The respondents discussed this in a general scenario using developing countries as thus:

Economic factors hinder climate change adaptation efforts, primarily due to funding and investment constraints; many governments, especially in developing countries, face budgetary limitations that prioritize immediate needs over long-term climate strategies. High upfront costs associated with adaptation measures can deter investments from both public and private sectors, while a lack of financial incentives, such as tax breaks or grants, further diminishes motivation for engagement. Additionally, market failures, including information asymmetry and externalities, can prevent effective adaptation, as businesses may avoid investing in measures if they do not fully bear the associated risks (R_1, R_2, and R_3).

Moreover, economic inequality plays a crucial role, as vulnerable communities often lack the resources necessary for effective adaptation; this disparity limits access to information, technology, and support (R_4, R_5 and R_6).

Theme II (a): Description of how Nigeria is Responding to Climate Change

The respondents quoted National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN, 2021 by stating thus:

i. The Government of Nigeria acknowledges the importance of developing a national response to climate change and is taking steps to build a governance structure to manage the issue. The Government established a national focal point to drive the Nigeria's response: The Special Climate Change Unit (SCCU) within the Federal Ministry of Environment. The government also mobilized the Inter-Ministerial Coordinating Committee on Climate Change. In 2010, the National Assembly passed a bill to create a national Climate Change Commission, which, once established, will likely facilitate coordination and support for the multi-level and cross-sectoral adaptation responses. In addition, several other government agencies are involved in climate change adaptation issues, including for instance the Nigerian Meteorological Agency (NIMET), the National Emergency Management Authority (NEMA) and the National Planning Commission (NPC).

ii. Nigeria has also put in place a Climate Change Policy and Response Strategy with the strategic goal of fostering a low-carbon, high growth economic development path and building a climate resilient society. #Nigeria is also developing a Strategic Framework for Voluntary Nationally Appropriate Mitigation Action (NAMA), as a step towards meeting national obligations under the United Nations Framework Convention on Climate Change.

iii. In addition to specific climate change-related policies, Nigeria has several environmental and sectoral policies and plans in place where climate change adaptation policies could apply. For example, the National Policy on Environment supports "the prevention and management of natural disasters such as floods, drought, and desertification" (R_1, R_2, R_3, R_4, R_5 and R_6 cited in D_4).

Theme II (c): Roles played by Stakeholders in Responding to Climate Change Adaptation Efforts

The respondents unanimously agreed thus:

In addition to aforementioned efforts by the Federal Government, other stakeholders in Nigeria have begun to respond to the current and expected impacts of climate change. Some State Governments, NGOs and other civil society groups, private sector organizations, communities, and individual Nigerians have begun to respond to the impacts of climate change as discussed below (R_1, R_2, R_3, R_4, R_5 and R_6 cited in D_4).

In view of its central governance role, the Federal Government is in charge of the following:

i. Enact a comprehensive law or body of laws to provide a mechanism for achieving Nigeria's adaptation policy objectives.

ii. Mainstream climate change adaptation into all existing and new National Development Plans and official Vision statements (such as *Vision 20:2020* and the Millennium Development Goals), and into all existing and new sector-specific policies and programmes.

iii. Respond actively and effectively to global and regional initiatives on climate change adaptation.

iv. Mandate the Authority responsible for Climate Change to carry out the following functions: planning, setting priorities; and implementation of climate change adaptation activities; mobilization of resources necessary for action, and evaluation (D_4 – National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN, 2021).

Every State of the Federation should:

i. Have a focal Ministry, Department or Agency mandated to: Lead and provide strong coordination for all the climate change adaptation activities across the State; *Amongst Others*.

ii. Ensure that climate change adaptation is taken into account when drawing up the State's Annual Budget.

iii. Actively and consistently strengthen inter-ministerial and inter-agency coordination and cooperation in climate change adaptation in the State and others (D_4 – National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN, 2021).

Local Governments, in collaboration with the Federal and State Governments where appropriate, should:

i. Strengthen the adaptive capacity of communities by:

a. Making micro-credit available and accessible, thus relaxing the constraint of poverty, which often makes it difficult for people to adapt;

b. Providing technical know-how in such areas as agricultural improvement and water, soil and forest resources management; etc.

ii. Put in place a climate change adaptation communication and outreach strategy with the objective of enabling a level of understanding that will allow all stakeholders to participate actively in climate change adaptation. This will involve:

a. Taking action to meet the communication needs of stakeholders, especially the most vulnerable; and other (D_4 – National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN, 2021).

Civil Society Organizations: Civil Society Organizations should:

a. Engage in outreach activities to raise people's awareness of climate change and adaptation measures.

b. Carry out gender-sensitive research that will deepen our understanding of communities' awareness; the current exposure of communities and the environment; communities' vulnerability; and the status of community adaptation to climate change.

c. Work with the three levels of government and international partners to deliver targeted support to people who are or will be impacted by climate change, particularly the most vulnerable groups (D_4 – National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN, 2021).

6.0 Conclusion

d. From the data presented overhead, the study concludes that economic factors (like high upfront costs associated with adaptation measures, lack of financial incentives, such as tax breaks or grants, market failures, economic inequality etc.) deter climate change adaptation and resilience efforts in Nigeria. The study also concludes that several stakeholders stating from Federal Government to State Government, to Local Government and to CSOs ought to and have played important roles in climate change adaptation and resilience efforts in the country. The study therefore established that humans have been able to adapt to environmental changes over decades. However, climate change poses new threats to the environment as well as to human systems. Hence, more than ever, the vulnerabilities of human systems become pronounced because of the aforementioned economic factors. The study recommends among others the need for the bottom-up approach for effective adaptation. More so, efforts should be made by the Federal Government through its MDAs to liaise and cooperate with States to aid the adaptation process by finding ways to mitigate the economic factors hindering climate adaptation, mitigation and resilience efforts.

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COMMUNITY PARTICIPATION AND THE SUSTAINABILITY OF THE MILLENNIUM VILLAGE PROJECT IN PAMPAIDA, KADUNA STATE (2004-2019)

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Abstract

Citizen participation is essential to community development, fostering a sense of belonging and meaningful accomplishment. This study aims to assess the impact of community involvement on the sustainability of the Millennium Village Project in Pampaida community, Kaduna State, with a focus on water, health, education, and agriculture sectors. A sequential mixed-method approach was employed, utilizing both primary and secondary data sources. For qualitative data collection, face-to-face interviews and focus group discussions were conducted, while quantitative data was gathered through questionnaires. Secondary sources included reports such as the Pampaida Millennium Village Project Report, Pampaida Baseline Analysis (Unpublished Draft) etc. The study found that community consultation and needs analysis were inadequate, and the initial participatory planning before project's launch was limited. Furthermore, there was insufficient community engagement in determining the best ways to implement the projects. At the monitoring stage, responses from the descriptive statistics of questionnaires and interviews indicated that monitoring was solely handled by the United Nations Development Programme (UNDP) and Kaduna State, making the process non-participatory. To ensure the sustainability of future programs, the study recommends several actions, including ensuring thorough community consultation for effective needs analysis, prioritizing problems, and implementing participatory processes to foster local ownership after donor involvement ends. Additionally, participatory monitoring and evaluation should be prioritized.

Introduction

Sustainable development project is a challenging social process. Decisions need to be made about the relative rights and needs of present and future generations. Choices have to be made between priorities at local, national and, indeed, global levels. The different objectives of society - social, economic and environmental - need to be integrated where possible, and traded-off where they are incompatible. It is therefore, clear that a participatory approach is needed to handle the challenges (United Nations, 2006).

In Nigeria therefore, as argued by Obetta and Okide (2012), though there were no specific government policies on community participation in Nigeria, programmes such as National Accelerated Food Production Project (NAFPP), Operation Feed the Nation, Agricultural Development Projects (ADP), River-Basin Development Authority (RBDA), Green

Revolution, Directorate for Food, Roads and Rural Infrastructure (DFRRI), National Directorate of Employment (NDE), National Directorate for Social Mobilization, and Better Life for Rural Women Programme were designed to accelerate and encourage community participation as well as to facilitate rapid rural/community development in Nigeria. Unfortunately, the implementation of these programmes did not give much priority to community participation hence they failed to achieve rapid rural development and sustainability in Nigeria.

The Millennium Villages Project (MVP) initiated by Secretary- General, Koffi Annan and directed by Professor Jerey D. Sachs, with the aim to facilitate rural populations to achieve the MDGs and move communities toward self-sustaining economic growth was initiated in 2005 to implement the UN Millennium Project's recommended interventions across multiple sectors in rural Africa (Sanchez, Swaminathan, Dobie and Yuksel, 2005, p. 3).The MVP model for achieving the MDGs in rural, sub-Saharan Africa adheres to several core principles (strategies). The principles include among others the following: The participation of local communities in the planning, execution, and monitoring of a set of interventions (Sanchez et.al, 2005).

The MVP approach anchored sub-projects in multiple sectors appropriate for extremely poor, rural areas, including agriculture (i.e. food production, foot storage facility provision through provision of free bags of fertilizers and other inputs for better produce; education (i.e. both primary and secondary education including the provision of teaching facilities); health services (e.g. building of clinics); construction of roads, water supply (motorized boreholes, and installation of overhead tanks) and sanitation, environmental management, and business development (Millennium Village Project Transition Planning Document, Pampaida, 2017).

In addition, the MVP is a ten-year project with two five-year phases. The first phase – 2005-2010 concentrated mostly on quick-win" interventions, which include among others the elimination of user fees for primary schools and essential health services; provision of farm inputs, sponsoring training programmes to farmers; expansion of school meals programs and construction of roads, water facilities and other infrastructure etc. At the end of this initial phase, the MVP evolved to also ensure long-term sustainability. The second phase was between 2011-2015 with focus on how rural poor will escape poverty and to ensure that communities are on track to self-sufficiency when the project ends in 2015 (Pampaida Midterm Assessment Report, 2015). But a closer consideration of these projects however, suggests that the hope was misplaced because of general dearth of critical thought in key areas of project's conceptualization, resulting from the complex nature of MVP project structure. Contrarily, the MVP project structure for Pampaida is far too complex for what is essentially an Integrated Village Development Project where many of the decisions should be taken at the level of the community and the closest administrative levels to it namely Local and State government. But the project's decision-making mechanism runs all the way from the project localities, via Abuja and Bamako to New York (MVP Mid-Term Assessment report, 2009).

Research Hypotheses

Ho_1 Co-planning has no significant impact on the sustainability of MVPs in Pampaida community.

Ho_2 Co-execution has no significant impact on the sustainability of MVPs in Pampaida community.

Ho_3 Co-monitoring has no significant impact on the sustainability of MVPs in Pampaida community.

Literature Review

Participatory/Co-Planning

Participatory planning approaches have been widely used to draw in local knowledge and understanding as the anchor for development initiatives, and to ensure direct participation of communities in development. The following points according to Bandung (2002) reflect the insights garnered on the current practice of participatory planning and underscore the challenges that practitioners the world over need to give constant thought and consideration to as they continue to promote greater citizen participation in local governance:

i. Citizen participation in local development planning ideally involves the community in decision-making on the identification of priority problems, the formulation of solutions, the implementation, monitoring and evaluation of actions, as well as the mobilization and management of resources.
ii. Participatory planning processes require different stakeholders to take on new roles that also assume attitudes and behaviors consistent with the values that underpin participatory approaches to local development.
iii. Both civil society and external stakeholders alike require skills and capacities for participatory planning to happen. These include an understanding of the context within which participatory planning happens, technical and facilitative planning capacities, negotiating and lobbying, and abilities to work in complementation.
iv. Participatory planning initiatives builds stakeholder-ship in local plans. This, in turn, opens access to community resources. Transparent and accountable external stakeholders attract scarce resources needed for the implementation of local plans.
v. Legal frameworks are important but not sufficient to make participatory planning happen. What is more important is to have the "enabling conditions" for participatory planning to happen.

Participatory/Co-Implementation

The participatory implementation approach is now widely accepted in development discourse as a prerequisite for enhancing both the involvement of the beneficiaries and the anticipated outcome of the project. The above argument underscores the assertion of Chambers (1995a) that: "A constructive participation of beneficiaries in the project implementation process, within development intervention, may hold the key to success in achieving the intended outcome(s) of such projects". Figure 2 depicts the triangular participatory implementation model.

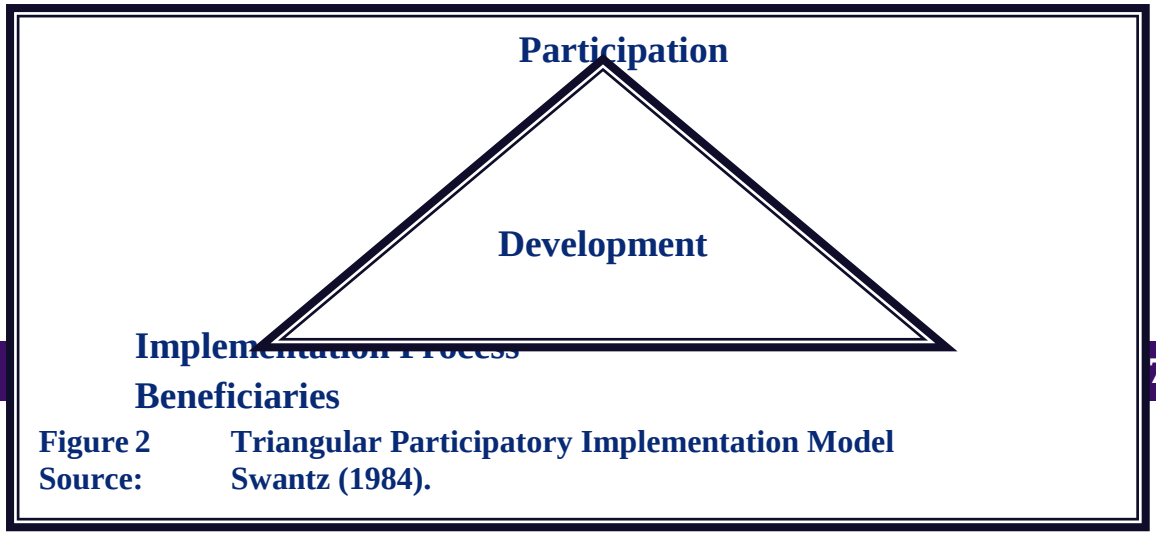


Figure 2 Triangular Participatory Implementation Model
Source: Swantz (1984).

Figure 2.2 explains development as an outcome of participatory implementation indicating the need for participation of beneficiaries in implementation process for development to be attained.

Participatory/Co-Monitoring and Evaluation (PM&E)

Monitoring and evaluation is about assessing actual change against stated objectives, and making a judgement whether development efforts and investments were worthwhile or 'cost-effective'. Therefore, M&E systems are generally constructed to provide information for reporting on achievements in order to fulfil accountability responsibilities. This has led to M&E being largely associated with a controlling and accountability function. Increasingly, however, there is recognition that M&E systems may also contribute to strategic management and learning lessons; and to feeding experiences into policy processes (Waglé and Shah, 2017).

PM&E being the special focus is defined here as a process where primary stakeholders – those who are affected by the intervention are active participants, take the lead in tracking and making sense of progress towards achievement of self-selected or jointly agreed results at the local level, and drawing actionable conclusions. The effectiveness (and sustainability) of such a process requires that it be embedded in a strong commitment towards corrective action by communities, project management and other stakeholders in a position to act (Guijt and Gaventa, 2018). This definition goes beyond involving primary stakeholders in a process of 'conventional' M&E, such as consulting them on indicators and asking them to provide information or feed-back on the results. Here the emphasis of PM&E is on deepening participation, a process that is intrinsically linked to learning and empowerment as well as linking monitoring to action. The PM&E process is built around agreeing on expected results and milestones, defining how to track progress, collecting required data, undertaking joint analysis and decide on actions.

Community Participation and Project Sustainability

The key to effective project cycle management is to ensure that the stakeholders have a voice in project decisions, and that project decisions are based on relevant and sufficient information that will allow sufficient contribution at all stages hence project sustainability (Gawler, 2005, Khan, 1998; DFID, 1995 & CEC, 2013). Each phase of the project cycle has specific priorities and requires stakeholder's inputs to produce relevant outputs for assuring sustainability (UNDP, 2003, Olukutun, 2008 & Simon, 2006). That is why Theron (2005) pointed out that: "community participation has to do with the process of giving people more opportunities to participate effectively in development activities by empowering them to mobilize their own creative potentials, manage the resources, make decisions and control the activities that affect their lives" (p. 12).

This view was also supported by United Nation. UN (2005) stressed that; community participation as the creation of opportunities to enable all members of a community to actively contribute to and influence the development process and to share equitably in the fruits of development. This simply means that people's participation is essential in order to establish economic and political relationship within the wider society and it is not just a matter of involvement in project activities but rather the process by which rural people are able to organize themselves, have the ability to identify their own needs, share in design, implement, and evaluate participatory action (Kumar, 2002, p. 24).

Review of Empirical Studies

Ofuoku (2011), examined the effect of community participation on sustainability of rural water projects in Delta Central Agricultural Zone of Delta State, Nigeria. Data for the study was collected through the use of questionnaire. Data collected were subjected to statistical analysis by the use of frequency counts, percentage and mean deviation. The hypotheses were tested with the use of Pearson product moment correlation (PPMC). There was positive significant relationship between participation and sustainability on water projects (r-which stood at 0.652 and r-critical stood at 0.632). It is recommended that the level of participation in projects should be increased; and the communities should continue with their methods of organization with more emphasis on regular conference and institution of sanctions/rewards to encourage citizens to participate in development projects. The research has not taken into consideration the level and capacities of local beneficiaries of the project and their sustainability of the project after completion.

Augustino (2015) also conducted a study titled "factors influencing project sustainability: A case of Saint Franciscan sisters programme in Otiende Sub county in Nairobi County". Descriptive, correlations and cross tabulation were adopted for data analysis using SPSS. The major findings the study is that project management capacity to some extent influence project sustainability. This was indicated by positive correlation between respondent's direct responsibility in raising resources and rating of community leadership (participation). Community participation to some extent was found to influence project sustainability. The study recommended that in future, development agencies should strengthen participation to expect better outcomes.

Mwiru (2015) also conducted a study titled "The importance of community participation in development projects at local level: A study of Dodoma Municipal Council". The researcher employed case study type of design. Four methods of data collection. Namely, observation, interview, questionnaire and documentary review. The collected data was analyzed by both qualitative and quantitative methods; qualitative method was based on explanatory statements and quantitative method involved the descriptive method of using percentages and tables. The findings revealed low level of community participation as a result of some socio-economic factors. The study also noted the challenges of poor citizen participation in development projects; such as poor leaders (personal interest), ignorance and lack of dissemination of project related information. The study recommended among others, the need to involve the community to a greater extent in decision making and development project.

Theoretical Framework: People-Centered Approach to Development

For the purpose of this study, 'People-Centered Approach to Development' by Koten (1990, & Swanepoel & De Beer 2006) which is a reformulated approach to "empowering through participation in community development approach" was adopted for the study because it

provided credence to the study. Furthermore, the theory underscores the significance of bottom-up approach to project management and in essence, sustainable development. Furthermore, people-centered development stresses on broader population participation in the development of society, the need for sustainable development, and the impact of government and other community associations or groups in development initiatives are the main variables featured in our study (De Beer & Swanepoel, 2006). In the words of Koten (1990):

> The people should constitute the centre-core of development as major impact players in managing the projects while the government or international donors should ensure that the atmosphere is conducive for meaningful participation and empowerment. And that emphasis should be focused on the inclusion of the previously excluded social categories such as women, youths and the illiterates (p. 13).

This study anchors on the problem of lack of sufficient consultation with beneficiaries and stakeholders, and without the necessary information hence projects becoming unsustainable. In other words, the misplaced hope of Pampaida MVPs was as a result of less involvement of the beneficiaries and the domination of expert-driven approach. Given the operational guidelines of people-centered approach to development, against the backdrop of its objectives as it underscores the significance of bottom-up approach to project management and in essence, sustainable development, it is rather pertinent to apply people-centered approach to development to this study.

Methodology

This study adopted sequential mixed research design. Sequential mixed method procedures are those in which the researcher seeks to expand on the findings of quantitative method with qualitative method (Cresswell, 2009).

Population of the Study: The table 1.1 below highlights the population of the study.

S/No.	Staff Category	Total Population
1.	Water staff (distribution and maintenance staff)	57 Staff
2.	Primary/Secondary School Teachers	48
3.	Health Staff	13
4.	Pampaida Women Association	140
5.	Pampaida Youths Association	160
6.	Head of Pampaida community and opinion leaders	18
7.	MVP Operation and Coordinating Officers	8
8.	Desk Officer and Evaluation Officer	6
**	Total	450

Source: Pampaida MPV staff Catalogue, (2015).

Sampling Technique

The study adopted Yamane (1967) sampling technique for objective determination of representative sample size.

Where:

n = Sample size required

$$n = \frac{N}{1+N\,(e)^2}$$

N = Number of people in the population

e = Allowable error or Level of Precision (±5%)

This formula is used for our population, in which N = 450, with ±5% precision with 95% confidence level and p value = 0.5, we get the sample size as:

$$n = \frac{450}{1 + 450\,(0.05)^2} = 212$$

Sample S

As shown in the above calculations, the sample size is two-hundred and twelve (212) arrived at through Taro Yamane sampling technique. Among this sample size, the key respondents made up of opinion leaders of Pampaida community, the MVP Operation and Coordinating Officer (comprising the team leader, data base manager, finance and admin manager, infrastructure coordinator, agric and business development coordinator, health coordinator, education coordinator and community development facilitator), the Desk Officer and Evaluation Officers, Pampaida Women Association and Pampaida Youths Association were interviewed sampled via purposive and snowball sampling techniques to corroborate the data obtained from questionnaire.

Instruments of Data Collection/ Data Analysis

The instruments of data collection are both primary and secondary data. While questionnaire and interview were the primary methods of data; reliable documents (e.g. The Millennium Villages Project Mid-Term Report etc.) constituted the secondary sources of data for the study. However, the primary (quantitative) data was analysed using multiple regression and the interview responses were thematically presented and analysed.

Data Presentation and Analysis

Test of Hypotheses

Table 4.1 Regression Output 1

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1802.639	3	600.880	3476.407	.000[b]
	Residual	67.237	389	.173		
	Total	1869.876	392			

a. Dependent Variable: SUSTAINABILITY_OF_MVP

b. Predictors: (Constant), CO:_PLANNING; IMPLEMENTATION and MONITORING

Source: SPSS Output, 2024

Table 4.1 above shows the result from the multiple regression analysis which tests the effects of the independent variables (co-planning; co-implementation and co-monitoring) on sustainability of MVP. The F-statistic for analysis of variance (ANOVA) which measures the adequacy and goodness of fit of the model and test the joint significance of the variables in the study model stood at 3476.407 with a p-value of 0.000[b] which is significant at 5%; this shows that the model is absolutely fit for the data.

Table 4.2 Regression Output 2

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.478[a]	.480	.480	.41575	1.65

a. Predictors: (Constant), CO_PLANNING; CO-IMPLEMENTATION and CO_MONITORING

b. Dependent Variable: SUSTAINABILITY_OF_MVP

Source: SPSS Output, 2024

Table 4.2 above shows the summary of the multiple regression analysis. The empirical findings show that computed multiple correlation coefficient represented by (R), stood at 0.478[a] which indicates a correlation. *Note that*, the closer the value of *R* is to 1, the stronger the linear relationship between the criterion variable and the predictor variables, whereas the closer it is to 0, the weaker the linear relationship. Therefore, the multiple correlation coefficients (R) cannot be a negative number (Tavakoli's Research Dictionary, 2012). *R* Square (R^2), the multiple coefficient of determination of the variables stood at 0.480 indicating that only 48.0% of the total variation in sustainability of MVP in Pampaida community is explained by variations in the 'independent variables' (co-planning; co-implementation and co-monitoring of MVP sub-projects) captured in the study. Thus, the remaining 52.0% of the variation in the dependent variable can be explained by other variables not captured in the study. The adjusted R^2 being 0.480 also indicates that the independent variables will still explain 48.0% of the variations in sustainability of MVP in Pampaida community even if other variables were added to the study.

Table 4.3 Regression Output 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.036	.104		-.348	.728
	CO-PLANNING	.606	.022	.837	27.385	.000
	CO-IMPLEMENTATION	.129	.018	.199	4.148	.000
	CO-MONITORING	.135	.024	.042	5.642	.007

a. Dependent Variable: SUSTAINABILITY_OF_MVP

Source: SPSS Output, 2024

Table 4.3 above shows the outcome of the respective variables on sustainability of MVP. Upon the fulfilment of the assumptions of regression analysis, multiple regression analysis was considered suitable in testing the research hypotheses. The respective hypotheses as tested in Table 1.6 are discussed as follows:

Hypothesis I: Co-planning has no significant impact on the sustainability of Millennium Village Projects in Pampaida community, Kaduna State.

The coefficient of "Co-planning and sustainability of MVP" stood at .036 which is positive. This implies that an increase in Co-planning on Millennium Village Projects would lead to sustainability of Millennium Village Projects. However, the significance of this can be judged from the P value represented as "sig". The t statistics of "Co-planning" stood at 27.385 with a

p-value of 0.000. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level.

Ho_2 Co-execution has no significant impact on the sustainability of Millennium Village Projects in Pampaida community, Kaduna State

The coefficient of "co-implementation" stood at 0.129 which is positive. This implies that an increase in co-implementation would also lead to sustainability of Millennium Village Projects. However, the significance of this can be judged from the P value represented as "sig". The t statistics of "co-implementation" stood at 4.148 with a p-value of 0.000. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level.

Ho_3 Co-monitoring has no significant impact on the sustainability of Millennium Village Projects in Pampaida community, Kaduna State

The coefficient of "co-monitoring" stood at 0.135 which is also positive. This implies that an increase in co-monitoring would lead to sustainability of Millennium Village Projects. However, the significance of this can be judged from the P value represented as "sig". The t statistics of "co-implementation" stood at 5.642 with a p-value of 0.000. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that variations in the sustainability of MVP in Pampaida community are less impacted by predictor variables.

Analysis of Interview Responses Using Thematic Analysis

Name	Position	Code	Date
Sarki Awalu of Pampaida & The Title Holders	Opinion leaders of Pampaida community	(R_1)	16/01/2024
Bala Yusuf Yunusa	Team Leader	(R_2)	16/01/2024
Elisha Tanuna	Admin Manager	(R_3)	16/01/2024
Lekan Tobe	Agric And Business Development Coordinator	(R_4)	16/02/2024
Clement Woje	Health Coordinator	(R_5)	17/02/2024
Yusuf Ibrahim	Education Coordinator	(R_6)	17/03/2024
(Names Withheld)	Executives of Pampaida Women Development Association	(PWD A_1)	17/03/2024
(Names Withheld)	Executives of Pampaida Youths Association	(PYA_1)	17/03/2024

Source: Researcher's survey, 2024.

Theme I: Co-planning

Sub-Theme I_a. Beneficiaries involved in joint discussion of project draft in Agriculture, education, water and health

The beneficiaries sadly stated that:MVP poor planning and policy practices have had a negative impact on various aspects of sustainable development. MVP development plans often ignore the need for grass-root participation.

They have instead tilted towards centralism (ready-made)in the development paradigm. (R_1, R_2, R_3, R_4, R_5, R_6, $PWDA_1$ and PYA_1).

Sub-Theme I_b Community satisfaction with their level of participation in the project at the planning stage

According to the respondents, those villagers met by consultancy team expressed satisfaction with the management structure of the project. They were on the whole satisfied. … the MVP had right from the formulation stage sought to listen to them and take account of their views. They recommended the need to do awaywith the government. This position is informed by the fact that, whereas the UNDP uses a participatory development approach during implementation and management;the government merely hands down directives (R_1, R_2, R_3, R_4, R_5, R_6, $PWDA_1$ and PYA_1).

Theme II: Co-execution of MVP

Sub-Theme II_{a-c} The role of community members in terms of finance, labour and Material contribution during execution

Results for field visits indicated that:

There was inadequate community consultation, needs analysis and that the initial participatory community planning before the commencement of the project was limited. This was imperative since crops introduced to the farmers were not the choice of farmers (R_1, R_2, R_3, R_4, R_5, R_6,).

On the area of education, results of community visits also indicated a lack of proper integration among the cooperating partners. For instance, as gathered from the respondents, the MVP education sector made minimal use of existing institutional structures such as the PTA, local education authority and similar agencies. Rather, the education committee was set up that worked independently of the existing structure of government (R_{1-6}).

Theme III: Co-Monitoring of MVP

Sub-Theme III_a Description of the collaborative effort in monitoring of the project

The monitoring activity was entirely the responsibility of United Nations Development Programme and Kaduna State. this entirely indicate that monitoring is non-participatory (R_{1-6}).

Summary of Major Findings

From the analyses of data, a number of findings were arrived at which are discussed below.

i. At the level of planning, the study found that there was inadequate community consultation, needs analysis and that the initial participatory community planning before the commencement of the project was limited.
ii. At the level of implementation, results of the questionnaire indicated that there was community participation in project activities. But there was some evidence from the interviewees that there was inadequate community consultation on the best way to implement the projects.
iii. At the level of monitoring, the descriptive statistics of questionnaire and interview responses indicated that monitoring activity was entirely the responsibility of United Nations

Development Programme and Kaduna State. this entirely indicate that monitoring is non-participatory.

Conclusion and Recommendations

The study concludes that the projects were not sustainable because there was inadequate community consultation, needs analysis and that the initial participatory community planning before the commencement of the project. Additionally, community members were not given opportunity to decide on the best way to implement the projects. So it was more or less "implementing for you but join us in doing it". Summarily, the beneficiaries' participation is limited which made absolute sustainability impossible. As such, the following suggestions are made that would ensure the sustainability of subsequent programmes:

i. At the level of planning, there is need for external donors of Millennium Village Projects to ensure adequate community consultation on needs analysis and that the initial participatory community planning before the commencement of the project should be anchored. That way the priority problems and needs of the community will be identified and solved thereby ensuring high rate of sustainability of the projects.
ii. At the level of implementation, community members should be adequately consulted by the external donors on the best way to implement the projects and be involved in its implementation thereby engendering domestication when the donors are gone.
iii. At the level of monitoring, the monitoring activity should the responsibility of United Nations Development Programme, Kaduna State, Ikara Local Government and Pampaida Community with Pampaida community having a strong influence on the monitoring activity.

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ASSESSING THE IMPACT OF CLIMATE CHANGE ON GOVERNANCE: A COMPREHENSIVE ANALYSIS OF FLOODING IN BORNO STATE, NIGERIA

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Abstract

The Sustainable development goals (SDG), 13 goals lay emphasize on strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries. As climate change intensifies, its impacts become increasingly evident, affecting environmental stability, economic livelihoods, and social cohesion. Severe flooding has impacted West and Central Africa this year, affecting an estimated 4 million people across countries such as Liberia, Nigeria, Mali, Niger, Chad, the Central African Republic, and the Democratic Republic of Congo. The weather events are increasingly affecting this region, making the environment more challenging for citizens who are already struggling to realize their basic rights to survival, safety, and education. This study i) Identify the Causes of Flooding in Borno State, *ii)* examine the Impact of Flooding on Governance, *iii)* evaluate the effectiveness solution to improve governance strategies on Climate resilience response to flooding in Borno State. *This study employs qualitative approach, which involves an extensive review of peer-reviewed journals, conference papers, and official reports from credible sources, ensuring a well-rounded and reliable analysis. The study therefore recommends the need for adaptive governance strategies that integrate climate resilience into local planning and decision-making processes, Implement comprehensive early warning systems to provide timely information about impending flooding, enabling communities to take proactive measures and Invest in resilient infrastructure, such as improved drainage systems and flood barriers, to mitigate the impacts of flooding on vulnerable communities.*

Keywords: Climate Change, Governance Strategies, Flooding, Sustainable Development

Introduction

Climate change has become one of the most pressing global challenges, influencing not only environmental systems but also governance structures and socioeconomic stability. Its environmental impacts, from rising sea levels and extreme weather events to loss of biodiversity, create complex issues that require urgent governance responses. Governments face mounting pressure to adopt policies for climate resilience, manage resource scarcity, and respond to crises such as flooding, drought, and wildfires. These demands often stretch existing political and administrative capacities, particularly in regions already grappling with socioeconomic instability. In Bangladesh, unpredictable cyclones and other water-related disasters displaced over 1.8 million people in 2023, severely damaging infrastructure such as schools, markets, and other essential services (Oxfam International, 2024).

Moreover, climate change exacerbates social and economic inequalities, as vulnerable communities and nations face disproportionate impacts while often having fewer resources for adaptation. Economic disruptions caused by climate-induced events affect food security, livelihoods, and health, forcing populations into cycles of poverty and displacement. Addressing climate change, therefore, calls for comprehensive strategies integrating environmental management, equitable governance, and socioeconomic stability to protect both ecosystems and human well-being. On World Refugee Day, Oxfam reported that severe hunger levels in five of these countries have nearly tripled over the past decade. According to the Global Internal Displacement Database, Somalia, China, the Philippines, Pakistan, Kenya, Ethiopia, India, Brazil, Bangladesh, and Malaysia experienced the highest levels of displacement due to floods and droughts last year. In these countries, the number of displacements surged from 3.5 million in 2013 to 7.9 million in 2023 (Oxfam International, 2024). Climate change has significantly increased the frequency and severity of floods and droughts. Oxfam's data shows that flood and drought related disasters in the ten worst-affected countries escalated from 24 in 2013 to 656 in 2023.

Developing climate solutions is a complex, global-scale process that involves and impacts all sectors of society. Climate change governance is closely tied to a country's development as well as to the well-being of both people and the natural environment. In South Sudan, extensive flooding is impacting more than 735,000 people, the majority of whom are already experiencing severe food insecurity (World Food Programme, 2024).

On 9 September 2024, heavy rain and structural damage caused the Alau Dam in Konduga local government area (LGA), Borno state, to collapse. The dam collapse caused flash flooding in neighbouring Maiduguri and Jere LGAs. By 10 September, the floods had affected an estimated 240,000 people across both LGAs (OCHA, 2024; IMC, 2024). Though, the number of affected people varies according to different sources, with OCHA also reporting more than 122,750 people affected as of 18 September (OCHA, 2024). By 18 September, the floods had killed at least 37 people, injured 58, and displaced at least 414,000 in Borno state (IMC, 2024).The effects of the floods are worst in Maiduguri town. Maiduguri LGA is the state capital of Borno and the largest city in northeastern Nigeria. By 10 September, floodwater covered over 40% of Maiduguri Municipal Council, which had an estimated population of more than 870,000 people, including at least 230,000 IDPs (IMC, 2024). The most affected areas were Bama Road, Budum, Customs/Gamboru areas, Gwange, and Lagos Street (OCHA, 2024). (https://reliefweb.int/node/4095270)

On September 14, 2024, Dr. Walter Kazadi Mulombo, the World Health Organization (WHO) Representative, visited the Governor of Borno State, Professor Babagana Umara Zulum; the Shehu of Borno, Alhaji Garbai El-Kenemi; officials from the Ministry of Reconstruction, Rehabilitation, and Resettlement; as well as representatives from the University of Maiduguri Teaching Hospital and Internally Displaced Persons (IDP) camps. During the visit, Dr. Mulombo affirmed that:

> "On behalf of WHO, I extend my heartfelt sympathy to the people of Borno State affected by this devastating flood. WHO stands with you during this difficult time, and we are committed to ensuring essential health services reach those in need, especially those displaced by the crisis. "We are deeply shocked by the scale of this disaster, but we are here to assess the needs and support both state and federal governments in tackling the challenges posed by this sudden emergency." (WHO, 2024)

In regions like Borno State, Nigeria, where climate-induced events such as flooding are increasingly frequent and severe, the impacts extend beyond environmental damage, disrupting essential governance functions, community resilience, and public services. (https://reliefweb.int/node/4095270)

Assessing climate change impacts on governance in Borno State, Nigeria, is essential for improving disaster response, guiding sustainable policy, and protecting communities from flood risks. It strengthens local resilience, aids in resource management, and supports conflict prevention, ultimately enhancing governance capacity to manage climate-driven challenges in vulnerable regions.

The objectives of this study is to Identify the Causes of Flooding in Borno State, Examine the Impact of Flooding on Governance and Evaluate the effectiveness solution to improve governance strategies on Climate resilience response to flooding in Borno State. The rationale is to provide insights for building climate-resilient governance, addressing food insecurity, and supporting stability in a region facing both environmental and socio-political challenges.

This paper provides a comprehensive analysis of how flooding, exacerbated by climate change, affects governance in Borno State, exploring the implications for local administration, public health, economic stability, and the management of internally displaced persons. By assessing the multifaceted effects of climate-driven flooding, this study aims to offer insights into adaptive governance strategies and policy responses that can strengthen resilience in climate-vulnerable regions like Borno State.

Conceptual Clarification and Literature Review

Climate change refers to any shift in climate patterns over time, whether from natural variability or human influence (Nnaji, 2012). Specifically, it describes climate changes that are directly or indirectly caused by human activities, which alter the composition of the global atmosphere beyond natural variations observed over comparable time periods (Intergovernmental Panel on Climate Change (IPCC), 2007).

Climate change refers to shifts in the average and variability of climate characteristics that persist over extended periods, typically decades or longer. Climate itself describes the atmospheric conditions of a specific location over a long duration. It represents the long-term summary of atmospheric elements such as solar radiation, temperature, relative humidity, and precipitation, along with their variations over time.

Governance is crucial for understanding how to achieve transformational changes in policies, institutions, and behaviors (Rahman et al., 2018). In the context of Climate change , flooding, forests and trees, governance is relevant at all scales, from global policies and challenges to local land-use practices, and involves multiple actors and levels.

The World Health Organization projects that climate change will lead to an additional 250,000 deaths globally each year between 2030 and 2050 (WHO, 2018). It is estimated that 80% of the world's population is already impacted by water and food insecurity resulting from climate change effects (Climate Council, 2015). For millions, climate change threatens food and water supplies, physical security, and increases the risks of diarrheal disease, malaria, vector-borne illnesses, and other climate-sensitive infections. These impacts can also have mental health consequences due to climate-related trauma.

Climate change amplifies certain hazards impacting social systems and reduces resilience in managing uncertainty and disasters (O'Brien et al., 2006). Climate projections indicate that water resources are highly vulnerable and can be significantly affected by climate variability, with extensive implications for both human populations and ecosystems (Oki, 2006, Haddeland et al, 2023). For instance, climate change has contributed to flooding, water scarcity, erosion, declining water quality, droughts, saltwater intrusion, and the depletion of groundwater sources, thereby increasing the vulnerability of communities and both living and non-living elements of the environment (UNECE, 2010).

Climate change leads to shifts in many environmental factors, affecting both urban and rural areas (Tian et al, 2013). With global warming as its primary symptom, climate change is a well-established reality (IPCC, 2014, IPCC, 2018, Field, 2012). It is also recognized as one of the most critical challenges facing humanity today (IPCC, 2014, & Wu, & Shen, 2019). The Intergovernmental Panel on Climate Change's Fifth Assessment Report highlights that global climate change is driven by rising concentrations of greenhouse gases linked to global warming and presents a significant challenge to the sustainable development and management of global and regional water resources (IPCC, 2014, Lo et al, 2016 & Gironás et al, 2010).

As Bates et al. (2008) noted, flooding is influenced by various characteristics of the climate system, especially precipitation (its intensity, duration, amount, timing, and whether it falls as rain or snow), as well as temperature patterns, which impact soil freezing, snow and ice melt, and ice jam formation. Flooding is also shaped by conditions within drainage basins, such as pre-existing river water levels, snow and ice cover, soil characteristics (permeability, moisture content, and distribution), urbanization rates, and the presence of infrastructure like dikes, dams, and reservoirs. In low-lying areas, river flooding may coincide with storm surges or extreme tide events (Brakenridge et al., 2013).
In Nigeria, climate change receives relatively minimal attention compared to waste management, which has limited its inclusion in the country's development agenda (Bouwer,

2018 & DellaSala et al, 2018). Key climate-related issues in Nigeria include drying water bodies, the spread of arid land, erosion, irregular rainfall, and reduced crop yield due to deregulation (Almar, 2015). Prioritizing waste management over climate change risks sidelining crucial climate action in this era of global environmental awareness. Government needs to take a drastic action against climate change.

This review suggests that environmental research in Nigeria should concentrate on understanding the primary drivers of recent rapid climate change, with a focus on human-induced causes, the societal impacts of policy, and a comprehensive analysis of environmental issues beyond solely natural causes (Lau, 2010). Research on climate change should address key areas such as the risks of reduced income and adaptation efforts, which are essential for identifying effective response options (Danladi , 2017, Ayanlade et al, 2018, Liobikienė, 2018). The primary driver of current climate change is the human-induced intensification of the greenhouse effect (IPCC, 2014). Human activity continues to increase greenhouse gas and aerosol concentrations, both of which affect the climate (Enete, 2000).

Methodology

This research utilizes a systematic literature review to thoroughly examine the impacts of climate change on governance. This approach involves an extensive review of peer-reviewed journals, conference papers, and official reports from credible sources, ensuring a well-rounded and reliable analysis. By systematically gathering and analyzing existing studies, the research aims to provide a comprehensive understanding of how climate change influences governance structures, policies, and practices across various levels.

Causes of Flooding in Borno State

Flooding in Borno State, Nigeria, has become a serious environmental and social issue with far-reaching consequences for the local population, agriculture, infrastructure, and ecosystem. The causes of flooding in the region are multifaceted, stemming from both natural and human-induced factors.

Geographic and Climatic Factors: Borno is largely flat, particularly in areas like the Lake Chad Basin, where low-lying terrain and poor drainage make it prone to water accumulation. These conditions facilitate the overflow of rivers and lakes during heavy rains, leading to flooding. In Nigeria, including Borno State has experienced increasingly erratic and intense rainfall patterns due to climate change. Prolonged heavy rains saturate the soil, making it unable to absorb excess water, which results in surface runoff and flooding. Flooding in Nigeria is exacerbated by climate change and poor urban planning, requiring more robust and scientific approaches to reduce risk (Nkwunonwo, 2016).

Hydrological Factors: The shrinking and periodic resurgence of Lake Chad is a significant factor in Borno's flooding. When water levels in the lake rise during the rainy season, they overflow into nearby communities, causing seasonal flooding. Rivers and streams, particularly the Yedseram and Ngadda Rivers in Borno, frequently overflow due to heavy rains, leading to riverine flooding in adjacent areas.

Environmental Degradation and Deforestation: Widespread deforestation has reduced vegetation cover, which normally helps absorb rainfall. Without sufficient vegetation, water runoff increases, elevating flood risks. Deforestation in Borno has been fueled by logging for

firewood and other human activities. The removal of vegetation also contributes to soil erosion. Eroded soil can block natural waterways, which obstructs water flow and contributes to flooding.

Urbanization and Poor Drainage Infrastructure: Unplanned Urban Expansion: Rapid population growth in Borno, especially in cities like Maiduguri, has led to unplanned and congested urban development. New settlements are often built in flood-prone areas without adequate drainage systems, which increase the risk of urban flooding. Lack of efficient drainage infrastructure exacerbates flooding. Drains, where they exist, are often clogged with debris and waste, which blocks water flow during rains, leading to stagnant water and floods in urban areas. Regular drainage clearance and environmental awareness reduce traffic congestion and accidents caused by flash floods in Akure, Nigeria (Ogunbodede, & Sunmola, 2014).

Socioeconomic and Policy-Related Factors: Inadequate Flood Management Policies: There is limited coordination among relevant agencies in Borno to effectively plan and implement flood control measures. Additionally, insufficient funding and inadequate disaster preparedness hinder flood prevention efforts. Agricultural activities close to rivers and floodplains, such as irrigation farming, increase vulnerability to flooding. Such practices, while beneficial for crop production, can interfere with natural water flow, exacerbating flood risks.

Impact of Conflict and Displacement: The Internally Displaced Populations (IDPs) in Borno State has been heavily affected by the Boko Haram insurgency, leading to the displacement of large numbers of people into camps often located in flood-prone areas. The overcrowded conditions, combined with poor drainage infrastructure, heighten the risk of floods in these camps. The conflict has also damaged critical infrastructure, including flood protection systems and drainage channels, which makes areas more susceptible to flooding.

Cross-Border Water Management Issues: Borno State's proximity to Lake Chad Basin Commission, which is shared with neighboring countries, requires coordinated water management efforts across borders. However, limited collaboration and conflicting water-use policies among these nations affect water levels, impacting flood risks in Borno. Flooding in Nigeria is caused by natural factors and human activities, requiring proper environmental management, development control, and environmental education to prevent its negative effects (Mfon et al, 2022)

Impact of Flooding on Governance

Flooding has significant impacts on governance, affecting the state's ability to provide services, maintain infrastructure, support public safety, and manage resources effectively. These impacts stem from the increased strain on local government capacities, financial burdens, disruption of public services, and challenges to policy implementation.

Strain on Public Resources and Financial Burdens: Frequent flooding requires the government to allocate funds to disaster response and relief efforts, including rescuing affected communities, providing shelter and food, and facilitating healthcare services. This diverts resources from other critical governance areas, weakening overall public administration. The Rehabilitation and Reconstruction Expenses such as the damage to infrastructure roads, bridges, schools, and health facilities requires substantial investment in repairs and rebuilding. This recurring need puts considerable financial strain on the state, reducing funds available for development projects, education, and healthcare, which are crucial for long-term governance and stability.

Disruption of Public Services and Infrastructure: Flooding damages roads, bridges, and other transportation infrastructure, hindering the mobility of goods, services, and people. This disruption impacts government service delivery, such as health, education, and emergency response, while also affecting trade and economic activity, which are essential for maintaining state revenue. Many health facilities and schools in flood-prone areas suffer from flooding, either through direct damage or loss of accessibility. This reduces the government's ability to provide basic services, undermining public trust and the state's perceived legitimacy. Moreover, the spread of waterborne diseases during floods further burdens the healthcare system, demanding more resources and personnel.

Weakening of Security and Law Enforcement; Borno State has a history of conflict due to the Boko Haram insurgency, likewise flooding complicates security operations by making affected areas harder to access and control. Flood-damaged roads and communication disruptions hinder law enforcement and military activities, giving insurgents an opportunity to exploit weakened government control, especially in rural areas. Flooding exacerbates socioeconomic vulnerabilities, leading to a rise in crime and social unrest. Displaced persons, faced with loss of livelihoods and property, may turn to theft, looting, or join armed groups, which destabilizes the state further and requires more law enforcement resources, often beyond the capacity of local governance structures.

Displacement and Pressure on Social Services: Flooding displaces thousands of people who often seek refuge in temporary camps or urban areas, putting pressure on the government to provide housing, healthcare, sanitation, and other services. This adds strain to an already resource-limited system and complicates governance, as officials must manage both the needs of Internally Displaced Persons (IDPs) and those of the host communities. Large-scale displacement can lead to tensions between host communities and displaced populations, with limited resources like food, water, and shelter further straining relations. This division complicates local governance efforts to maintain order and provide equitable services, which are essential for long-term stability.

Impacts on Agricultural Productivity and Food Security: Flooding destroys crops and farmland, leading to significant losses in agricultural productivity. As agriculture is a mainstay for Borno's rural population, this loss affects food security and the income of thousands of families, putting additional pressure on the government to provide relief and food aid. The loss of agricultural productivity forces more people to rely on government aid, stretching state resources even thinner. Food insecurity can also lead to malnutrition and increase the need for healthcare services, further taxing the government's resources and complicating efforts to promote self-sufficiency and resilience.

Challenges to Effective Policy Implementation: Flooding damages infrastructure and resources required for the implementation of governance policies, from building schools and hospitals to implementing road and power projects. The constant need to address immediate flood-related emergencies delays or even halts planned development initiatives, slowing economic progress. The frequent flooding highlights gaps in Borno State's flood management policies, including the need for better land use planning, early warning systems, and emergency response coordination. The government's limited capacity to address these issues weakens public confidence in its ability to manage environmental risks effectively and address people's needs.

Erosion of Public Trust and Institutional Credibility: When government responses to recurrent flooding are inadequate, slow, or mismanaged, public trust erodes. People may perceive the government as ineffective or incapable of protecting their lives and property, which impacts the legitimacy of local leaders and institutions. Frustration over repeated losses and inadequate

support can increase public discontent, potentially leading to protests or challenges to local governance. The government's inability to respond effectively to the needs of flood-affected populations can foster resentment and weaken social cohesion, undermining political stability in Borno State.

The Effectiveness Solution to Improve Governance Strategies on Climate Resilience Response to Flooding in Borno State

The complex challenge of governance towards climate change demanding comprehensive, sustainable solutions to mitigate impacts on people's livelihoods, infrastructure, and service delivery. Effective flood management strategies require governmental intervention, infrastructure improvements, policy reforms, and community involvement.

Development and Implementation of Comprehensive Flood Management Policies: Adopting an Integrated Flood Management (IFM) approach could enhance governance by coordinating policies on flood prevention, mitigation, and response. This framework involves collaboration across agencies, ensuring water, land, and disaster management policies are aligned, and encourage the use of natural resources to reduce flood risks. Enforcing stricter land use policies can prevent development in flood-prone areas. The government could implement zoning laws that restrict residential and commercial construction in floodplains and redirect urban expansion to safer regions. This strategy would reduce vulnerability and minimize future flood damage. A preparedness plan, like the one developed by Lagos state, can significantly improve flood disaster management in Nigeria by reducing damage potentials and enhancing response and recovery efforts (Obeta, 2014).

Investment in Flood-Resilient Infrastructure: Poor drainage infrastructure is a significant contributor to urban flooding. Investing in efficient and well-maintained drainage networks can prevent water from accumulating in urban areas. This includes building new drainage systems and rehabilitating existing ones to prevent clogging and improve water flow. Upgrading roads and bridges to be flood-resistant would ensure that transportation networks remain functional during and after flooding. Elevating roadways, reinforcing bridges, and constructing culverts to channel floodwaters can protect vital infrastructure, supporting the continuous delivery of essential services. Constructing levees, embankments, and floodwalls around high-risk communities, particularly those near Lake Chad and major rivers, would protect these areas from floodwaters. This physical infrastructure can act as a first line of defense, reducing flood impacts on residential, agricultural, and commercial zones.

Early Warning Systems and Disaster Preparedness: Establishing early warning systems is critical for reducing the human and economic costs of floods. Local governments can partner with meteorological agencies to provide timely flood forecasts. Community-based alert systems, combined with SMS and radio messaging, can alert residents to evacuate or prepare for floods. Training local emergency responders and equipping them with boats, medical supplies, and rescue tools would enhance the government's capacity to respond to floods quickly. Additionally, developing community shelters on higher ground can serve as safe evacuation centers, providing temporary housing for displaced persons.

Ecosystem-Based Adaptation (EbA) and Reforestation Initiatives: Deforestation is a significant factor in increasing runoff, making areas more prone to flooding. The government

could implement reforestation programs to restore natural vegetation, particularly in high-risk watersheds. Trees and plants help absorb water and reduce surface runoff, mitigating the risk of flooding. Wetlands act as natural buffers against floods, absorbing and slowing down water flow. Protecting existing wetlands and restoring degraded ones, especially around Lake Chad, can help manage excess water during heavy rains and protect surrounding communities.

Community Engagement and Education Programs: Educating the public about flood risks, safety measures, and evacuation procedures can significantly improve community preparedness and reduce losses. Governance should focus on creating awareness programs that teach residents about responsible waste disposal, proper land use, and how to protect themselves during floods. Engaging communities in assessing local flood risks and creating response plans helps build trust and cooperation between the government and residents. By involving community members, local leaders can also ensure that policies and measures are tailored to local needs and circumstances, increasing their effectiveness and sustainability.

Policy Reform and Institutional Strengthening: Borno State needs strong disaster management institutions that can coordinate flood prevention, mitigation, and response efforts. Building the capacity of local agencies, providing adequate funding, and ensuring they have the tools and resources to manage flood-related challenges are essential steps for better governance. Effective flood management often requires collaboration between various sectors, including environmental, agricultural, and public works departments. The government could set up inter-agency task forces dedicated to flood management to streamline efforts and reduce redundancies. Partnerships with NGOs, private sectors, and international organizations can also provide additional resources and expertise. A single flood policy is needed in Nigeria, with synergy and coordination among institutions, to address flood governance, prevention, control, and management, while decentralizing policy to state and local governments (Danhassan et al, 2023)

Building Financial Resilience for Flood Management: Creating a dedicated fund for flood management, relief, and recovery would ensure that resources are readily available during emergencies. This fund could be sourced from state budgets, federal grants, and international aid, ensuring timely support for affected communities and reconstruction efforts. Flooding often disrupts livelihoods and affects low-income households severely. Microfinance programs and insurance schemes can provide financial support to vulnerable populations, allowing them to recover faster and reducing their dependency on government aid.

Research and Data Collection for Informed Policy Making: Collecting data on flood-prone areas and conducting regular risk assessments enable informed decision-making. The government could use geographic information systems (GIS) and remote sensing technology to monitor flood patterns, identify vulnerable areas, and implement targeted flood management measures. Understanding how climate change affects rainfall patterns and flooding risk is essential for proactive governance. Borno's government could integrate climate-responsive strategies into policies to ensure that flood management plans are adaptable to changing environmental conditions.

Recommendations / Conclusion

Addressing flooding in Borno State requires a holistic approach that integrates governance reform, infrastructure development, and community involvement. Taking a proactive, inclusive approach to flood management, governance in Borno State can reduce the long-term impacts of flooding, build resilience, and improve the welfare and safety of its residents.

- Government need to Conduct Hydrological Studies; Support detailed hydrological and meteorological studies to map and understand the primary causes of flooding in Borno State. These studies should assess factors such as rainfall patterns, river flow rates, soil permeability, land use changes, and climate variability. More so, Government should engage with local communities to gather knowledge on historical flood patterns, practices contributing to land degradation (e.g., deforestation), and identify human activities that may exacerbate flooding, such as construction in flood-prone areas or poor waste disposal practices.
- Assess Resource Allocation and Disaster Response: Investigate how flooding affects the allocation of state resources and the ability of local government bodies to respond to emergencies. This includes evaluating emergency preparedness, response times, and the effectiveness of disaster relief mechanisms. Likewise government needs to investigate how flooding disrupts essential public services such as healthcare, education, and transportation, as well as infrastructure damage and the costs incurred by state institutions.
- Enhance Policy and Regulatory Frameworks: Recommend strengthening local and state-level policies on flood management and climate adaptation. Encourage policies that protect wetlands, restrict construction in flood-prone zones, and promote sustainable agriculture and deforestation prevention. In addition, the government should establish a Flood Resilience Fund that is creating a dedicated fund to support flood resilience projects, emergency response, and recovery efforts. This fund could provide immediate financial assistance for repair and recovery and be allocated to preventive measures.

- Develop Inter-Governmental and NGO Partnerships to encourage partnerships between state and federal agencies, NGOs, and international organizations to share expertise, resources, and funding. Such partnerships could help address the complex and resource-intensive challenges associated with flood resilience.

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EXPLORING THE IMPACT OF POLITICAL FACTORS ON CLIMATE POLICY AND ACTION IN NIGERIA

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Abstract

Climate change is a global phenomenon that is threatening the life of people in both the developed and developing countries. Several initiatives were developed at the national, regional as well as international levels to address the impact of climate change on the people. Indeed, it is a curious paradox that, as measures are taken so climate change is gaining momentum. Arguably, Nigeria is not immune from the impact of climate change while different policies and actions have been taken with little and depressive results. It is on this account that this study inquired into the impact of political factor on climate policy in Nigeria. In this study, qualitative research design was used. Face-to-face (FtF) interview was instrument of data collection while secondary method was also adopted to augment the primary data collected. Thematic analysis was carefully employed to give meaning to data generated. The study found that: corruptions among the political office holders and a weak institutional capacity have constrained the successful implementation of climate policy in Nigeria. The study recommends that: accountability mechanism should be energized in climate policy implementation. Also, the concerned agencies on climate policy implementation should be institutionalized. There should be a strong political will on the part of government at all levels to address climate change challenges. Hence, collective efforts must be geared towards combating climate change so that the world would be desirably habitable.

Keywords: Climate Action, Climate Change, Corruption, Institutional Capacity and Political Factors

Introduction

Climate change is a global phenomenon that is threatening the life of people in both the developed and developing countries. According to World Bank (2023) climate change is deeply intertwined with global patterns of inequality. That is why the National Climate Change Policy and Response Strategy "revised report" [NCCPRS] (2021) documented that "climate change is perhaps the biggest challenge facing humanity"; This global challenge has been conceived

by United Nations Convention on Climate Change [UNFCC] (2016) as a change which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and an addition to natural climate variability observed over comparable time periods.

Governments in countries in Africa have taken acknowledgeable steps to address climate change by developing and implementing policies and strategies. The continent has witnessed collaborations among countries through regional frameworks and agreements such as the African Union, the New Partnership for Africa's Development (NEPAD), and the African Ministerial Conference on the Environment (AMCEN). Some African countries have made commendable strides in addressing climate change concerns within their national development agendas. Ethiopia stands out for its notable Climate Resilient Green Economy Strategy (CRGE), which strives to achieve middle-income status while maintaining environmental sustainability (Tadesse, 2020). Rwanda has demonstrated its commitment to climate change mitigation and adaptation through various strategies, such as the National Strategy for Climate Change and Low Carbon Development (NSCC) and the Green Growth and Climate Resilience Strategy (GGCRS) (Githiri & Mwaura, 2020).

In response to global (including Africa) discourse on climate change, the Nigerian government developed National Climate Change Policy and Response Strategy (NCCPRS) in 2012, the initiative was meant to serve as a strategy to mitigate the effect of climate change (FGN, revised version 2021). Specifically, a major milestone for Nigeria's effective response to the challenges of climate change is the signing of the 2015 Paris Agreement to which the country ratified in March 2017. This Agreement constitutes a major role in promoting the transition to a low carbon economy. Needless to say, that the Paris Climate Accord (Agreement) is a legally binding international treaty on climate change that was adopted by 196 countries at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It came into force on 4 November 2016. Its overarching goal is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels". However, in recent years, world leaders have stressed the need to limit global warming to 1.5°C by the end of this century (cited in Hwang, Lee, Han and Lee 2021). As stated earlier, Nigerian government also instituted measures to address the challenge through the following actions: climate change institutional framework; (ii) promoting enabling climate policies; (iii) NDC; (iv) climate change financing; and (v) donor-supported initiatives (National Climate Change Policy and Response Strategy [NCCPRS], 2021). Other climate change policies include Nigeria Climate Change Response Programme (2019-2023); New Energy Transition Plan (2022) etc.

Unfortunately, some countries in Africa, the implementation of climate policy are constrained on a number of factors. This is a significant challenge in some African countries. In Nigeria, Climate change poses severe and multiple threats to Nigeria's development; it has continued to compounds poverty challenges and undermine the achievement of Sustainable Development Goals (SDGs); a number of reasons have been attributed to the reluctance and slow pace of policy implementation towards climate policy. The most important factors attributed to the slow pace of policy action in Nigeria are argued to be political in nature … e.g. corruption as strong obstacle that undermines the implementation of climate change policies in Nigeria; as argued by Arndt, (2014) that "misappropriation of funds designated for climate policy action can hinder progress and limit the availability of resources required for effective implementation". Furthermore, weak governance also contributes to the challenges faced in

implementing climate change policies in Nigeria. That is the reason behind the assertion made by Carbonnier and Krause, (2018) that "**institutions with low capacity** for policy implementation and coordination among various government departments can lead to fragmented approaches and inefficient resource utilization (cited in Nigeria Climate Action Plan by United Nations Development Programme, 2021). Needless to state that without effective policy actions, there is always bounce-back effects on the environment for example, the recent policy of Government to remove subsidy on petroleum, made citizens to shift to Charcoal for cooking because of Petroleum and Kerosene. This in long run will increase deforestation and in essence, extreme climate change. It is important to acknowledge the fact that not only political factors undermine climate policy action in Nigeria but there are other factors which continued to encumber climate policy action. As such, we could state that despite the myriad efforts, the impact of climate change has remained worrisome and alarming. It is against this background that the study explored the impact of political factors on climate policy and action in Nigeria.

Research Questions

Arising from the background to the study as well as to put the study into a sharp focus, this study is guided by the following specific research questions:

i. What is the impact of corruption from the part of political office holders on climate policy and action in Nigeria?
ii. What is the impact of low institutional capacity on climate policy and action in Nigeria?

Literature Review

Corruption

Corruption is a disease, a cancer that eats into the cultural, political and economic fabric of society, and destroys the functioning of vital organs. Corruption is in itself a many-faceted phenomenon and the concept of corruption contains too many connotations to be analytically functional without a closer definition. In the words of Transparency International (2018), "Corruption is one of the greatest challenges of the contemporary world. It undermines good government, fundamentally distorts public policy, leads to the misallocation of resources, harms the private sector and private sector development and particularly hurts the poor". The decisive role of the state is also reflected in most definitions of corruption. Corruption is conventionally understood, and referred to, as the private wealth seeking behaviour of someone who represents the state and the public authority, or as the misuse of public goods by public officials for private ends. The working definition of the World Bank is that corruption is the abuse of public power for private benefit. In Nye's classical and most widely used definition;

> Corruption is "behaviour which deviates from the formal duties of a public role because of private regarding (personal, close family, private clique) pecuniary or status gains; or **violates rules** against the exercise of certain types of private-regarding influence" (Nye 1967 cited in Inge, 2019).

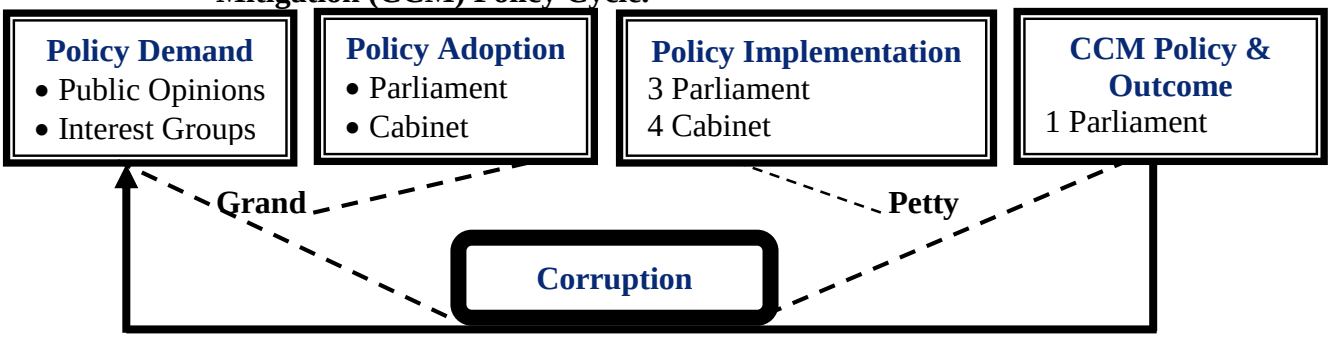
Corruption is seen by Mushtaq Khan, as "behaviour that deviates from the formal rules of conduct governing the actions of someone in a position of public authority because of private-regarding motives such as wealth, power, or status" (Khan 1996, p. 12 cited in Inge, 2019). The involvement of state officials in corruption is also emphasized in an alternative definition, where corruption is seen as "a form of secret social exchange through which those in **power**

(political or administrative) take personal advantage, of one type or another, of the influence they exercise in virtue of their mandate or their function" (Méry cited in de-Sardan 2018).

Corruption and the Quality of Environmental Governance

Corruption induces socially sub-optimal environmental governance. It reduces environmental regulatory stringency and undermines the effectiveness of management systems (Dinda, 2014); this is because corruption reduces the social and/or economic cost of breaking established rules. In a corrupt environment, actors prioritise private benefits at the expense of socially optimal outcomes (Olken & Pande, 2022). Conversely, lower corruption levels translate into stricter and more effectively enforced environmental policies (Zugravu, 2018). This proposition is generally supported by empirical research that correlates corruption levels and deforestation (Yilmaz & Koyuncu, 2019), air pollution levels (Leitão, 2020), access to safe drinking water (Stålgren, 2016) and biodiversity (Smith, 2013). Research highlights that dysfunctional environmental governance systems – due to corruption – generally contribute to the extinction of species, the over-exploitation of natural resources, the pollution and degradation of ecosystems and wildlife habitats, the spread of diseases and invasive species, and the deprivation of local stakeholders reliant on wildlife and plants for subsistence (Leitão, 2020).

Figure 2.1: A Stylized Model of how Corruption Affects the Climate Change Mitigation (CCM) Policy Cycle.



Source: Adapted from Sundström, Harring, Jagers and Povitkina, (2024).

Note: Within the CCM policy cycle, policy demands from citizens or interest groups motivate policy adoption by politicians. These decisions are then implemented and, in turn, eventually generate CCM policies and outcomes. There is also feedback from outcomes to demands for policy. Corruption can affect all these stages. With regards to CCM efforts, corruption can disturb the policy cycle in the adoption phase, e.g., through large-scale behavior when politicians are bribed not to enact stricter emission standards (grand corruption), or through small-scale behavior in the implementation phase, e.g., when bureaucratic actors such as forest rangers accept money or gifts to turn a blind eye to illegal extraction (petty corruption). Figure 1 presents a stylized policy cycle, illustrating the ways corruption affects climate policies ranging from the decision to the outcome.

Institutional Capacity

Good urban governance and management depends on the active engagement of local stakeholders and a supportive national government. Indeed, the shift from 'government' to 'governance' is predicated on the involvement of a more effective framework of support for

citizen groups and NGOs within more accountable and transparent local government structures. Higher levels of government have key roles in facilitating urban adaptation as they provide the legislative, financial and institutional basis within which urban authorities, the private sector, civil society and other stakeholders can act to adapt to climate change (Mukheibir and Ziervogel, 2017).

A supportive legal system can support locally developed responses, and provide appropriate guidelines within which these stakeholders can perform adaptation tasks at the most appropriate scale. National governments can also administer funds to encourage and support locally driven climate change adaptation, including urban adaptation – this strategy is currently being explored by the Bangladeshi government through a proposed multi-donor trust fund for adaptation. In addition, central government institutions can ensure that national risk management strategies are developed, working with local governments and local risk management strategies (Muller, 2018)

Developing Urban Policies and Institutions for Climate Change Adaptation

To address the challenges of climate change for low income urban dwellers, urban institutions need to develop a set of specific policies and strategic actions. The following steps are likely to be essential in developing a municipal-level adaptation strategy:

- Identify current climate trends and future projections – including the risk of drought, flooding, and sea-level rise – and capture this information on local vulnerability maps
- Assess the climate vulnerability of the urban area at a sectoral level
- Review current development plans and priorities in the light of current climate variability and expected climate change
- Develop and prioritize adaptation options using consultative tools, including participatory assessment, social accounting matrices, and cost benefit analyses
- Develop programmes and projects to form a Municipal Adaptation Plan
- Implement, monitor, and review the Plan (Mukheibir and Ziervogel, 2017).

Empirical Review of Climate policy implementation

Bethel, Obinna and Elona (2023) explore the influence of political systems on climate change policy implementation in African countries. A systematic literature review approach was employed to gather and analyze relevant studies from academic journals, reports, and policy documents. The synthesis of the findings indicates that political systems, including democratic, authoritarian, and decentralized systems, play a crucial role in determining the success of climate change policy implementation across the continent. Key challenges such as corruption, political instability, weak governance structures, and lack of financial resources hinder effective policy implementation. The study recommends strengthening democratic processes, enhancing regional and international cooperation, addressing corruption and strengthening governance structures, integrating climate change considerations into national development plans, and enhancing capacity at the local level.

Olatunji, (2023) assessed the policy and politics of climate change: A data and document-driven analysis. The primary objective of the study is to look at the political dynamics surrounding the UNFCCC Paris Agreement's Global Stocktake, the EU's Climate Change Adaptation Strategy, and continuing climate change adaptation efforts in several nations across the world, and use mixed research methods to determine the factors that are mitigating clime policy implementation. For the data analysis, the research primarily relied on open-source applications such as Python. Other software applications include KNIME Workbench for

predictive and prescriptive data analysis. SPSS and/or Qualtrics were used in the analysis of questionnaires and structured interview. The study found that political factors like corruption, political instability, weak governance structures etc. have hindered effective climate policy implementation. The study recommended among others the need for Government to fight corruption and strengthen governance structures.

Theoretical Framework

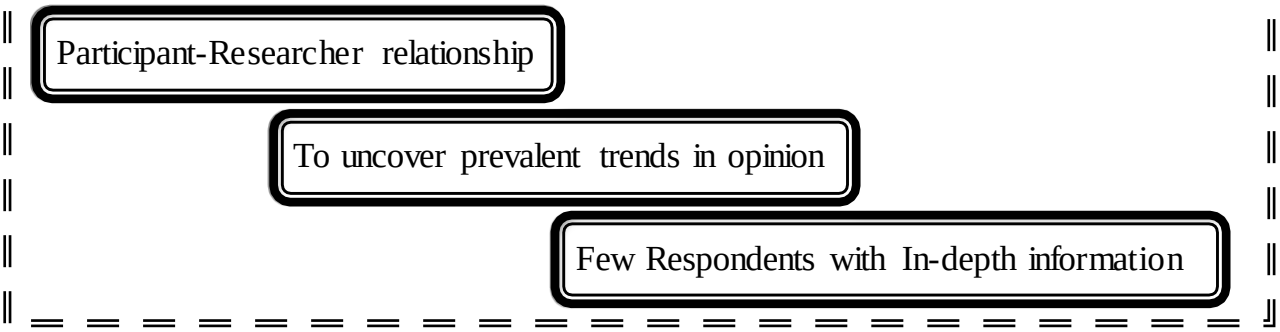
As a tool of analysis this study adopts **Governance and Political Economy Theory of Climate Change.** The theory assumed that Governance and Political Economy (PE) are critical determinants for sustainable development, equity, and climate change mitigation because they circumscribe the process through which these goals and how to attain them are articulated and contested (Edenhofer, 2014). The theory further states that there are many compelling reasons for governments to invest in climate action. For example, the theorist cited some of the reasons found by a study conducted by Global Commission on the Economy and Climate 2019. From the study, it was found that ambitious climate action could lead to 37 million net new jobs globally and avoid 700,000 premature deaths from reduced air pollution by 2030 (report of Global Commission on the Economy and Climate 2019). The theory went further to affirm that there are yet myriads of obstacles to domestic progress on climate goals which persist in most countries. Some of which includes corruption on the political office holders; low institutional capacity, lack of commitments by government etc. the theory additionally made it clear that even wealthy and high-capacity countries face major political obstacles to enacting and effectively implementing climate policies. The theory then concludes by recommending among others the need to focus on capacity building, domestic and international finance, and transfer of technology as critical components of effective climate responses (Averchenkova, and Bassi, 2016).

Methodology

Research Design

This study was strictly qualitative in approach. Qualitative research worked out under the use of observations, interviews, and document reviews or combination of all. The main focus in qualitative research is to understand, explain, explore, discover and clarify situations, feelings, perceptions, attitudes, values, beliefs and experiences of a group of people (Kumar, 2005). The importance of qualitative research design is pictured in figure 3.1:

Fig. 3.1: Unique Attributes of Qualitative Research Adoption



Source: deMarraise, 2016.

Population and Sampling of the Study

The target population for this study includes principal staff of local communities (since they are directly affected by climate change); Civil Society Organization (CSOs) working on climate change (as they can pressurize government to take action) particularly - Member of Friends of the Earth Nigeria (FoEN) and Member of Nigeria Conservative Foundation (NCF); some elected officials such as the National Assembly (in order to increase awareness of the importance of addressing corruption and weak climate policy implementation) e.g. a member of House of Representatives Committee on Climate Change. Purposive and snowball sampling techniques were used in the course of this study. Purposive sampling technique was used to select principal staff. The rationale for the use of purposive sampling lies on the need to recruit or determine beneficiaries or participants who provides additional in-depth and in-house information about the phenomenon under investigation. Snowball sampling technique played a second fiddle role to get more information from important respondents that were hitherto left out when purposive sampling was used.

The study sample size therefore, was **three (3)** respondents. The sample size was determined during the data collection phase at a time when we realized we have reached a point of data saturation.

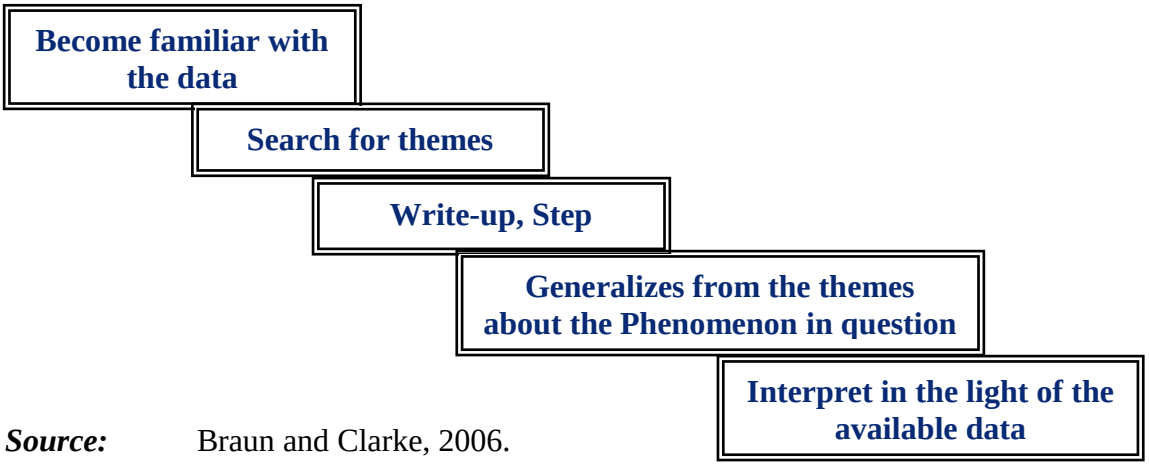
Method of Data Collection

- **Interview:** The main source of data is interview (both face-to-face interview and online interview – web-based interview which were conducted using online platforms like google Meet and Zoom). The web-based allowed us to conduct our study with ease.
- **Secondary Documents:** Secondary data corroborated the data gotten from primary source. Some of the relevant documents relied on are: Nigeria National Climate Change Policy and Response Strategy "revised report" [NCCPRS] (2021) **(D_1)** and Nigeria Climate Action Plan by United Nations Development Programme, 2021 **(D_2)**

Method of Data Analysis

Thematic analysis was adopted for the study. Thematic analysis is a method of analyzing data by putting similar responses in the same category (Kerlinger, 1986). He added that … the goal of a thematic analysis is to identify themes, i.e. patterns in the data that are important or interesting, and use these themes to address the research questions. The rationale behind the choice of thematic analysis was that 'the approach can produce an insightful analysis that answers the research questions'. The study adapted the Clarke and Braun's (2006) 5-step framework as shown in figure 3.2:

Figure 3.2 Steps in Thematic Analysis



Source: Braun and Clarke, 2006.

Data Analysis

Analysis of Interview Responses Using Thematic Analysis

S/N	Position	Code	Date
11.	A member of House of Representatives Committee on Climate Change	**(R_1)**	24/01/2024
12.	Member of Friends of the Earth Nigeria (FoEN)	**(R_2)**	24/01/2024
13.	Member of Nigeria Conservative Foundation (NCF)	**(R_3)**	23/02/2024
14.	Nigeria National Climate Change Policy and Response Strategy "revised report" [NCCPRS] (2021)	**(D_1)**	
15.	Nigeria Climate Action Plan by United Nations Development Programme, 2021	**(D_2)**	

Source: Research Survey, 2024. ***Note:*** **R** = Respondent and

Results and Findings

Theme I: The impact of corruption from the part of political office holders on climate policy and action in Nigeria

The respondents unanimously agreed that corruption from the part of political office holders' impact negatively on climate policy and action in Nigeria as they gave few ways in which corruption has undermined climate action as follows:

- **Misappropriation of Funds:** Corruption has led to the misuse of funds designated for climate-related projects, which reduced the effectiveness of the projects and hinder efforts to address climate change. For example, The Erosion and Watershed Management Project (EWMP) in 2017; it was reported that over #17 billion had been spent on the project with minimum results. An investigation by the Independent Corrupt Practices and Other Related Offences Commission (ICPC) found that funds were diverted to private accounts (R_1, R_2 and R_3).
- **Lack of Transparency:** Corruption has made it difficult to hold government officials accountable for their actions, which has reduced public trust in government efforts to combat climate change (R_1, R_2 and R_3).

Theme II: The impact of low institutional capacity on climate policy and action in Nigeria

According to the respondents, low institutional capacity is a major challenge in Nigeria's efforts to address climate change. The following are few ways low institutional capacity has hindered climate action:

- **Lack of Expertise:** Many Nigerian government agencies lack the much needed technical expertise to effectively address climate change. This has hampered the relevant institutions from brazing up to their responsibilities.
- **Limited Coordination:** There is often poor coordination between different government agencies, which can result in duplication of efforts or gaps in climate policy.
- **Limited Capacity for Monitoring and Evaluation:** Many Nigerian government agencies lack the capacity to monitor and evaluate the effectiveness of climate-related projects, which has hindered their ability to identify and address problems. The respondents capped it up with an illustration by stating thus:

  > The national Climate Change Adaptation Strategy (NCCAS) was launched in 2022, but a review of the strategy in 2018 found that very little progress had been made in implementing its recommendations. The review found that many government agencies lacked the capacity to develop and implement climate-related policies, and that there was poor coordination between different agencies (R_1, R_2 and R_3).

Conclusion and Recommendations

Corruption and low institutional capacity have had a significant negative impact on climate policy and action in Nigeria. Corruption has resulted in the misappropriation of funds designated for climate-related projects, and has reduced public trust in government efforts to address climate change. Low institutional capacity has hindered the implementation of climate-related policies, reduced coordination between different government agencies, and reduced the capacity for monitoring and evaluation. These challenges must be addressed in order for Nigeria to effectively mitigate and adapt to the impacts of climate change. The study recommends among others the need to fight corruption to reduce it to the barest minimum and the need for regional cooperation and international support are crucial for effective climate change policy implementation across the continent.

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