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**P.M.B. 1157  
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**THE FACULTY OF SOCIAL AND MANAGEMENT SCIENCES  
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## Table of Contents

|                                                                                                                                                                                   |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>EFFECT OF CORPORATE FINANCING DECISIONS ON FIRM VALUE:<br/>EVIDENCE FROM LISTED INFORMATION COMMUNICATION<br/>TECHNOLOGY SECTOR IN NIGERIA</b>                                 | 1   |
| <i>ROTIMI Damilola Praise, TORIOLA Abdullateef Olamilekan, &amp; JIMOH AbdulrazaqTaiy</i>                                                                                         |     |
| <b>IMPACT OF CBN’S ANCHOR BORROWERS’ PROGRAM ON AGRICULTURAL<br/>FINANCING IN KEBBI STATE</b>                                                                                     | 17  |
| <i>Abubakar, Modibbo, Abubakar, Zaid FCA, PhD, Musa &amp; Abubakar Liman</i>                                                                                                      |     |
| <b>ETHNO-COMMUNAL CONFLICTS AND THE CHALLENGES OF NATIONAL<br/>INTEGRATION IN NIGERIA</b>                                                                                         | 33  |
| <i>Abdullahi Garba Kangiwa, PhD</i>                                                                                                                                               |     |
| <b>VERIFICATION OF THE DETERMINANTS OF EXCHANGE RATE<br/>VOLATILITY IN NIGERIA: EMPIRICAL APPROACH</b>                                                                            | 51  |
| <i>Abdullahi Ibrahim Haruna &amp; Mansur Abdullahi</i>                                                                                                                            |     |
| <b>IMPACT OF PUBLIC EXPENDITURE ON HEALTH SERVICES DELIVERY IN<br/>THE FEDERAL CAPITAL TERRITORY, NIGERIA</b>                                                                     | 64  |
| <i>Abubakar Orlando Ijoko, Sule Magaji (PhD) &amp; Bappayo MasuGombe (PhD)</i>                                                                                                    |     |
| <b>THE IMPACT OF MILITARY EXPENDITURE ON ECONOMIC GROWTH IN<br/>NIGERIA: ABOOTSTRAP ARDL APPROACH</b>                                                                             | 75  |
| <i>Kayit Abel Inzabariat, Wowo Zainab Dahiru &amp; Abdulkarim Ibrahim Haruna</i>                                                                                                  |     |
| <b>POVERTY REDUCTION THROUGH NAPEP PROGRAMS IN GWALE LOCAL<br/>GOVERNMENT AREA OF KANO STATE, NIGERIA</b>                                                                         | 88  |
| <i>Jamilu Sani Garba, Musa Yusuf Kabara, Aminu Ado Ahmad &amp; Jamilu Maikudi Uba</i>                                                                                             |     |
| <b>FINANCIAL AND NON-FINANCIAL PERFORMANCE OF THE RURAL<br/>WOMEN ENTREPRENEURS IN JIGAWA STATE BEFORE AND AFTER THE<br/>STATE ECONOMIC EMPOWERMENT PROGRAMME OF 2008 – 2015.</b> | 94  |
| <i>Itari Abdul-Razaq Rilwan &amp; Muhammad Abdu Mago</i>                                                                                                                          |     |
| <b>ISLAMIC BANKING EFFICIENCY: A CROSS-COUNTRY ANALYSIS OF<br/>AFRICA AND ASIA</b>                                                                                                | 107 |
| <i>Abdulrazaq T. Jimoh, DayoBamigbade &amp; John A. Attah</i>                                                                                                                     |     |
| <b>COVID-19 AND ECONOMIC GROWTH IN WEST AFRICA: EVIDENCE FROM<br/>SOME SELECTED COUNTRIES.</b>                                                                                    | 123 |
| <i>Jamilu Sani Garba, Hauwa’u Yakubu Dauda, Aisha Kabir Ahmad &amp; Aminu Ado Ahmad</i>                                                                                           |     |
| <b>ENVIRONMENTAL COSTS AND FINANCIAL PERFORMANCE: EVIDENCE<br/>FROM QUOTED CEMENT COMPANIES IN NIGERIA</b>                                                                        | 132 |
| <i>Aminu U. AbdullahiPhD &amp; Yunusa Salisu Muhammad(corresponding Author)</i>                                                                                                   |     |

|                                                                                                                                                               |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>ASSESSMENT OF ANCHOR BORROWERS' PROGRAMME ON RICE VALUE CHAIN AND EMPLOYMENT GENERATION IN KEBBI STATE, NIGERIA</b>                                        | 146 |
| <i>Ugbor I.K, Ahmed A.Y, Maccido A &amp; Abdul'zeez S.B</i>                                                                                                   |     |
| <b>RESPONSE OF INFLATION TO COMPONENTS OF BROAD MONEY AGGREGATE(M3) SHOCKS IN NIGERIA</b>                                                                     | 158 |
| <i>Adamu Hassan</i>                                                                                                                                           |     |
| <b>IMPACT OF FOREIGN DIRECT INVESTMENT INFLOWS AND PUBLIC EXPENDITURE ON RENEWABLE ENERGY CONSUMPTION IN NIGERIA: TESTING THE POLLUTION HAVENS HYPOTHESIS</b> | 167 |
| <i>Afolabi Quadri Balogun, Ene Debra Oloja-Ojabo &amp; Itari Abdul-Razaq Rilwan</i>                                                                           |     |
| <b>SOCIOLOGICAL EXPLANATIONS OF MEDICAL TRIPS AND HOW IT AFFECTS THE FUTURE OF THE HEALTHCARE DELIVERY SYSTEM IN NIGERIA</b>                                  | 179 |
| <i>Abdullahi Abubakar Ambursa &amp; Bashar Hamisu</i>                                                                                                         |     |



## **EFFECT OF CORPORATE FINANCING DECISIONS ON FIRM VALUE: EVIDENCE FROM LISTED INFORMATION COMMUNICATION TECHNOLOGY SECTOR IN NIGERIA**

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### **ABSTRACT**

*The financing decision is a critical role in determining a corporation's success or failure, to optimize such decisions may cause financial distress leading to bankruptcy. Hence, this study investigates the effect of financing decisions on the firm value of listed ICT firms in Nigeria. Annual panel data was obtained from audited annual reports of the companies from 2009 to 2020. The data were analysed via the regression method and the results showed that long-term debt, assets maturity, firm growth and firm age have significantly positive effects on the value of listed ICT firms at a 5% significant level. The study concluded that corporate financing decision has a significant effect on the firm value of companies in the Information Communication and Technology sector in Nigeria. The study, therefore, recommended that financial managers of listed ICT firms in Nigeria should constantly weigh the marginal benefit of utilizing long-term debt against the marginal cost of using long-term debt before deciding on making use of it to finance their operations. Management of listed ICT firms in Nigeria should ensure that appropriate firm policies are channelled towards the growth of their firms, that is, increase in sales as this portrays them to more favourable future funding which will lead to an increase in firm value.*

**Keywords:** Corporate, Financing Decision, Firm Value, ICT, Nigeria

JEL Classification: G30

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### **1. Introduction**

The decision to start a new business or expand an existing one entails an implicit decision to raise capital to finance the business activities. Financing a decision being one of the key decisions made by the financial manager of a firm is an important task. Finance managers needed to optimize the best financing method either using debt or equity to maximize their firm

value. Firms, as deficit spending units, require more funds than they have, but individuals and some corporate organizations, as surplus spending units, have more cash than they need (Alhassan & Seidu, 2010; Daud, Norwani, Mansor & Endut, 2016). One of the key functions of a financial manager in optimizing a firm's value is to decide on the proportion of numerous forms of debts and equities that optimize firm value while minimizing the average cost of capital.

Incorrect finance mix decisions may thus have unanticipated and adverse consequences. The decision between equity and debt financing is a significant challenge for management, and it necessitates that financial managers rely heavily on their skills, experience, and intelligence because the financing decision has a long-term impact on the firm's expected cashflows and going concern status (Ahmad & Siahaan, 2018). As a result, the firm's financing policy compels managers to seek innovative ways of funding new projects to generate more wealth and ensure the firm's long-term survival (Abor & Biekpe, 2005). According to Alhassan and Seidu (2010), a firm's financing policy may include the use of retained earnings, borrowing through the issuance of debt instruments, or the issuance of new shares. Issuing new equity allows businesses to acquire capital without having to pay interest, but it dilutes ownership. Debt, on the other hand, allows access to capital without relinquishing control, as well as an alternate and maybe less expensive source of financing up to a certain risk threshold. The mix of various funding sources that maximizes the firm's value constitutes the firm's optimal capital structure which primarily signified the corporate financing decision. Capital structure as one of the primary corporate financing decisions has a vast influence on company value.

In recent times, most researchers had centered their discussion on the maximization of firm value by utilizing the combination of debt and equity (Aggarwal & Padhan, 2017; Alhassan & Seidu, 2019). The relationship between corporate financing decisions (capital structure) and firm value has been the topic of much theoretical and empirical debate. In the literature, discussions by previous scholars have centered on whether there is an optimal capital structure for an individual organization or whether the fraction or amount of debt usage is unimportant or relevant to firm value.

Modigliani and Miller (1958) proposed one of the most capital structure theories. The theory assumes that in a frictionless world, firm financial leverage is unrelated to firm value, but in a world with tax-deductible, interest payments, company value, and capital structure are positively associated. Furthermore, Miller (1977) added personal taxes to their prior research and found that optimal debt utilization occurs at the macro level but not at the business level because interest deduction at the firm level is substantially offset at the investor level. However, there are a few alternative capital structure theories, such as Myers' (1984) trade-off theory, Myers and Majluf's (1984) pecking order theory, and market timing theory. Baker and Wurgler (2002), as well as the agency cost theory by Jensen and Meckling (1976), for instance, argued that if capital structure decisions are useless in a perfect market, then imperfection in the real world might be used to justify their importance.

Financing decisions are a crucial factor in deciding a corporation's success by utilizing debt and equity, and any incorrect decision in optimizing financial structure would create a financial strain on the organization and ultimately lead to bankruptcy (Abor, 2005; Eriotis, 2007). The rationale for this is that using debt would expose the companies to financial danger. As a result, selecting a capital structure that represents financial resources is a critical component in deciding the firm's performance.

In Nigeria, just like any other country in the world, certain internal and external factors might influence the financing decision of a firm and such factors include; social, legal, financial, taxes, and macroeconomic variables. In achieving appropriate financing decision for their firms, finance manager needs to take into consideration, the nature of their business, the regulatory guidelines, and other key factors, that are peculiar to the sector in which they operate. The Information Communication and Technology (ICT) sector is one of the listed sectors on the Nigerian Exchange (NGX) and the performance of the sector has improved drastically but with some degrees of fluctuations. The introduction of mobile telecommunication in Nigeria, in 2005 has changed the narration of the sector. The value (market capitalization) of listed ICT firms has been on the downward side in the past years. However, the enlisting of Telecommunication giants the Mobile Telecommunication Network (MTN Plc) and Airtel Plc on the Nigerian Exchange has improved the performance of the sector. According to the NGX fact sheet report (2010), the general market performance nosedived further in the face of a series of recovery measures from the early global financial crisis. In 2009, all sectors closed on a negative note, leavening the ICT sector as the worst hit with a total loss of 49.72 percent. However, the performance of the sector improves significantly in the fourth quarter of 2016 contributing to 41.90bn total market capitalization making it the second-best performing sector after the agricultural sector. In addition, the sector was ranked the best performing in terms of improvement in market capitalization of 3.83trn with a significant improvement of over 13812.36 percent. Furthermore, in the year 2020, the ICT sector was ranked the best performing sector in terms of improvement in market capitalization by recording a total market capitalization of 6.68trn with a significant improvement in market capitalization of 103.46 percent (NGX, 2020).

In this connection, several empirical studies have shown that changes in firms financing decisions are linked with firm value and this claim is supported by (Aggarwal & Padhan, 2017; Ahmad & Siahaan, 2018; Alhassan & Seidu, 2015; Antwi, Atta & Zhao, 2012; Daud, *et al.*, 2016; Ogbulu & Emeni, 2012). These studies concluded that firm financing decision (capital structure) leads to changes in firm value but the appropriate mixture and causal relationship between these variables may not hold for all the studies as a result of differences in selected firms and geographical locations of these firms. There is no consensus to date as to which financing mix (debt to equity) better explains the behaviour of firm value while the area of financing decision and firm value has attracted a lot of interest from researchers. The effect of firm financing decisions on firm value in Nigeria has been investigated by several researchers (Dada & Ghazali, 2016; Ibrahim, 2017; Igbinovia & Ogbeide, 2019; Lambe, 2014; Oboh, Isa & Adekoya, 2012; Ogbulu & Emeni, 2012). These studies reported inconclusive and mixed results as there is no appropriate capital mix in optimizing the value of firms. In addition, empirical evidence shows that these past studies majorly focused on the combinations of equity and debt as a proxy for capital structure. However, the study of Alhassan and Seidu (2015) employed asset maturity structure as a control variable when they examined the relationship between firm financing decisions and firm value. This study will take a step forward by considering how assets maturity structure as one of the core variables that affect firm value most especially listed ICT firms in Nigeria.

Furthermore, studies on firm financing decisions and firm value in Nigeria mostly proxy firm value using either share price at the last trading day or market capitalization but this study will measure firm value using market value added. The market value added shows the combination of both historical (accounting) and economic measurements of a firm. Lastly, previous studies on the subject matter seem to have focused on other sectors of the NGX such as the financial services, consumer goods, industrial goods, and oil and gas sectors without considering their

effect on the listed ICT firms on NGX while looking at the important of the sector most especially after the outbreak of Covid-19.

Thus, this study aims to investigate the financing decision on the firm value of listed ICT firms on the Nigerian Exchange. This study sampled 7 of the 10 listed ICT companies on the NGX floor as of 6th August 2021 to achieve the objective of this study. Three (3) firms were left out of this report due to the non-availability of data. This research covered the period from 2009 to 2020. The year 2009 was elected as the start year for this study due to the global financial crisis in 2008 that spanned to 2009. Meanwhile, due to the non-availability of data, the year 2021 was excluded from this study.

## **2. Literature Review**

### **Firm Value**

Firm value can be defined as the value that an enterprise or a business organization is worthy of at a particular date (Gitman&Zutter, 2012). In summary, it refers to a firm's market worth at any given point in time. Kartal(2017) opined that firm value is an amount that one needs to pay, to buy/ take over a business entity. According to Marouan and Moez (2015) firm value can also be referred to as enterprise value (EV) and it's determined based on either book value or market value. Pandey (2011) opined that the market value of a firm is expected to be higher than the book value per share for profitable and growing firms. The stock price and firm value can be affected by the activities and decisions of the company's managers, management, and shareholders (Lawal &Sakariyahu, 2018).

According to Fama and French (2001), the optimum firm's value can be achieved by implementing strategic financial management decisions; making one financial decision will almost certainly affect other financial decisions, and thus have an impact on the firm's value. By making an appropriate investment, financing, and dividend policies, an optimal combination of these decisions will maximize the firm's value. The value of a firm can consider from either an accounting approach or an economic approach. The accounting approach to firm value shows how accounting variables (historical costs) of a firm are used in measuring a firm's value however, the economic approach [Tobin's Q and Market Value Added (MVA)] measures shareholder value creation. According to Lawal and Sakariyahu (2018), a positive market value added means that the company has created wealth for the shareholders, while a negative result indicates that the wealth or value creation of the firm has been reduced.

### **Financing Decision**

Srinivasan and Murugan (2015) defined financing decisions as the procurement of funds for the firm's investment proposals and its working capital requirements. According to David (2007), a finance choice determines the ideal capital structure for the organization, which includes determining the means utilized by the firm to acquire funds, whether by issuing stock, issuing debt, selling assets, or a mix of these financing is a critical decision made by firms and finance managers who need to optimize the optimal financing approach by utilizing debt or equity, which help to maximize their firm's value. The use of a combination of debt and equity to maximize performance has been examined in several publications.

Financing decisions are made in accordance with the corporate policy in order to achieve the best balance between debt and equity. The ideal capital structure, according to Brigham and Houston (2001), is a mix of debt and equity that maximizes the firm's value. According to Modigliani and Miller (1958), debt usage may give certain benefits, but it may also result in

expenses associated with the risk of bankruptcy, so it is the role of the finance manager to balance that trade-off. The following variables are used to proxy firm financing decisions in this study; total equity, long-term loan to total assets, short-term loan to total assets, and assets maturity structure.

### **Theoretical Review**

There are numerous theories on firms financing decisions and firm value. However, this study focused on some fundamental theories of firms' value as it relates to financing decisions.

### **Pecking Order Theory**

The pecking order theory has been proposed by Donaldson (1961) as one of the most influential theories on corporate financing decisions. The theory is contrary to the popular belief that firms have a unique combination of debt and equity finance which helps to minimize their cost of capital. However, the theory suggests that firms do not have any target capital structure and there is no optimum capital structure. This theory is based on the assumption that the professional managers of the firm are well equipped with more information than compared to investors. As per the pecking order theory, the internally generated funds have the lowest cost and the new equity capital has the highest cost.

The theory further suggested that when a firm is seeking ways to finance its long-term investments, it has a well-defined order of preference to the sources of finance it uses. It states that a firm's first preference should be the utilization of internal funds that is, retain earnings then followed by debt and external equity (new equity). The empirical justification for the pecking order of financing is that the insistence on debt financing for profitable firms should be reasonable and become slighter due to incremental increases in profits, as such profits could be used for financing with minimum cost. The theory suggested that the more profitable firm becomes, the lesser they borrow because it would have sufficient internal finance to undertake its investment projects. However, when internal finance is inadequate, firms should source for external finance and most preferably corporate bonds.

Due to this financing hierarchy, the pecking order theory rejects the existence of an optimal or at least a target capital structure for a firm to be pursued while the debt ratio of the firm reflects the cumulative requirement for external financing decisions, contrary to trade-off theories. In this connection, the relationship between debt level and firms' value is expected to be positive while the relationship between new equity capital and firm value is expected to be negative for this study.

### **Signalling Theory**

The signalling theory was proposed by Spence (1973). The signalling theory reflects the intentional transmission of positive information to outsiders to communicate positive corporate qualities. Unlike the trade-off and pecking order theories, the firm financial structure serves as part of the solution to problems of over and underinvestment in most firms and changes in firms' capital structures cannot be regarded as a signal of quality in most firms' financial position. The theory assumes that the true distribution of firm profits is only known by financial managers and not by investors as a favourable signal is mostly sent to the market by management while the unfavourable signal is mostly withheld. The theory states that firms with favourable prospects can raise additional capital by issuing debt while firms with unfavourable prospects can raise additional capital through the issuance of equity. As a result of this, a firm with relatively high debt levels is mostly considered as the firm with a higher quality of signal and financial managers of such highly geared firms are also considered as successful and as a

result of this, the market overvalues their securities. However, financial managers of firms with low quality or unfavourable prospects cannot imitate higher quality firms by issuing more debt as the marginal expected bankruptcy costs for any debt level for those firms are mostly high.

The argument of this theory is relevant in anchoring the role of financial managers in making financing decisions which play a key role in enhancing the firm value of listed ICT firms in Nigeria. This is because the theory holds that firms with favourable prospects in the capital market can raise additional capital through the issuance of debt whereas, firms with unfavourable prospects can raise additional capital by issuing new equity and this plays a critical role in influencing the financing decision of most firms.

### **Empirical Review**

Ogbulu and Emeni (2012) conducted research on how capital structure affects firm value. the study selected 124 listed firms on the NGX for ten (10) years. The ordinary least square method of regression was employed for the analysis. The result revealed that equity capital as one of the components of capital structure is insignificant to the value of a firm while long-term debt was reported to be a major determinant of a firm value.

Muritala (2012) carried out an empirical analysis of how capital structure affects firms' performance in Nigeria for five (5) years. The result from Panel Least Square (PLS) confirmed that asset turnover, size, firm age, and firm asset tangibility were positively related to firm performance. Furthermore, the result provides evidence that a negative and significant relationship exists between asset tangibility and return on asset.

Lawal, Edwin, Kiyanju and Adisa (2014) examined the effect of capital structure on firm performance of ten (10) quoted manufacturing firms in Nigeria for ten years. The panel data techniques were employed to consider the impact of key variables such as return on asset, return on equity, total debt to total asset, and total debt to equity. The study reported that capital structure variables (total debt and debt to equity ratio) are negatively related to firm performance.

Lambe (2014) appraised the impact of the capital mix, the role of debt capital and the factors that influence a firm choice of capital and the overall effect of a firm's market value in Nigeria. The study employed both primary and secondary data. The primary data were obtained through the use of a questionnaire while the secondary data were sourced from the annual financial statement of the sampled firm. The result showed that the market value of a firm is positively and significantly influenced by its choice of capital structure.

Abdullahi and Adedokun (2016) investigated the impact of financial leverage on the financial performance of quoted cement manufacturing companies in Nigeria. The study employed secondary data which were extensively sourced from the annual financial statements of the selected manufacturing cement firms in Nigeria while the linear regression technique was employed for the analysis. The results indicated that there was a positive and significant relationship between the debt-equity ratio and the financial performance of listed cement manufacturing firms in Nigeria. Daud, *et al.*, (2016) conducted research on how firm financing decision influences the corporate performance of listed firms in Malaysia. The study chose 76 Malaysian listed companies and covered a fourteen (14) year balanced panel data series. The

study's findings demonstrated that capital structure had no meaningful effect on the performance of Malaysian listed companies.

Aggarwal and Padhan (2017) examined the effect of capital structure and firm quality on the firm value of selected BSE-listed India hospitality firms over 16 sixteen (16) years. The study employed panel data techniques through pooled OLS, fixed and random effect models. The variables employed in the study include firm quality which was measured through the Altman Z score, leverage, size, profitability, tangibility, growth, liquidity, GDP and inflation. The study reported that firm quality, leverage, liquidity, size and economic growth had a significant effect on firm value and the Modigliani Miller theorem of capital structure irrelevance does not hold for the Indian hospitality sector.

On the causal relationship between firm capital structure and firm value, Kartal (2017) investigated the relationship between firm capital structure and firm value of listed manufacturing industry spanning between 1990Q1–2015Q4. The result revealed a unidirectional asymmetric causal relationship between capital structure and firm value, indicating that capital structure Granger-cause firm value when shocks are negative, but not when shocks are positive. In addition, the result further showed that a decrease in total debt leads to a decrease in the market-to-book value ratio.

Ahmad and Siahaan (2017) investigated the impact of finance, investment, and dividend policy decisions on the value of KOMPAS 100 index companies. The data was analyzed using the Partial Least Square (PLS) technique after 25 companies from the KOMPAS 100 index were chosen for the study. They reported that financing decisions had a negative and significant impact on corporate value, but dividend policy had a positive and large impact on firm value. The investment choice, on the other hand, had a negative and minor influence on corporate value.

Lawal and Sakariyahu (2018) conducted a research on the relationship between firm ownership structure and firm value of listed deposit money banks in Nigeria for nine years. The study relied on secondary data gathered from audited annual reports of Nigerian listed deposit money banks. The dynamic estimate technique [General Method of Moments GMM] was used. The result revealed at various levels of significance, that ownership concentration and management ownership have a negative and substantial effect on firm value.

Igbinovia and Ogbeide (2019) explored the link between capital structure and business value in a sample of Nigerian publicly traded manufacturing firms. The study chose fifteen (15) Nigerian manufacturing firms. The panel ordinary least squares (OLS) regression technique was used for the investigation, and the results showed that leverage, asset tangibility, profitability, and firm age all have a significant relationship with firm value. Meanwhile, the firm size of selected listed manufacturing companies in Nigeria had a negative and insignificant connection with firm value.

Nelson and Ayunku (2019) investigated the link between capital structure and financial performance of a sample of Nigerian microfinance banks from 2009 to 2018. The debt-to-equity ratio, long-term debt ratio, and total debt ratio were used as independent factors in the study, while return on equity was used as the dependent variable. For the analysis, the OLS estimation technique was used. The findings revealed a favorable and statistically significant link between the total debt ratio and return on equity. Meanwhile, the debt-to-equity ratio has

a negative and insignificant link with return on equity, and the long-term debt ratio has a positive and insignificant relationship with return on equity.

Aamir, Muhammed and Muhammed (2021) conducted a five-year study on the relationship between debt financing and the performance of listed firms on the Pakistan stock exchange. The panel data estimation technique was used, and the results showed that both short and long-term debt of listed firms on the Pakistan stock exchange (PSX) had a negative and significant impact on firm profitability, whereas sales growth and firm size had a positive and significant impact on firm performance.

### Research Gap

The preceding section on the empirical literature on the relationship between firms financing decisions and firm value has provided mixed evidence from both developed and developing countries. Empirical evidence shows that past studies (Aggarwal & Padhan, 2017; Ahmad & Siahaan, 2018; Alhassan & Seidu, 2015; Antwi, Atta & Zhao, 2012; Daud, *et al.*, 2016; Ogbulu & Emeni, 2012) majorly focused on capital structure. However, the study of Alhassan and Seidu, (2015) employed asset maturity as a control variable when they examined the relationship between firm financing decisions and firm value. This study will take a step forward by considering how assets maturity structure as one of the core variables, affects firm value most especially in listed ICT firms in Nigeria.

Furthermore, studies on firm financing decision and firm value which is mostly proxy using either share price at the last trading day or market capitalization but this study will measure firm value using market value added. The market value added shows the combination of both historical (accounting) and economic measurements. Lastly, little is known about the activities and market performance of listed ICT firms on the NGX as it relates to firms financing decisions, as previous studies in Nigeria have focused on other sectors such as financial services, consumer goods, industrial goods, oil and gas sectors without considering the effect on the listed ICT firms on NGX while looking at the important of the sector most especially after the outbreak of Covid-19.

### 3. Methodology

This study followed a panel data estimation procedure that exploits both the time series and cross-section dimensions of data. The estimation method used in this study is the static panel data regression analysis and this involves estimating either the pooled Ordinary Least Square (OLS) or fixed effects and random effects models. Breusch and Pagan Lagrangian Multiplier (BP-LM) tests were utilized to determine the most appropriate estimates between the pooled Ordinary Least Square (OLS) and fixed/random effects. Hausman test was employed to select the most suitable model between the fixed and random estimates. The strategy to determine whether the effects are fixed or random is to use the Hausman (1978) test under the null hypothesis of the random effects model. If the null hypothesis is rejected the effects are considered to be fixed and the model is then estimated by OLS.

### Model Specification

The model used to achieve the objectives of this study is adapted from the study of Antwi, Mills and Zhao (2012) which is stated as follows:

$$FV = f(EQUITY, LTDEBT) \dots \dots \dots (3.1)$$

Where FV is firm value; EQUITY is the equity capital and LTDEBT is the long-term debt

However, the model is re-modified as follows:

$$FV = f(EQUITY, STDA, LTDEBT, ASSMAT, GROWTH, FSIZE, ROA, FAGE) \dots \dots \dots (3.2)$$

The re-modified model is further specified econometrically as:

$$FV_{it} = \beta_0 + \beta_1 EQUITY_{it} + \beta_2 STDA_{it} + \beta_3 LTDEBT_{it} + \beta_4 ASSMAT + \beta_5 FGROWTH_{it} + \beta_6 FSIZE_{it} + \beta_7 ROA_{it} + \beta_8 FAGE_{it} + \mu_{it} \dots \dots \dots (3.3)$$

The justification for the model modification is to improve the robustness of the study and to achieve the specific objectives of this study. For this study, the short-term debt to total asset and assets maturity structure was added to the main independent variables while four control variables (firm growth, firm size, return on assets, and firm age) were added to the model.

**Table 1: Measurement of variables**

| Variables/Symbol                        | Measurements                                                                                                                             | Back up literature                                                            |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Firm value (FV)                         | Market value added (MVA) is divided by Total Assets while MVA is subtracting the market value of the firm from the book value of a firm. | Marouan and Moez (2015), Lawal and Sakariyahu (2018)                          |
| Equity (EQUIT)                          | Total equity capital                                                                                                                     | Antwi (2012),                                                                 |
| Short-term debt to Total assets (STDTA) | Short-term debt divided by total asset                                                                                                   | Aamir, et al., (2021)                                                         |
| Long-term debt to Total asset (LTDEBT)  | Long-term debt divided by Total assets                                                                                                   | Antwi (2012), Ogbulu&Emeni (2012)                                             |
| Asset Maturity (ASSMAT)                 | It is calculated as the book value-weighted average of the maturities                                                                    | Alcock, Finn & Tan (2012)                                                     |
| Firm Growth (FGROWTH)                   | It is calculated as a change in total sales                                                                                              | Aamir, <i>et al.</i> , (2021), Aggarwal &Padhan (2017)                        |
| Firm Size (FSIZE)                       | The natural log of assets of the firm at the end of the year                                                                             | Aamir, et al., (2021); Daud, <i>et al.</i> , (2016), Igbinovia&Ogbeide (2019) |
| Return on asset (ROA)                   | It is measured as the profit before interest and tax divided by total assets.                                                            | Aggarwal &Padhan (2017), Igbinovia&Ogbeide (2019)                             |
| Firm Age (FAGE)                         | The number of years of a firm is in operation                                                                                            | Igbinovia&Ogbeide (2019), Lawal, et al., (2014)                               |

Source: Author's Compilation (2021)

The *a priori* expectation is as follows:  $\beta_4, \beta_5, \beta_6, \beta_7, \beta_8, > 0$ ; while  $\beta_1, \beta_2$  and  $\beta_3 < 0$

#### 4. Data Analysis and Presentation of Result

This section presents the result of the data analysis. It employs both descriptive and inferential statistical tools. The descriptive tools include mean, standard deviation, maximum and minimum, while it utilized panel regression of random and fixed effects to examine the effect of corporate financing decisions on the firm value of companies in the Information Communication and Technology sector in Nigeria.

##### Descriptive Statistics

The table below presents descriptive analysis results showing the summary statistics for each of the variables included in the study.

**Table 2: Descriptive Statistics**

| Variables | Mean     | Std. Dev. | Minimum  | Maximum  | Obs. |
|-----------|----------|-----------|----------|----------|------|
| FV        | 42.15    | 22.72     | 11.57    | 80.11    | 46   |
| EQUITY    | 5.01E+08 | 1.19E+09  | 159667.0 | 3.57E+09 | 46   |
| STDA      | 49.33    | 37.35     | 6.04     | 183.0    | 46   |
| LTDEBT    | 13.97    | 26.17     | 0.00     | 87.88    | 46   |
| ASSMAT    | 41.77    | 35.82     | 0.23     | 185.26   | 46   |
| FGROWTH   | -9.76    | 152.69    | -981.00  | 144.50   | 46   |
| FSIZE     | 6.52E+08 | 1.54E+09  | 1498247. | 4.72E+09 | 46   |
| ROA       | 8.063    | 16.84     | -23.49   | 85.62    | 46   |
| FAGE      | 25.5     | 19.35     | 5.0      | 71.0     | 46   |

*Source: Authors' Computation, (2022).*

Table 2 shows that the firm value (FV) has a mean value of 42.15 with a standard deviation of 22.72 indicating a widespread of the values from the average. Firm values range from 11.57 to 80.11. Equity has an average value of 501 million with a standard deviation of 1.19 billion, which indicates that there is a widespread in equity value for the firm over time. Equity ranges from 159667 to 3.57 billion. Short-term debt to the total asset (STDA) has a mean value of 49.33 with a standard deviation of 37.35, indicating a significant difference in the short-term debt to total asset value for the firms. Short-term debt to total assets ranges from 6.04 to 183. Long-term debt to the total asset (LTDEBT) has an average value of 13.97 with a standard deviation of 26.17, which indicates a wide spread of the long-term to total asset value, which ranges from 0 to 87.88. Asset maturity (ASSMAT) has a mean value of 41.77 with a standard deviation of 35.82 indicating that there is a wide difference in asset maturity value for the firms over the years, which ranges from 0.25 to 185.26. Firm growth (FGROWTH) has a mean value of -9.76 with a standard deviation of 152.69 indicating a significant difference in firm growth value for the ICT companies. The value of firm growth ranges from -981 to 144.50. Firm size (FSIZE) has a mean value of 652 million with a standard deviation of 1.54 billion, which indicates a widespread in the value of firm size, which ranges between 1.49 million and 4.72 billion. Return on asset (ROA) as a mean value of 8.063 with a standard deviation of 16.84 indicates a widespread return on asset value for the ICT companies, which ranges between -23.49 to 85.62. Firm age (FAGE) has a mean value of 25.5 years with a standard deviation of 19.35 years indicating that the age of the ICT companies differs largely, with a range of 5 years to 71 years.

**Testing for Multicollinearity**

To check for multicollinearity among the independent variables in the model, the study utilizes the Variance Inflator Factor (VIF) test.

**Table 3: Results of VIF**

| Variable    | VIF      | I/VIF    |
|-------------|----------|----------|
| EQUITY      | 1.02E-11 | 6.934195 |
| STDTA       | 0.009434 | 2.660578 |
| LTDEBT      | 0.022639 | 2.392488 |
| ASSMAT      | 0.016995 | 1.717272 |
| FGROWTH     | 0.000234 | 1.492957 |
| FSIZE       | 2.79E-12 | 3.638815 |
| ROA         | 0.027234 | 1.755014 |
| FAGE        | 3.067768 | 4.453219 |
| Average VIF | 0.005    |          |

**Source:** Authors' Computation, (2022).

Table 3 presents the Variance Inflator Factor (VIF) test for the independent variables in the model. It could be seen from the table that each variable has a VIF value and its inverse (1/VIF), which is also referred to as the tolerance value. By the rule of thumb, a variable is highly collinear when the VIF is greater than 10 but where VIF is lesser than 10, collinearity does not exist. All independent variables as shown in Table 3, have VIFs that are less than 10 which implies they are not collinear. The closer the value of I/VIF to zero, the greater the degree of multicollinearity and vice versa (Gujarati, 2009). The tolerance value of all variables is above 50 in Table 3, indicating that they are closer to one than zero, so the results confirm that the model does not suffer from a multicollinearity problem.

**Table 4: Model Selection Procedure**

| Breusch Pagan LM (BP-LM) Test                                    |                |                   |
|------------------------------------------------------------------|----------------|-------------------|
| Chi $\chi^2$                                                     | <b>p-value</b> | <b>Hypothesis</b> |
| 8.342714                                                         | 0.0039         | Reject            |
| Decision: Pooled OLS model is not appropriate for the estimation |                |                   |
| Hausman Test                                                     |                |                   |
| Chi $\chi^2$                                                     | <b>p-value</b> | <b>Hypothesis</b> |
| 4.942232                                                         | 0.7637         | Accept            |
| Decision: Estimate the random effect model                       |                |                   |

**Source:** Authors' Computation (2022)

From Table 4 above, Breusch Pagan LM Random Effect Test yields a chi-square of 8.342714 with a p-value of 0.0039 from Table 4, thus opposing the hypothesis that the random effect variance is zero, suggesting that the Pooled OLS model is not suitable for the estimation. Consequently, the Hausman test was conducted to show the most appropriate between the fixed and the random effects. The test produces a chi-square of 4.942232 with a p-value of 0.7637 which indicates that the null hypothesis is strongly accepted. This means that the random effect model provides stronger and more reliable estimates than the fixed effect model, so random effect model estimates are interpreted to describe the effects of financing decisions on the firm value of ICT companies listed on the Nigeria stock exchange.

**Table 5. Panel Regression (Random Effect Model Results)**

| Variable       | Estimates | T-statistics | p-value  |
|----------------|-----------|--------------|----------|
| EQUITY         | -9.53E-10 | -0.029604    | 0.9765   |
| STDTA          | -0.036716 | -0.358392    | 0.7221   |
| LTDEBT         | 0.376359  | 2.693061     | 0.0106** |
| ASSMAT         | 0.340111  | 3.713853     | 0.0025** |
| FGROWTH        | 0.054293  | 2.510775     | 0.0095** |
| FSIZE          | -1.92E-09 | -0.076608    | 0.9393   |
| ROA            | 0.328025  | 1.644310     | 0.1086   |
| FAGE           | 1.131245  | 2.526685     | 0.0159** |
| C              | 9.930342  | 0.836809     | 0.4081   |
| R <sup>2</sup> | 0.405775  |              |          |
| Wald $\chi^2$  | 3.158251  |              |          |
| F.Stat         | 0.007930  |              |          |

**Source:** Authors' Computation, (2022).

Table 5 shows the estimates for the linear relationship between the financing decision variables and the firm value of the ICT companies listed on the Nigeria Stock Exchange with the use of static panel regression analysis. The random effect model result is interpreted based on its selection through the Hausman test.

In terms of significance and signs, it was revealed in the table that long-term loans to total assets, asset maturity, firm growth, return on asset, and firm age have a positive effect on firm value. On the other hand, equity, short-term loans to total assets, and firm size have a negative effect on firm value. However, the result revealed that only long-term debt to total asset, asset maturity, firm growth, and firm age has a significant effect on the firm value given that their variables are statistically significant at a 5 percent level of significance.

More specifically, long-term debt to the total asset has a positive coefficient of 0.376359 with an associated p-value of 0.0106, indicating that it is statistically significant. The implication of this is that an increase in long-term debt to the total asset will bring about 0.376359 increase in the firm value of ICT companies. Asset maturity with a positive coefficient of 0.340111 and an associated p-value of 0.0025 indicates that the variable is statistically significant. This implies that an increase in asset maturity will result in a 0.340111 increase in the firm value of ICT companies. Firm growth with a positive coefficient of 0.054293 and an associated p-value of 0.0095 shows that firm growth is statistically significant. The logical interpretation for this is that an increase in firm growth will lead to a 0.054293 increase in the firm value. Accordingly, firm age has a positive coefficient of 1.131245 with an associated p-value of 0.0159 indicating that firm age is statistically significant. This implies that an increase in the number of years of the firm will bring about 1.131245 increase in the firm's value.

The R-squared of the model is 0.405775, which indicates that 40.58 percent variation in firm value is explained by the independent variables of the model, such as equity, short-term loan to total asset, long-term loans to total asset, asset maturity, firm growth, firm size, return on asset, and firm age. The F-statistic has a value of 3.158251 with an associated p-value of

0.007930, which indicates that the random effect model has an overall significance at a 5 percent level of significance.

### Discussion of Findings

The outcome of the analysis showed that long-term debt to the total asset has a significant effect on firm value, which aligns with the findings of Ahmad and Siahaan (2017), Lawal, Edwin, Kiyanju, and Adisa (2014), and Nelson and Ayunku (2019) but contradicts the negative finding reported by Ogbulu and Emeni (2012). These studies found long-term debt to total assets to be positive and statistically significant in determining firm value. The implication of this is that long-term debt makes up a substantial part of the financing capital of the firms, which they utilize strategically to achieve the firms' objectives, which in turn add to the organizational value in the long run. The finding supports the study's *a priori* expectation and agrees with both the pecking order theory and the signalling theory which assumes that there is a positive signal direction between long-term debt and firm value.

Asset maturity also showed a positive and significant effect on firm value, which corroborates with the findings of Muritala (2012), Aggariwal and Padhan (2017), and Igbinoia and Ogbeide (2019). These studies found asset maturity to be a significant determinant of firm values. The implication of this is that the cash inflow which the firms receive from their asset is a viable financing option that contributes to the daily, monthly, and yearly operation of the organization. This access to financing enables these firms to achieve their set objectives, which in turn increase their value and strengthen their position in the industry. The result is in line with the *a priori* expectation which also agrees with signalling theory.

Firm growth is another variable with a positive and significant effect on firm value. This result is in line with the findings of Aamir, Muhammed, and Muhammed (2021), and Igbinoia and Ogbeide (2019). This result logically implies that an increase in sales equip the ICT companies with access to more fund to finance their growth and a growing firm in terms of sales prospects are related to a higher firm value and this conforms to the *a priori* expectation as well as the signalling and pecking order theories. Firm age also showed a significant and positive effect on firm value, which aligns with the findings of Igbinoia and Ogbeide (2019). This result suggests that indicate that older firms are expected to be more profitable due to their long tradition and the reputation that is built over the years. Moreso, older firms have by learning curve effect that lower their average operating costs compared to new entrants.

However, equity, short-term debt to total assets, firm size, and return on assets were found not to affect firm values of listed ICT companies in Nigeria. Thus, the results of this study on equity, short-term debt to total assets, firm size, and return on assets does not support the prediction of the signalling. For instance, issuing of new equity capital by firms tends to have a promising future by increasing the total. However, its non-significance implies that financing managers may not consider it as an appropriate financing decision as it increases the incremental cost of the firms. Given the overall significance of the model as seen in the panel result, it could be concluded that corporate financing decision has a significant effect on the firm value of companies in the Information Communication and Technology sector in Nigeria.

### 5. Conclusion and Recommendations

This study examined the effect of financing decisions on the firm value of listed ICT firms in Nigeria for 2009-2020 using the panel data model. From the analysis carried out, the findings of the study concluded that corporate financing decision has a significant effect on the firm value of companies in the Information Communication and Technology sector in Nigeria.

Based on the strength of the findings, the following recommendations were put forward: First, financial managers of listed ICT firms in Nigeria should constantly weigh the marginal benefit of utilizing long-term debt against the marginal cost by using long-term debt before deciding to make use of it to finance their operations. This is because it was revealed by this study that long-term debt has a beneficial impact on firm value. Second, listed ICT firms in Nigeria should ensure that appropriate firm policies are channelled towards the growth of their firms, that is increase in sales as these portray them to favourable future funding which will lead to an increase in firm value. Lastly, related government institutions and policymakers need to ensure that strict financial disclosure guidelines are in place to ensure that the disclosed firms' financing (capital structure) of listed ICT companies represents their actual financial performance.

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## IMPACT OF CBN'S ANCHOR BORROWERS' PROGRAM ON AGRICULTURAL FINANCING IN KEBBI STATE

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### Abstract

*This study examined the role of CBN anchor borrowers program in agricultural financing in Kebbi state. Survey research design was employed in a sample of 34 respondents, data was collected using structured questionnaires. Chi-Square and Kendall's Coefficient of Concordance (W) was used in the analysis and the study found that CBN anchor borrowers programme is faced with some challenges. Which includes high interest rate, short repayment policy and lack of collateral security. The study also found that the credit amount of the programme is not adequate, as only 21% of the respondents agreed that what they benefited from the program is adequate. The findings also indicated that 35% of the respondents identify farming as a business as the main prospects of the programme. The study concludes that CBN anchor borrowers programme in Kebbi state has significantly improved agricultural financing to a large extent. The study recommends that the Federal Government and the CBN should review the programme by increasing the credit amount based on the size of the operations of a farmer. Moreover, the interest rate should be reduce to at least 5% or below, this could boost agriculture and make the realization of the desired goal possible.*

**Keywords: Microcredit, SMEs, Policy, Banks**

JEL Classification: Q14, Q38

### Introduction

Anchor Borrowers Programme (ABP) is one of the initiatives of the Central Bank of Nigeria (CBN) established and officially launched on November 17, 2015 in Kebbi State. According to the CBN, the programme intend to create a linkage between anchor companies involved in the processing and Small Holder Farmer (SHF) of the required key agricultural commodities in Nigeria. The thrust of the ABP is to provide inputs and cash to SHF in order to increase production of commodities, adequate inputs supply to agro processors and address the country negative balance of payments on food. The programme covers the consultation with stakeholders, comprises Federal Ministry of Agriculture and Rural Development, State

Governors, Millers of agricultural produce, and SHF's farmers to boost agricultural produce and non-oil exports in the face of unpredictable crude oil prices and its resultant effect on the revenue profile of Nigeria (CBN, 2016).

The CBN target to achieve the goals of the ABP through collaboration with anchor companies involved in the production and processing of key agricultural commodities. This was however a response to the fall in oil prices and to diversify the economy away from oil into agriculture and other non-oil sectors. ABP is one of the CBN policy to create jobs and reduce food importation. And it is expected to create economic linkages between over 600,000 SHF and reputable large scale processors with a view to increasing agricultural output and significantly improving capacity utilization on integrated mills. This is expected to close the gap between the level of local rice production and domestic consumption as well as complement the Growth Enhancement Support (GES) scheme of the Federal Ministry of Agriculture by graduating GES farmers from subsistence farming to commercial production. The CBN designed that the ABP scheme involves a finance model whereby the anchor firms CBN, Nigeria Incentives-Based Risk Sharing System for Agricultural Lending (NIRSAL) and State Government organize the out growers and ensure that they comply with contractual terms thereby reducing the incidence of side selling. The financing institutions will serve as veritable channels for delivering credit to the out growers. It is against this background that this study attempt to examine the role of CBN Anchor Borrowers Programme in agricultural financing in Kebbi state. The study also highlights the potential challenges and prospects of the programme.

The study is motivated by the volume of funds that have gone into rice importation in Nigeria overtime despite the arable land and active labour in Nigeria. For instance, between 2012 and 2015 alone, it was reported that Nigeria spent over \$2.41 Billion on rice importation. Consequently, the CBN had set aside N40 Billion out of the N220 Billion earmarked under its Micro and Medium Enterprises Development Fund. The fund is to serve as loans to small holder rice farmers in the range of N150,000.00 to N250,000.00. According to the CBN the fund would be given as loans to rice farmers to procure agricultural inputs like, fertilizers, pesticides, and seedling among others. The Apex Bank said it has so far disbursed about N4.9 Billion as loans to a total of 78,581 farmers in Kebbi State along. Relatively it is said to have created a total of 570,000 direct jobs.

This indicated the potentials of the agri-business sector as a major employer of the growing labour force and earner of foreign exchange. Lack of proper financing has led a large majority of the population remain poor, while Nigeria is far from being food secure. However, in an effort to get Nigeria out of this importation problems, different financing policy initiatives have been instituted to improve the performance of small scale farmers in Nigeria and transform the agricultural sector (Evbuomwan, 2004). In spite of the several efforts made the desired goals have not been achieved because of some of the peculiarities of the smallholder farmers. Prominent among these are their poor access to finance and lucrative markets to dispose of their produce, which have left them in a vicious cycle of poverty (Evbuomwan, 2016). In order to address these twin problems of the smallholder farmer in Nigeria, the Central Bank of Nigeria and the Federal Government launched the Anchor Borrowers Programme (ABP) in 2015. The ABP concept is like the contract farmer concept which has been found to be effective in other developing countries like India (Bommanahalli & Rangappa, 2016).

Therefore the main objective of the study is to assess the role of CBN anchor borrowers programme in agricultural financing in Kebbi state. The study also highlights the challenges

and prospect of the CBN anchor borrowers' programme. The research hypothesis is formulated as follows;

H<sub>0</sub>: CBN Anchor Borrowers Programme has not significantly improved agricultural financing in Kebbi State.

H<sub>A</sub>: CBN Anchor Borrowers Programme has significantly improved agricultural financing in Kebbi State.

This study is significant in investigating one of the CBN developmental initiatives in Nigeria. Studies on agricultural financing provide policy makers with the relevant information regarding the issues of the sector which helps them prioritize different areas and earmark necessary resources accordingly. This, in turn, helps achieve allocative efficiency as well as technical efficiency and realize the long term economic goals. Therefore the findings of the study may be equally helpful to evaluate the factors that are creating obstacles in expanding the credit to agricultural sector and focus on some of the policy issues that can boost up the programme. The study is of necessity since the CBN itself is giving special attention to finance agriculture in line with the presence administration objectives. In this regard, it will be beneficial to CBN as a policy makers too for devising the appropriate policy tools and actions to achieve the federal government goals. The study will also be of benefit to farmers, general public, student and researchers. This study is restricted to CBN anchor borrowers programme in Kebbi state and it covers both the small farmers and commercial farmers across Kebbi state. The study is therefore concern with the financing role of the programme.

## 2. Literature Review

### The CBN Anchor Borrowers Programme

The programme was launched by President Muhammadu Buhari in Kebbi State on November 17, 2015 to initially increase local production of rice and wheat, two of the four products that dominate the country's Foods Import Bill (Chioma, 2016). The programme key objectives were to (CBN, 2016):

- i. To reate an ecosystem to link out-growers to integrated millers,
- ii. To ramp up domestic rice production to replace imported rice
- iii. To increase operating capacity of integrated rice millers,
- iv. To increase banks financing to the rice sector
- v. To build capacity of smallholder farmers
- vi. To target commodities which the country has comparative advantages to produce.
- vii. The expected outcomes are (i) increased ratio of agricultural lending from 3.72% of total bank lending in 2014 to 7 per cent; (ii) increased capacity utilisation of rice mills from the current level of less than 50 per cent to not less than 80 per cent; and (iii) empowerment of at least one million farmers in each of the selected produce under the programme and
- viii. To creation of at least 2,000,000 direct and indirect jobs in the processing segment of the above value chains; and reduction of Nigeria's import bill on the identified commodities by at least 30% annually over the specified period.

### and Administration of the ABP

There shall be two models of administration of ABP based on the anchor arrangement namely: **Private Sector-led** and **State windows**. Under each model, a Project Management Team (PMT) shall be established to coordinate the implementation of the programme.

#### Private Sector-led Window

The PMT under the Private Sector-led Window shall be constituted as follows:

- i. Head DFO, CBN – Chairman
- ii. Representatives of Anchor Firms – Co-Chairman
- iii. Programme Manager, State Agricultural Development Programme (ADP)
- iv. Representatives of participating Banks
- v. Representatives of farmers associations
- vi. Nigerian Agricultural Insurance Corporation (NAIC)

### **State Window**

The PMT under the State Window shall be constituted with representatives of stakeholders as follows:

- i. Head DFO, CBN as Chairman to be co-chaired by the person appointed by the State Government.
- ii. A representative of State Governments/Ministry of Agriculture and Rural Development/Agricultural Development Programme (ADP)
- iii. Participating Banks
- iv. Anchor Firms
- v. Nigerian Agricultural Insurance Corporation (NAIC)
- vi. Representatives of farmers associations

### **Process Flow of the Anchor Borrowers' Programme**

The activities shall include:

- i. Expression of Interest Letter to the CBN by the Anchor/State Government indicating the targeted agricultural commodities, proposed number of farmers, the hectares to be covered and the PFI(s) etc.
- ii. Formation of the PMT
- iii. Verification of the farmers and farm sizes by the PMT
- iv. Confirmation of participation by the Head Offices of the PFI(s)
- v. Identification of reputable agricultural inputs suppliers by the PMT
- vi. Organization of Town Hall Meeting to agree on the economics of production per hectare, offtake price, signing of Agreement, and any other relevant issues. The meeting shall have in attendance all the stakeholders including the inputs suppliers.
- vii. Signing of tripartite Agreement by the PFI, Anchor and the farmers
- viii. Submission of loan applications from Head Offices of PFIs with the list of farmers in the prescribed format with accounts numbers, gender, farm size, BVN, telephone numbers, cooperative name and LGA. Registration of farmers on the National Collateral Registry (NCR).

### **Capacity Building of the Farmers**

A mandatory training programme shall apply for farmers that will participate under the ABP covering;

- i. Farming as a business
- ii. Improved agricultural practices
- iii. Group management dynamics

The cost of such training shall be borne by the participating anchor. However, partnerships with Development Partners are encouraged on the training of the farmers. Certificates issued at the end of the training shall constitute a requirement for farmers to access credit facility in kind and cash under the programme.

### **Provision of Extension Services**

The Anchor/State Governments shall be required to provide extension services to complement

the training to ensure adherence to good agricultural practices and mitigate side selling.

### **Collateral under the ABP**

The following shall be collateral to be pledged by SHFs under the programme:

- i. Cross and several guarantee by farmers in cooperatives
- ii. Tripartite Agreement signed by the parties
- iii. Cross and several guarantee by farmers in cooperatives registered on the National Collateral Registry (NCR)
- iv. Equity Contribution (minimum of 5%) by the farmers

In addition, Participating farmers under the Programme must deposit the minimum equity requirement in their accounts with the PFI before loan disbursement. No input would be distributed to any farmer that has not provided the equity contribution.

### **Determination of Planting Season**

The planting season to be adopted shall be advised by the Ministry of Agriculture/ State Agricultural Development Programme (ADP) from the state planting calendars.

### **Side Selling**

Side selling by the farmers is prohibited and shall attract applicable sanctions as indicated in Section 4.3

### **Risk Sharing**

In order to engender participation of PFIs in the programme, the CBN shall absorb 50% of the amount in default after satisfactory evidence that every means of loan recovery has been exhausted by the PFI. The PFI shall bear the credit risk of the balance

### **Review of Empirical Studies**

Dong, Jing and Featherstone(2010) observe that production inputs, farmers' capabilities and education cannot be fully employed under credit constrained situation. Based on a survey of 511 households from Heilongjiang Province of Northeast China and employing endogenous switching regression model, they conclude that agricultural productivity in the study area can be increased by 31.6% with the removal of credit constrained situation. The study further shows that productivity and income of the credit unconstrained farmers are higher than the credit-constrained farmers.

Ayaz and Hussain (2011)observe that credit availability to farmers is much more important than any other factors to improve the resource use efficiency in agriculture sector. Their study is based on the 300 cross-section sample farmers from Faisalabad District of Pakistan. By employing Stochastic Frontier Production Analysis (SFA), they conclude that credit to agricultural sector has more constructive and significant impact on the farmers' technical efficiency than other factors like farming experience, education, herd size and number of cultivation practices.

Devi (2012) found that agricultural credit not only helped to increase the productivity but also develop the process of cultivation as a whole in Andhra Pradesh, India. She argues that there was an enormous increase in the usage of modern seeds, modernized inputs, fertilizers and pesticides after receiving the agricultural credit, which increased yield per acre and thus the income of the farmers. She further observes that the impact of agricultural credit was more significant in non-irrigated and semi-irrigated villages than the irrigated villages.

Duy (2012) has analyzed the impact of agricultural credit on farm productivity taking a sample of 654 farmers from Mekong Delta region of Pakistan by using quintile regression and Stochastic Frontier Analysis(SFA) techniques. The study concludes that technical efficiency and rice yield were positively influenced by access to credit, education level and farm technology. It also demonstrates that access to formal credit sector had a larger effect on rice production than access to informal credit.

Ibrahim and Bauer (2013) analyzed the impact of micro-credit on rural farmers' profit taking a case of Dryland of Sudan employing the Heckman Selection Model to analyze the responses from 300 samples. The findings from the study affirm the fact that farmers with access to credit are better off compared to those who do not have such access. The study recommends that by increasing the size of the loan, efficient and sustainable technology can be made available to farmers to increase farm profits.

Akram, Hussain, Ahmad and Hussain (2013) observe that access to credit results in a higher level of technical efficiency of farmers. Their study is based on a sample survey of 152 farmers from Sargodha District of Punjab Province of Pakistan. Using stochastic frontier analysis (SFA), the study concludes that agricultural credit in the study area helped the farmers obtain the farm inputs in time, resulting in a higher level of technical efficiency.

Ayegba and Ikani (2013)observe that unregulated private money lenders are still a major source of financing agricultural sector in Nigeria. The main obstacles for agricultural credit from formal sector include high interest rates, bureaucratic bottlenecks, late approval of loans, and unnecessary request for collateral, among others. They recommend that banks and financial institutions should create credit instruments and services that are tailored to the risks and cash flow patterns in the agricultural sector. The banks should open up new branches in rural areas and avoid unnecessary credit conditionalities that discourage famers from borrowing.

Rahman, Hussain and Taqi (2014) emphasizes agricultural credit as a major determinant of farm productivity. Their study utilizes logistic regression method on the 300 samples from Bawalpur, Pakistan. With the positive association between credit and agricultural productivity, they conclude that timely provision of appropriate amount of loan to farmers is helpful for the enhancement of agricultural productivity as it enables them to purchase high yielding variety seeds, fertilizers and pesticides.

Sharma (2014)has analyzed the impact of agricultural credit from commercial bank on GDP growth by using the time series data of Nepalese economy covering the period 2002-2012. This study has found that agricultural credit has positively and significantly impacted agricultural GDP of Nepal. However, use of fertilizer and improved seeds have not shown any significant impact on agricultural GDP. He recommends the extension and deepening of financial service system in the rural area and facilitating the agricultural lending.

Evbuomwan and Okoye (2017) evaluate the Anchor Borrowers' Programme and show that the success of the pilot project which was carried out in Kebbi State for rice has been very remarkable. They revealed that about 78,000 rural farmers in Kebbi State benefitted from the programme, which used integrated rice millers as buyers to ensure that there was a ready market for the produce. Yields as high as 7.5 to 8.0 tonnes per hectare were obtained by farmers compared with less than 2.0 tonnes per hectare previously obtained and smallholder farmers were made Naira millionaires in Kebbi State in 2016. The study conclude that the ABP initiative

which seeks to provide the smallholder farmers who are the largest segment in the sector with improved seeds, best practices in farm management and linking them to buyers and processors will certainly accelerate agricultural productivity, create wealth and reduce poverty and unemployment, and these would all translate into economic growth and development in Nigeria in the nearest future if sustained by all the stakeholders.

Coker et al., (2017) relied on content analyses and the strengths, weaknesses, opportunities and threats strategic planning tool to reach its conclusion. While noting the strength of the programme, there is doubt as to the conduct of project appraisal; implementation arrangements are unclear, while overlaps exist in the roles of stakeholders. Thus, the study affirms that political pressure should never be made to becloud sound project preparation, while sustaining awareness for increased programme participation to avoid exclusion and confusion. They conclude that in spite of the perceived benefits of the programme, the article noted and concluded that aspects of ABP implementation arrangements are still unclear due to limited awareness of programme implementation arrangements, roles of stakeholders are overlapping, updated database are still an issue, credible monitoring and evaluation framework are lacking, while cases of elite capture may be prevalent. Arising from the outcome of the review, the study recommended the need for sustained awareness of programme implementation guidelines, and review of stakeholder roles.

### **3. Research Design**

The study adopted exploratory survey research design to examine the role of CBN anchor borrowers programme in agricultural financing in Kebbi State. Given the nature of the study, survey methodology is the most appropriate design to achieve the research objectives, so data was collected from the beneficiaries of the CBN anchor borrowers' scheme in Kebbi State. The target population is all farmers in Kebbi state; while the study population comprised of the farmers qualified to benefit from CBN anchor borrowers programme within Kebbi state, which is estimated at 66,750 this population is considered for the study. However, due to the large size of the population a simple non-probability sampling technique is adopted.

The sample size of the study is 34 respondents using purposive/judgemental non-probability sampling technique. Judgemental sampling method is any sampling method where some elements of the population have no chance of being selected or where the probability of selection cannot be accurately determine it involves the selection of subject based on assumption regarding the population of interest which forms the criteria for selection. The method was selected because the participants were readily available and were convenient to be selected and provide the relevant information needed by the study.

The primary source of data collection is adopted for the study, while closed ended questionnaire was employed in the data collection. The research questionnaire contained carefully framed questions in two parts; first part covers the demographic information of the participants. This include gender, age and educational level of the respondents. The second section focuses on the role of CBN Anchor borrowers programme in agricultural financing in Kebbi State.

Non-parametric tool of data analysis was used to test the research hypothesis. Specifically, simple percentage analysis and tables are used to analyze the data obtained from the field survey. However, the non-parametric tool of inferential statistics employed in this study is Chi Square and Kendall's Coefficient of Concordance (W). The Kendall's coefficient of concordance (W) is used to test the extent of agreement with the extent of CBN anchor borrowers programme in agricultural financing in Kebbi State base on the respondents'

opinions, and experiences. The test was conducted using Statistical Package for Social Sciences (SPSS version 16.0).

#### 4.Results and Discussion

This section covers the presentation and analysis of the primary data collected from the respondents. The section begins with the analysis of the total questionnaires distributed and collected from the field.

**Table 1: Questionnaire Distribution**

| Options             | Distributed | Returned  | Percent (%) |
|---------------------|-------------|-----------|-------------|
| Small Scale Farmers | 35          | 28        | 56          |
| Large Scale Farmers | 15          | 6         | 12          |
| <b>Total</b>        | <b>50</b>   | <b>34</b> | <b>68</b>   |

*Source: Field Survey (2018)*

Table 1 presents the questionnaire distribution; it shows that a total of 50 questionnaires were distributed to respondents from two categories of the farmers. It indicates that 35 questionnaires were distributed to respondents from small scale farmers category and 28 were filled and returned (56% of the total questionnaires distributed); 15 questionnaires were distributed to respondents from large scale farmers category and 6 were filled and returned (12% of the total questionnaires distributed). Overall, 34 questionnaires were filled and return, constituting 68% of the total questionnaires distributed, which will constitute 100% in the analysis. However, this is sufficient enough to carry out an analysis as the rate is more than the benchmark of 50-60%.

**Table 2: Demographic Characteristics of the Respondents**

| Variables              | Items               | Frequency | Percent (%) |
|------------------------|---------------------|-----------|-------------|
| <b>Age Group</b>       | 18-24 Years         | 7         | 20.6        |
|                        | 25-34 Years         | 9         | 26.5        |
|                        | 35-44 Years         | 10        | 29.4        |
|                        | 45-54 Years         | 5         | 14.7        |
|                        | 55 Years and above  | 3         | 8.8         |
|                        | <b>Total</b>        | <b>34</b> | <b>100</b>  |
| <b>Gender</b>          | Male                | 26        | 76.5        |
|                        | Female              | 8         | 23.5        |
|                        | <b>Total</b>        | <b>34</b> | <b>100</b>  |
| <b>Education</b>       | Doctorate Degree    | 1         | 2.9         |
|                        | Masters' Degree     | 1         | 2.9         |
|                        | Degree/HND          | 10        | 29.4        |
|                        | NCE/OND             | 12        | 35.3        |
|                        | Others              | 10        | 29.4        |
|                        | <b>Total</b>        | <b>34</b> | <b>100</b>  |
| <b>Nature/Category</b> | Subsistence Farming | 28        | 82.4        |
|                        | Commercial Farming  | 6         | 17.6        |
|                        | <b>Total</b>        | <b>34</b> | <b>100</b>  |

*Source: Field Survey (2018)*

Table 2 shows that 21% of the respondents are between the age of 18-24; 27% of the respondents are between the age of 25-34; while 29% of the respondents are between the age of 34-44, and 15% of the respondents are between the age of 45-54, and only 9% of the respondents are over 55 years of age. This indicated that about 80% of the total respondents are above the age of 25 years, which indicates high experience of the respondents for the study. The table also shows that 76% of the respondents are male, while 24% of the respondents are

female. This implies the gender dimension of the study that both gender involve in farming activities in Kebbi state.

Table 2 also shows that 3% of the respondents (1 respondent) have doctorate degree; another 3% of the respondents (1 respondents) have master's degree; 29% of the respondents (10 respondents) have bachelor's degree/HND; 35% of the respondents (12 respondents) have OND/NCE; while 29% of the respondents (10 respondents) have other certificates. The analysis indicated that most of the respondents have sufficient knowledge to read and understand the questions in the questionnaire and provides relevant responses. Moreover, 82% of the respondents (28 respondents) are small scale farmers, while 18% of the respondents (6 respondents) are large scale farmers (commercial farmers).

**Table 3: Respondents' Opinion about ABP Financing**

| <b>Variables</b>             | <b>Items</b>       | <b>Frequency</b> | <b>Percent (%)</b> |
|------------------------------|--------------------|------------------|--------------------|
| <b>Duration</b>              | 2 Years and below  | 7                | 20.6               |
|                              | 2-5 Years          | 5                | 14.7               |
|                              | 5-10 Years         | 9                | 26.5               |
|                              | Over 10 Years      | 13               | 38.2               |
|                              | <b>Total</b>       | <b>34</b>        | <b>100</b>         |
| <b>Beneficiary</b>           | Yes                | 28               | 82.4               |
|                              | No                 | 6                | 17.6               |
|                              | <b>Total</b>       | <b>34</b>        | <b>100</b>         |
| <b>Nature of Benefit</b>     | Cash               | 9                | 26.5               |
|                              | Equipment          | 6                | 17.6               |
|                              | Cash and Equipment | 13               | 38.2               |
|                              | Others             | 6                | 17.6               |
|                              | <b>Total</b>       | <b>34</b>        | <b>100</b>         |
| <b>Adequacy of Financing</b> | Yes                | 7                | 20.6               |
|                              | No                 | 15               | 44.1               |
|                              | Somehow            | 7                | 20.6               |
|                              | Neutral            | 5                | 14.7               |
|                              | <b>Total</b>       | <b>34</b>        | <b>100</b>         |

**Source: Field Survey (2018)**

The study asked the respondents how long they have been in agricultural activities to ascertain the level of their experiences in farming. Table 3 indicates that 21% of the respondents (7 respondents) have been in the farming activities for 2 years or below; 15% of the total respondents (5 respondents) have been in farming activities for 2 to 5 years; 27% of the respondents (9 respondents) have been in the farming activities for 5 to 10 years; while only 38% of the respondents (13 respondents) have been in agricultural activities for over 10 years and above. This analysis implies that majority of the respondents have relevant experiences in farming activities and the financing of farming activities which is relevant for the study.

The study asked the respondents if they benefited from the CBN anchor borrowers programme in Kebbi state. Table 3 indicates that 82% of the respondents (28 respondents) have benefited from the CBN anchor borrowers programme; while only 18% of the respondents (6 respondents) have not benefited from the CBN anchor borrowers programme. The study further asked the respondents about the nature of financing benefited from the CBN anchor borrowers programme in Kebbi state. The Table indicates that 27% of the respondents (9 respondents) have benefited from cash only; 17% of the respondents (6 respondents) have benefited from

farming equipment. While 38% of the respondents (13 respondents) have benefited from both cash and equipment, only 18% of the respondents (6 respondents) have benefited from the CBN anchor borrowers programme.

The study asked the respondents about the adequacy of the financing benefited from the CBN anchor borrowers programme in Kebbi state. Table 3 indicates that 15% of the respondents (5 respondents) have no response; 21% of the respondents (7 respondents) agree that what they received is adequate. While 44% of the respondents (15 respondents) did not agree that what they benefited from the program is adequate, only 21% of the respondents (7 respondents) have neither agree nor disagree about the adequacy of the financing benefited from the CBN anchor borrowers programme.

**Table 4: Challenges and Prospects of ABP**

| Variables                       | Items                                         | Frequency | Percent (%) |
|---------------------------------|-----------------------------------------------|-----------|-------------|
| <b>Challenges of ABP</b>        | Small loan amount                             | 19        | 55.9        |
|                                 | High interest rate                            | 6         | 17.6        |
|                                 | Tenure/repayment policy                       | 3         | 8.8         |
|                                 | Lack of collateral security                   | 3         | 8.8         |
|                                 | All of the above                              | 3         | 8.8         |
|                                 | <b>Total</b>                                  | <b>34</b> | <b>100</b>  |
| <b>Prospects of ABP</b>         | Farming as a business/Commercial farming      | 12        | 35.3        |
|                                 | Reduction in unemployment rate and poverty    | 10        | 29.4        |
|                                 | Provision of raw material to local industries | 1         | 2.9         |
|                                 | Improved agricultural practices               | 2         | 5.9         |
|                                 | All of the above                              | 9         | 26.5        |
|                                 | <b>Total</b>                                  | <b>34</b> | <b>100</b>  |
| <b>Role of APB in Financing</b> | Strongly Agree                                | 10        | 29.4        |
|                                 | Agree                                         | 11        | 32.4        |
|                                 | Neutral                                       | 7         | 20.6        |
|                                 | Disagree                                      | 3         | 8.8         |
|                                 | Strongly Disagree                             | 3         | 8.8         |
|                                 | <b>Total</b>                                  | <b>34</b> | <b>100</b>  |

**Source: Field Survey (2018)**

The study asked the respondents about the challenges that may hinder the success of the ABP in Kebbi state. Table 4 indicates that 55% of the respondents (19 respondents) identify small loan amount as the main challenge to the success of the programme; 18% of the respondents (6 respondents) agree that high interest rate is the main challenge to the success of the programme. The table also indicates that 9% of the respondents (3 respondents) identify repayment policy as the main challenge to the success of the programme; while 9% of the respondents (3 respondents) suggested lack of collateral security as the main challenge, another 9% of the respondents (3 respondents) are of the opinion that small loan amount, lack of collateral security, repayment policy and high interest rate as the main challenge to the success of the anchor borrowers programme in Kebbi state.

Similarly, the study asked the respondents about the possible prospects of the CBN anchor borrowers programme in Kebbi state. Table 4 indicates that 35% of the respondents (12 respondents) identify farming as a business as the main prospects of the programme; 29% of the respondents (10 respondents) agree that reducing unemployment and poverty is the main

prospects of the programme. The table also indicates that 3% of the respondents (1 respondents) identify provision of raw materials to local industry as the main prospects of the programme; while 6% of the respondents (2 respondents) suggested improved agricultural practices as the main prospects of CBN anchor borrowers programme in Kebbi state. However, 27% of the respondents (9 respondents) are of the opinion that farming as a business, reducing unemployment and poverty, provision of raw materials to local industry, and improved agricultural practices are the main prospects of the CBN anchor borrowers programme in Kebbi state.

The study asked the respondents to rate their level of agreement with the extent to which CBN anchor borrowers programme improved agricultural financing in Kebbi state, based on their experiences. Table 4 indicates that 29% of the total respondents (10 respondents) strongly agreed CBN anchor borrowers programme has improved agricultural financing to a large extent. The table also shows that 32% of the total respondents (11 respondents) agreed that the programme has improved agricultural financing, while 21% of the total respondents (7 respondents) neither agreed nor disagreed; 9% of the total respondents (3 respondents) disagreed, and another 9% of the respondents strongly disagreed that CBN anchor borrowers programme improved agricultural financing in Kebbi state.

### Test of Hypothesis

The hypothesis of this study is tested in this section using responses from the role of ABP in financing agricultural activities using the Kendall's coefficient of Concordance statistic as presented in Table 5.

### Statement of Hypothesis

H<sub>0</sub>: CBN Anchor Borrowers Programme has not significantly improved agricultural financing in Kebbi State.

H<sub>A</sub>: CBN Anchor Borrowers Programme has significantly improved agricultural financing in Kebbi State.

**Table 5: Test Statistics Results**

| Ranks             |      | Test Statistics |        |            |
|-------------------|------|-----------------|--------|------------|
| Strongly Agree    | 3.24 | N               | 34     |            |
| Agree             | 3.31 | Kendall's (W)   | 0.072  | Sig. 0.044 |
| Neutral           | 3.01 | Chi Square      | 36.842 | Sig. 0.002 |
| Disagree          | 2.72 |                 |        |            |
| Strongly Disagree | 2.72 |                 |        |            |

**Source: SPSS output (Appendix).**

The result from table 5 shows the rank of the responses and the Test Statistics of Kendall's and Chi Square Test. It shows that the respondents who agreed that CBN Anchor Borrowers Programme has significantly improved agricultural financing in Kebbi State are ranked first while strongly agreed are ranked second. This is followed by neither agree nor disagree who are ranked third, while disagreed and strongly disagreed are ranked fourth.

However, the Kendall's Coefficient of 0.072 (although very low) with P-Value of 0.044 at 4 degree of freedom indicates that the respondents unanimously agreed that CBN Anchor Borrowers Programme has significantly improved agricultural financing in Kebbi State, at 5% level of significance. Moreover, the Chi-Square test of 36.842 also support the result at 1% level

of significance (p-value of 0.002). Based on this, the study rejects the null hypothesis which states that CBN Anchor Borrowers Programme has not significantly improved agricultural financing in Kebbi State, and infers that CBN Anchor Borrowers Programme has significantly improved agricultural financing in Kebbi State to a large extent.

### **5. Conclusions and Recommendations**

Based on the findings of this research, the study concludes that CBN anchor borrowers programme is faced with some challenge. Which challenges includes high interest rate, short loan tenure/repayment policy and lack of collateral security. The study also concludes that the credit amount of the programme is not adequate, as 21% of the respondents agree that what they benefited from the program is adequate, while 44% of the respondents did not agree that the credit amount is adequate. It is also concluded that farming as a business and reducing unemployment and poverty as the main prospects of the programme in Kebbi state. Lastly, the study concludes that the CBN anchor borrowers programme in Kebbi state has significantly improved agricultural financing to a large extent.

The study recommends that the Federal Government and the CBN should review the programme by increasing the credit amount based on the size of the operations' of a farmer. Moreover, the interest rate should be reduced to at least 5% or below, this could boost agriculture and make the realization of the desired goal possible. Farmers in Kebbi state should make themselves familiar with the modalities of the programme, so as to avoid misinformation about the idles of the programme. Lastly, the study recommends that government should increase the awareness of the programme

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**APPENDICES****Case Processing Summary**

|                                                                                                                 | Cases |         |         |         |       |         |
|-----------------------------------------------------------------------------------------------------------------|-------|---------|---------|---------|-------|---------|
|                                                                                                                 | Valid |         | Missing |         | Total |         |
|                                                                                                                 | N     | Percent | N       | Percent | N     | Percent |
| education * CBN Anchor Borrowers Programme has to a large extent improved agricultural financing in Kebbi State | 34    | 100.0%  | 0       | .0%     | 34    | 100.0%  |

**education \* CBN Anchor Borrowers Programme has to a large extent improved agricultural financing in Kebbi State**  
**Crosstabulation**

Count

|           |         | CBN Anchor Borrowers Programme has to a large extent improved agricultural financing in Kebbi State |       |         |          |                   | Total |
|-----------|---------|-----------------------------------------------------------------------------------------------------|-------|---------|----------|-------------------|-------|
|           |         | strongly agree                                                                                      | agree | neutral | disagree | strongly disagree |       |
| education | phd     | 0                                                                                                   | 0     | 0       | 0        | 1                 | 1     |
|           | masters | 0                                                                                                   | 0     | 0       | 0        | 1                 | 1     |
|           | BSc/HND | 6                                                                                                   | 3     | 0       | 0        | 1                 | 10    |
|           | OND/NCE | 3                                                                                                   | 2     | 5       | 2        | 0                 | 12    |
|           | others  | 1                                                                                                   | 6     | 2       | 1        | 0                 | 10    |
| Total     |         | 10                                                                                                  | 11    | 7       | 3        | 3                 | 34    |

**Chi-Square Tests**

|                              | Value               | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square           | 36.842 <sup>a</sup> | 16 | .002                  |
| Likelihood Ratio             | 29.418              | 16 | .021                  |
| Linear-by-Linear Association | 1.034               | 1  | .309                  |
| N of Valid Cases             | 34                  |    |                       |

a. 25 cells (100.0%) have expected count less than 5. The minimum expected count is .09.

**Descriptive Statistics**

|                   | N  | Mean  | Std. Deviation | Minimum | Maximum |
|-------------------|----|-------|----------------|---------|---------|
| strongly_agree    | 34 | .2941 | .46250         | .00     | 1.00    |
| agree             | 34 | .3235 | .47486         | .00     | 1.00    |
| neutral           | 34 | .2059 | .41043         | .00     | 1.00    |
| disagree          | 34 | .0882 | .28790         | .00     | 1.00    |
| strongly_disagree | 34 | .0882 | .28790         | .00     | 1.00    |

### Ranks

|                   | Mean Rank |
|-------------------|-----------|
| strongly_agree    | 3.24      |
| agree             | 3.31      |
| neutral           | 3.01      |
| disagree          | 2.72      |
| strongly_disagree | 2.72      |

### Test Statistics

|               |       |
|---------------|-------|
| N             | 34    |
| Kendall's ... | .072  |
| Chi-Square    | 9.793 |
| df            | 4     |
| Asymp. Sig.   | .044  |

a. Kendall's Coefficient of Concordance



## ETHNO-COMMUNAL CONFLICTS AND THE CHALLENGES OF NATIONAL INTEGRATION IN NIGERIA

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### **Abstract**

*Nigeria with an estimated population of 200 million people is one of the most ethnically diverse countries in the world with up to about 300 to 370 ethnic groups, each having different languages, religious and cultural backgrounds. These diverse and seemingly divided groups provide a fertile ground for the outbreak of unnecessary communal conflicts and intense competition. These ethnic groupings continue to threaten national unity, integration and development in the country. The fundamental objective of this paper is to examine the causes of ethnicity and communal conflicts in Nigeria's plural society and their effects on national unity, peace and development. The data used in this study was obtained through secondary sources which were derived from the literature review. The framework of analysis adopted in this paper is the frustration-aggression theory which has been successfully used to explain several ethnic and communal conflicts. Using this framework, the paper argues that ethnic and communal clashes are as a result of blocking or the feeling of frustration we get when we do not get what we want or when something interferes with our gaining the desired goal. The study reveals that ethnicity and communal conflicts are due to many factors including ethnic nationalism, poverty, youth unemployment, lack of effective communication, relative deprivation, weak security system, porous borders, boundary struggles and land disputes, socio-economic and political power struggles, unequal distribution of wealth, alleged marginalization and imbalances in the distribution of amenities and infrastructural facilities, injustice, intolerance, victimization, discrimination and violation of human rights among others. The study also reveals that the historical factors that led to the adoption of federalism such as the diversities in ethnicity, religion, culture and resources were reinforced by the growing suspicion and fear of domination by one group over another among the various units. The paper concludes that the kind of federalism that is being practiced in Nigeria cannot serve as a viable instrument for integrating the diverse ethnic groups that make up the country. The paper recommends among others, that government should strive to give an equitable sense of belonging and equal opportunities to all segments of Nigerian society. In addition to its current efforts at redressing perceived marginalization, the government should ensure equity, justice and fairness in the distribution of posts or employment opportunities, infrastructural facilities and services across the country and thereby pursuing economic and social policy options that will reduce conflicts of different nature while ensuring peace, unity, and sustainable development.*

JEL Classification: Z13

## Introduction

Nigeria, Africa's most populous nation, with 37 states including Federal Capital Territory (Abuja) and 774 local government areas, is made up of about 350-370 ethnic groups, which are distributed as follows; the Hausa/Fulani (29%), Yoruba (21%), Igbo (18%), Ijaw (10%), Kanuri (4%), Ibibio (3.5%), Tiv (2.5%) and (12%) others (Odusanya, 2012). This ethnic diversity combined with religious, cultural and linguistic diversities has given rise to perennial clashes of different types but principally communal conflicts. But of much concern is the belligerence between two different ethnic groups or communal conflicts which has not only resulted in the loss of many lives and property but has raised several questions, given the security implications of the conflagration of these conflicts. An interesting but worrisome feature is the character of impunity exhibited during such conflicts as well as in the post-conflict context that demands accountability and responsibility for human rights infringements. The prevalence of various forms of conflict in Nigeria has resulted in her being classified as one of the least stable and insecure countries in the continent and reputed to have one of the world's highest casualty rates from communal conflicts even in the absence of civil war.

The history of Nigeria's plural society can be traced back to the pre-independence era; the fear of domination of one section of the country by the other was a major factor that contributed to mutual suspicion and distrust by the three (3) dominant ethnic groups; Hausa-Fulani, Yoruba and Igbo. This was the main causative factor of the events that led to the Nigerian civil war. Such fear permeated every stratum of Nigerian society and trickled down to similar geographical units such that even within the same ethnic group, there are sharp differences and schisms. At independence, many of the ethnic groups hitherto subsumed under others began to agitate for their own identity. These agitations also included issues of political representation as well as access to and control of resources.

Historically, scholars are of the view that federalism is as old as the country itself dating back to the commencement of the amalgamation processes which culminated in the unification of the southern and northern protectorates and the colony of Lagos in 1914 (Ogundiya and Abdullahi (2012). These invariably brought the various ethnic minorities under the three dominant ethnic groups the Hausa/Fulani, the Igbo and Yoruba. It must be noted that minority/dominant ethnic group consciousness and agitations are also exhibited at the sub-national levels. Before that time, different ethnic groups like Hausa, Fulani, Igbo, and Yoruba, existed independently as there were no socio-cultural, linguistic and political ties among them. According to Ogundiya and Abdullahi (2012), federalism was adopted in Nigeria because it was to be the only framework within which diverse nations like Nigeria could be comfortably ruled. This is so because federalism is based on the presumed value and validity of combining unity and diversity and accommodating, preserving and promoting distinct identities within a larger political union. They argued further that the structure of the federal system introduced was not in any way intended to compliment federal practice and therefore only provides a ground for a decentralized unitary system. In addition to the problem that confronts the then federal arrangement was the defective nature of the component units because one of the regions i.e. the northern region claimed to be twice in terms of landmass and population than the other two regions put together. These and numerous other political problems led for increase agitation, fear of marginalization and domination between and among the ethnic groups in the country.

The advent of the military in Nigerian politics has significantly changed the pattern and the development of the federal system in the country. The first military regime of Aguiyi Ironsi abolished the federal system and in its place introduces a unitary system through the unification

Decree No.34 of May 1966. Thus, this was the first wrong step taken by the Ironsi regime because it sparked protests in the northern region and further heightened ethnic cleavages and regional antagonism between the various regions and ethnic groups in the country. This singular move toward a unitary system side by side with the attendant consequences led to another military coup mostly supported by military officers of the northern extraction which culminated in the emergence of Yakubu Gowon as the new Head of state. To further show commitment to the federal system and cement the sour relationship that existed among the regions after the prosecution of the civil war 1967-1970, Gowon created a 12 states federal structure and introduced several integration programmes such as the National Youth Service Corps (NYSC) establishment of Unity schools among others which some would argue weakened the federating states. But the regime's inability to return power to a democratically elected government led to its collapse and the emergence of General Murtala Muhammad as the new Head of state (Ogundiya and Abdullahi, 2012).

Other measures which have been articulated and executed by various governments with the objectives of bringing together the different groups that make up the country includes the federal character principle, state creation, allocation of higher revenue to the Niger Delta Region and the introduction and teaching of social studies education in Nigerian schools, universities and teachers training colleges in the 1970s. Despite these efforts, Nigeria's plural composition still poses a major challenge to national unity, integration and development. Since the return to civil rule in May 1999 there have been a series of debilitating crises and communal conflicts associated with huge casualties, loss of lives and property worth millions of Naira. Alubo (2006) argues that ethnic and inter-communal conflicts have become pervasive that there is hardly any part of the country and any month that pass without some form of civil disturbance, ethnic violence and the contestations for the broader issues of identity, participation and citizenship to rustle power.

The Institute for Peace and Conflict Resolution which is domiciled in the University of Sydney, Australia, did not only have offices in New York and Mexico City but it usually partners with a quite number of local and international NGOs in its strategic conflict assessment of Nigeria in 2003 and 2008 saw the North Central Zone which comprises states like Benue, Kogi, Kwara, Nasarawa, Niger, Plateau and the Federal Capital Territory, as the zone strategic to the conflict mapping of the country for several reasons. The first reason is that the indigenous adherents to Christianity have been by far greater than their Muslim counterparts. Secondly, the defining identity of the region became associated with Christianity, while the Hausa Fulani became synonymous with Islam. This became the ethnoreligious variable which characterizes the pattern of relationship that subsequently developed between the segments. Thus, the conflict which erupted in 2000 and 2004 between the indigenous populations of Jos, Plateau state and the Hausa Fulani automatically took the colour of religion and therefore carried the two variables (ethnoreligious) along. Lastly, the zone is the most prolific farming zone in the country (Ezonbi and Tari, 2016; Kudu, 2017). It also hosts a large number of farmers, fishermen, cattle herders and other livestock users. The population depends on the level of agriculture, water and environmental resources, as such resource conflicts bordering on land, water, territoriality, cattle grazing routes, citizenship and ethnic identity are common.

By the second half of the 20<sup>th</sup> century, Nigeria began to witness violent conflicts, predominantly ethnoreligious in nature and most of the conflicts especially between herders and farmers occur in the North-Central, North Western and North Eastern parts of Nigeria. In recent times, cases of similar nature have been reported in the South-East and South-West parts

of the country. Of the hundreds of violent conflicts which have occurred in Nigeria since independence, communal conflicts seem to have dominated the center stage (Ezonbi and Tari, 2016). While in most of the conflict zones, communal conflicts have been reduced to a manageable level, the case of herdsman and farmers has been the opposite. This type of conflict has graduated from one destabilizing level to another, manifesting the interplay of a complex network of variables, all encapsulated in the ethnoreligious factor, making it difficult to draw the line between strictly religious conflicts and strictly ethnic ones. It is strange to observe that ethnicity and communal conflicts assumed both national and local dimensions, yet much less attention has been given in the past to exploring their dynamics which portend grave danger for the stability of any given state or polity. This paper focuses on the socio-economic causes of ethnic and communal conflicts in Nigeria's plural society and the challenges these posed to its national unity, integration and development. To this end, the paper is divided into five sections. The first section is the definition of the concepts of ethnicity, communal conflicts, plural society, national unity, integration and development. The second section is the theoretical framework. The third section presents a literature review on the causes of ethnic and communal conflicts as well as their consequences on Nigerian society. The fourth section provides the challenges to national unity, peace and development. The last section is the conclusion and recommendations.

### **Conceptual Clarifications**

To begin with, the word ethnicity has been misinterpreted or misconceived by the colonialists to mean tribe; a trade mark for hatred and intolerance among the various languages and linguistic groups in Nigeria's political and social relationships. According to Muhammad (2015), ethnicity is a social phenomenon associated with interactions among the members of various ethnic groups distinguished by communal character and boundaries. It is the interactions between ethnic groups derived from the collective and defining common consciousness in terms of allocation of public goods and power. In other words, ethnicity is that consciousness of belonging to, identifying with, and being loyal to an ethnic group distinguished by shared cultural traditions. Ethnic groups are not necessarily homogenous entities even linguistically and culturally (Ishaya, 2015). However, an ethnic group is a group of people who share the following characteristics; race, religion, national, organic or language and cultural traditions, such as the Hausa people, Yoruba people, Igbo, Tiv, Fulani, Koro, Gwari, Eggon people.

Conflict is seen as a clash of interests, a situation in which two or more human beings desire goals which they perceive as being obtainable and there must be at least two parties; each party is mobilizing energy to obtain a goal, a desired object or situation; and each party perceives the other as a barrier or threat to the goal (Ezonbi and Tari, 2016). It can be defined as a struggle over values or claims to status, power and scarce resources in which the aims of the conflicting parties are not only to gain the desired values but also to neutralize, injure, or eliminate their rivals (Gonjoh and Raphael, 2013). According to Coser (1972) conflicts may be categorized as destructive or constructive; functional or dysfunctional; objective or subjective; violent or non-violent; conflicts can occur within a family and between families, within a community and between communities, within a country and between countries, within a group and between groups and within an organization and between organizations. In other words, communal conflicts could be intra or inter, simple or complex in nature depending on the parties involved and their dimensions. This study however focuses on the communal conflicts which cut across all ethnic, religious and political boundaries in Nigeria. A communal conflict is a situation in which groups that define themselves using ethnic, national or religious criteria, make claims against the state or other political actors. It is the use of ethnic, religious and linguistic

differences to perpetuate violence in the struggle to maintain power and other resources. In other words, a communal conflict is a form of violence that is perpetrated across ethnic or communal lines, whereby the conflicting parties feel solidarity for their respective groups and victims are chosen based on membership (Alubo, 2006; Kudu, 2017).

The Nigerian society has over the years been experiencing one form of communal conflict or the other. Communal conflicts may be further divided into four broad categories; first is the ethnic conflicts which are attributed to actors primarily divided by cultural, ethnic or religious communities and identities, such as instances of religious violence between Christian and Muslim communities, the second is Herders and Farmers conflict which involve disputes over land and/or cattle between herders in particular (the Fulani or Hausa) and farmers (in particular the Tiv or Tarok). The third instances of communal violence in Nigeria are conflicts between border communities such as the clashes between Itsekiri and Ijaw in Delta state and the Ile – Ife and Modakeke boundary dispute in the late 1990s. The last category is the settler-indigenes conflict like the Hausa-Yoruba in Ife, Osun State and the one in Jos, Plateau state - conflicts involving the indigenes Christians and Hausa-Fulani settlers predominantly Muslims (Abdullahi, 2017).

A plural society is a multicultural and multi-ethnic group consisting of separate and self-differentiating sub-groups crudely referred to as tribes. This presupposes an absolute distinction between the various ethnic groups, with clear-cut boundaries that are not static but changes according to time and the prevailing socio-economic conditions. A plural society is increasingly differentiated into a variety of social groups and sectional interests, for instance with the increasing division of labor, the number and diversity of interest groups or occupational groups steadily grow (Otaki, 2012). According to Ogundiya and Abdullahi (2012), pluralism is a theory that seeks to promote unity in diversity by encouraging federal states to adopt decentralization as a method of state administration. Pluralism involves competition between ethnic groups each pressing for its advantage. Since the assumption is that power is not held by one group but by many groups, a plural society, therefore, is composed of multi-ethnic groups whose members are involved in the struggle for power and privilege with members of other ethnic groups.

National unity has been defined as the organization of people to live together despite their historical and cultural differences (Ezeibe, 2012). It is that awareness of a common identity amongst the citizens of a country. It means that although we belong to different tribes or ethnic groups, we recognize the fact that we are all one. Thus, national unity is the process of surrendering all ethnic, cultural and linguistic loyalties to a powerful coercive authority for national integration and development (Abdullahi, 2016). National unity has been described as a relationship of community among people within the same political entity. He further explained that it is a state of mind or disposition to be cohesive, act together, and be committed to mutual programmes (Onifade, 2013). To this end, national unity is seen as a process that produces an omnibus of initiatives put in place by a state, its representative or institutions guided by respect for the unique traditions and cultural background of ethnic groups sharing the same polity to harmonize all interests through a form of dialogue and representation and addressing differences that may be divisive and conflictual using the instrument of fairness, justice and equity in the sharing of resources, benefits, opportunities and responsibilities to guarantee stability, longevity and prosperity of the polity as long as the inhabitants decide to remain in the polity.

It is difficult to define integration because the concept is used interchangeably with unity and nation-building and is sometimes used as a term embracing all the two. However, the concept of integration has been defined as a process whereby political actors in a distinct national setting are persuaded to shift their loyalties, expectations and political activities towards a new center whose institutions possess or demand jurisdiction over the pre-existing nation states (Ayoade, 1999). Agbodike (1998) defined integration as the process leading to political cohesion and sentiments of loyalty towards a central political authority and institutions by individuals belonging to different social groups or political unity. For the purpose of this study, integration is conceived as a positive aspect which reduces socio-cultural and economic differences and ensures popular solidarity. Mohammed (2015) defined integration as the feeling of oneness and unity among the people of a country where all citizens irrespective of any culture, religion, or ethnic group live together peacefully. It paves the way for the people to work together for the development of the country. Unity is a special feature of a diverse society where national integration is looked forward to being achieved. It is the feeling of unity within diversity, national identity is supreme, cultural unity, constitution, territorial continuity, and common economic problems, art, literature, national festivals, national flags, national Anthem, national emblem etc promote and create awareness of a common identity amongst the citizens of a country (Ishaya, 2015). An integrated society, therefore, is a social unit of analytically distinct but aggregated institutions, groups and cultures within one social system, people share in a common and positive balance of socio-cultural imperatives about how things may be done. This involves mutual understanding and congruence of cultural elements and social practices among a diversity of peoples (Otite, 2002).

Development is a household concept in both developed and developing countries. It is however conceptualized variously by different scholars. Gboyega (2003) defines development as an idea that embodies all attempts to improve the conditions of human existence in all ramifications. It implies improvement in the welfare or the material well-being of all citizens, in a sustainable way such that today's consumption does not imperil the future. It also demands that poverty, inequality and unemployment be removed or drastically reduced. It seeks to improve personal, physical, security and livelihoods and expansion of life chances. Chrisman (1984) views development as a process of societal advancement where improvements in the well-being of people are generated through strong partnerships between and among all sectors, corporate bodies and other groups in the society. According to Abdullahi (2015) development involves not only economic growth, but also socio-economic and political aspects of social life. Social development can be defined as an increase in social complexity to achieve the consciously chosen goals which are designed to promote good interpersonal relationships, tolerance, mutual benefits, love and justice for all. Political development implies increased fragmentation of the nation which is usually prompted to avoid ethnic discrimination or interest group discrimination. Economic development is defined here as advancement in the per capita real income of the generality of the people in the society. For the purpose of this paper, development must include the broad notions of evolution and change, growth, advancement and progress whether socially, politically, economically or in terms of the improvement of the quality of life or enhancement in the well-being of a people.

### **Theoretical framework**

Scholars from different schools of thought have developed various frameworks for analyzing the conditions under which conflicts occur. Their ideas gave rise to assumptions that explain the origins of conflicts. These assumptions are grouped into four theories namely; structural theories, biological theories, human need theories and economic theories (Albert, 2005; Best,

2006; Burton; 1990). The structural theories of conflict demonstrated that conflict is built into the ways societies are organized. It proposes that conflict arises due to deep-rooted structural imbalances, such as political and economic exclusion, injustice, poverty, disease, exploitation and inequality, which are either internally or externally generated in a society. The structural theory is divided into two major sub-orientations, which are the radical structural and the liberal structural approach. The former explains that conflict occurs due to the exploitative and unjust nature of human societies and the domination of the lower class (the proletariat/workers or poor people) by the upper class (bourgeoisie/ factory owners or rich people). The radical structural approach assumed that conflict will be resolved through a workers-led revolution, which is expected to lead to the establishment of a socialist order. The latter indicates that competing interest of groups directly or indirectly injects conflict into social, economic and political organizations of society, weakening the social networks within, between and among the existing groups. The liberalists explained that internal conflicts emerged from the rising human population, economic instability, and demographic variability, uninterested social and political programs in the society. Thus, the liberal structural theorists suggested that the solutions to conflicts required the elimination of structural defects, dialogue and policy reforms, as opposed to the radical structuralists who advocated for revolution as the solution to all conflicts.

The biological theories of conflict emerged from the works of many classical theorists such as Saint Augustine (354-430), Thomas Hobbes (1588-1679), Cesare Lombroso (1835-1909) Charles Robert Darwin and Sigmund Freud (1856-1939). The theories assumed that human beings are naturally evil-driven and they can violently respond to unfavourable situations. The idea emerges from the ancient belief that viewed human ancestors as instructively violent beings that possessed destructive impulses in their genetic make-up. For example, Thomas Hobbes (1651) argued that conflict occurs and it continues to occur or becomes intense in societies due to the inherent human tendency to be selfish, sinful and driven by the natural quest to satisfy all their desires; this was why Hobbes described life in the "state of nature" as "solitary, poor, nasty, brutish and short." The biological theories are divided into two major sub-orientations which are the innate theory and the frustration-aggression theory.

The innate theory was developed from the ideas of some scholars, particularly theologians and psychologists, who indicated that conflict is possible in all social interactions. First theologians observed that there are inner flaws in humankind that cause sinful behaviour, bitterness, violence and conflict. Therefore, they argued that religion is responsible for regulating sinful nature in the relationship between and among people as well as between people and God (or god/goddess). Secondly, the psychologists argued that conflict is inborn in humans, as indicated in the inner properties, attributes and hormonal composition of humans. This idea shows that human aggressive instinct is likely to be provoked if an individual is threatened and challenged. This idea also explains that conflict is a necessary periodic release that helps humans to preserve themselves by unleashing their destructive abilities on others (Burton, 1990; Muhammad-Baba 2014).

This study adopts the Frustration-Aggression theory as expounded by several scholars, such as Gurr (1969); Dollard and Berkowitz (1993) assume that conflict is a direct response to accumulated disappointment and anger experienced by people in a society, where they could not achieve their aspirations due to some forces beyond their control. The theory assumes that conflict primarily occurs due to people's inability to fulfil their needs. It points to the difference between people's perceived needs and actual needs (want-get-ratio or expected need satisfaction versus actual need satisfaction). When people's expectations are unmet, frustration

sets in and the frustrated people may confront those they viewed as thwarts of their ambitions. Using this framework, Godwin and Omale (2016) revealed that certain aggressive and violent behaviors are the result of certain frustrating antecedents. They argued that ethno-religious conflicts in Nigeria can be explained by the power contestations between two parties in the socio-political environment that have thrown up a structured group complex where some individuals or groups possess greater access and control of state power and decision mechanisms which thus uses to the detriment of others.

The human needs theory of conflict originated from the ideas of many scholars such as Maslow (1954); Burton (1990) who argued that people have basic needs (physiological, safety, security, psychological, social and spiritual needs) that must be met to build peace and to avoid discord. Its major assumption is that all human beings have some basic needs that they seek to fulfil and maximize, but attempts by individual groups/institutions to deny or frustrate them from satisfying the needs may lead to conflict. They also explained that if one needs (e.g. food is met and other needs e.g. freedom of worship are denied or unmet, the situation could make people apply violence in their efforts to meet unmet needs, to satisfy and protect the met needs. Burton (1990) identified a link between frustration that pushes people to act aggressively and their willingness to satisfy basic needs. Thus people rarely accept practices that destroy their identities and goals that are attached to their needs. That is why people often reacted against the factors, groups and institutions that they considered as threats to their shared needs, especially needs for survival, protection, affection, understanding, participation, creativity and identity. Burton argued that human needs have components (needs for recognition, identity, security, autonomy and bonding with others) that they hardly give up. No matter how much any political or social system tries to suppress these needs, it will either fail or cause more damage in the long run. The prevention of conflicts that may arise and/or the resolution of conflicts that arose from unmet basic needs, as Burton (1990) argues largely depends on how far and how well effective and easily accessible mechanisms are put in place by the state to satisfy human needs.

The economic theory of conflict is advanced by Paul et al, 2003; Malone and Berdel (2000) among others. For this group, conflicts could be traced to material benefits that initiators, sponsors, perpetrators and sustainers of conflict are out to gain. Paul et al (2003) pointed out that conflicts are perpetrated by conflict entrepreneurs – a few people that benefited from growing chaos. Using cost-benefit analysis, the theory identifies two categories of forces in conflict situations-beneficiaries of conflict (leaders of armed conflicts, their followers and supporters, including manufacturers, dealers and traders who engage in arms business) and non-beneficiaries of conflict (majority of the people that are negatively affected by the conflict). Berdel and Malone (2000) argued that across the ages social conflicts are generated by many deep-seated factors and conflicts are said to have a ‘functional utility since they are embedded in economic disparities. They argued further that conflicts such as war and crisis and their prolongations have sometimes become vast private business, profit-making and profit maximization enterprises as expressed in the sole aim of their initiators and perpetrators. In sum, the economic theory of conflicts posits that though the causes of conflict may be hidden and perpetrated under the pretext of ideological (nationalistic, political or religious) differences, their underlying motive is to acquire and retain economic values, assets, human resources, natural and solid minerals (such as gold, crude oil, coal, diamond, land, waters etc.).

### **Causes of ethnicity and Communal conflicts in Nigeria**

Lockwood (1956) argues that it is difficult if not impossible to conceive of a collectivity be it in rural areas or urban center without accepting that there will be some clashes over interests,

goals, access to resources and values of rewards, esteem and power. He argues further that conflict in societies depends on three (3) major sources. The first source of conflict is that of interests which have to do with individual or group interests. The different groups in the society have different interests that often lead to conflicts i.e. conflict is bound to occur, as each person/group tries to pursue its interests. The religious and ethnic conflicts in the country are not unconnected with the genuine desire of ethnic and religious groups to protect their interests. The second source of conflict is that of resources; the availability and scarcity of resources play a major role in producing conflict. The fact remains that the distribution of resources in the country is uneven. This inequality in the distribution of resources tends to create anxiety and mad thoughts amongst individuals and groups who tend to adopt whatever strategy to acquire wealth. The methods adopted do in fact, create conflict. In other words, the scramble and competition for resources is usually the main cause of conflict. The third source of conflict is that of power differentials - the inability of people to have equal power can ultimately give some people (more powerful) the opportunity to exploit others (less powerful) thereby resulting in conflict in society.

While these three categories house the main causes of conflicts, other ancillary causes include ethnic nationalism which according to Muhammed (2015) is considered one of the main causes of ethnicity and communal violence in Nigeria. First and foremost, Nigerians see themselves as members of an ethnic group rather than members of a nation. This tendency has been shown in some ways and particularly in the allegiance people pay to their ethnic group. In Nigerian society today many prefer identification with their ethnic group rather than with the nation or even state. This shows that Nigerians still exhibit a strong allegiance to ethnic groups and this has consequently encouraged primordial sentiments among Nigerian people. Poverty had impacted negatively on the people resulting in communal conflicts, insecurity of lives and property as exacerbated by the activities of insurgency and terrorism in recent years in the North Eastern part of the country, lack of capacity building and lack of capital to invest in agriculture as the major occupation of the rural populace, unemployment especially among youth, poor education due to parent's inability to sponsor their children to school as a result of poverty (Abga,2016). Youth unemployment is another factor which has been attributed to communal violence in Nigeria. Unemployment leads to violence because many school leavers find it difficult to secure employment in rural areas hence this situation makes room for mischievous and selfish adults and political leaders to take advantage of these unemployed youths to cause mayhem in society during a communal political, religious and ethnic crisis. In addition to youth involvement in armed robbery, kidnapping, car theft as well as prostitution, they are also involved in conflicts of different natures in Nigeria (Agatha, 2013).

Relative deprivation has been associated with conflict, aggression and violence. Hence, Rummel (1997) defines relative deprivation as the actors' perception of the discrepancy between their value expectations and their value capabilities. In other words, relative deprivation is the inequality resulting from the distribution of social positions in relation to scarce commodities; that a fundamental discrepancy exists between the behavioral tendencies and the opportunities for realizing the behavior within the existing positional structure; where actors cannot gain access to the commodities he needs to be able to leave up to his standard, he will do his/her utmost best to change that position-hence conflict. Frustration then results from the inability to satisfy or gratify a just or realistic want and this frustration creates the potential for collective violence. Thus, relative deprivation causes frustration which in turn leads to and creates the potential for intense collective violence (Godwin and Omale, 2016).

Also, where effective communication is non-existent or near absent, there is bound to be conflict. It is generally believed that a lack of effective communication can lead to a state of conflict. We must be quick to add here that some types of communication do promote conflict. The threat is one of them; for instance, although a threat is a way of communicating, it can lead to counter threats and eventually to conflict in which both parties stand to lose. Allegations of neglect and cries of marginalization by minorities are often other factors responsible for communal conflicts. Nigerians frequently allege domination by one group or even geo-political region over another. There are ubiquitous complaints about marginalization, lack of federal presence, representation in the federal, state and local governments and the location of major development projects such as schools, water treatment plants and access roads. There are also complaints of domination and marginalization as illustrated by the ongoing revolt in the Niger Delta, which may be explained at least in part, by the perceived domination of other regions resulting in the loss of resource control over oil and associated revenue (Alubo, 2006).

A weak security system which results from inadequate modern equipment for the security agencies both in weaponry and training is one of the factors responsible for communal conflicts in Nigeria. Lack of modern devices such as Geographic Information System (GIS), poor capacity building of police personnel based on the use of geospatial technology, and lack of Global Positioning System (GPS) satellite. This is in addition to poor attitudinal and behavioral disposition of security personnel. In many cases, the security personnel assigned to deal with communal conflicts lack the expertise and equipment to handle the situations in a way to prevent them from occurring. And even when these exist; some personnel get influenced by ethnic, religious or communal sentiment and are easily swallowed by their interest to serve their people, rather than the nation. Thus, instead of being national watchdogs and defending national interests and values and protecting people from harm by criminals, they soon become saboteurs of government efforts, by supporting and fuelling insecurity through their leaking vital security information or aiding and abetting criminals to acquire weapons or escape the long arm of the law (Ezonbi and Tari, 2016).

It has been observed that the porous borders of the country, where individual movements are largely untracked have contributed to the level of insecurity in Nigeria. As a result of the porous borders, there is an unchecked inflow of Small Arms and Light Weapons into the country which has aided militancy and criminality. Ezonbi and Tari (2016) indicated that Nigeria host over 70 percent of about 8 million illegal weapons in West Africa. Also, the porosity of the Nigerian borders has aided the uncontrollable influx of migrants, mainly young men from neighbouring countries such as the Republics of Niger, Chad and Benin responsible for some of the criminal acts. Among the major causes of communal conflicts in Nigeria are socio-economic and political power struggles among the elites. While conflicts in most cases may be identified by the group members as involving ethnic allegiances, a careful and objective analysis of the conditions surrounding most conflicts reveals that they have some economic and socio-political conditions under which the members find themselves. In line with these views, communal conflicts can be explained by the power contestations between ethnic and religious groups in the socio-political environment, which has thrown up a structural inequality where some ethnic or religious groups possess greater access and control of state power and decision mechanisms, which it thus uses to the detriment of other groups (Muhammed, 2015).

Most of the instances of inter-communal and inter-religious strife and violence were and are still a result of sponsorship or incitements by ethnic, political and religious leaders hoping to benefit by exploiting our divisions and fault lines, thereby weakening our country. In most times, the quest for dominance, recognition (dividing along the majority/minority lines), and

resource control among others are often seen as factors that engendered conflicts including communal conflicts (Gonjoh and Raphael, 2013). All communal conflicts have their roots in political economy but have eventually assumed the character and pattern of ethnoreligious conflict, considering the clear-cut identities of the parties involved. Colonialism has through the imposition of indirect rule, among other strategies, brought discrete and smaller minority ethnic groups, under the majority or the dominant ethnic groups and these created problems of identity, sense of belonging as well as participation in decision making. These smaller groups are dominated and marginalized in the scheme of things (Alubo, 2006). Muhammed (2015) noted that over half of the developing nations that face serious problems of religious intolerance, victimization and discrimination, social exclusion or other systematic disadvantages experienced some form of interethnic conflict, ethnic and religious conflict leading to widespread death and destruction of property. They argued that the ethnic and religious composition of a developing nation and whether or not that diversity leads to conflict or cooperation can be important determinants of the success or failure of development efforts.

Surprised at the frequency of the communal clashes, one may ask the question: why despite the huge presence of the security personnel the ethnic and religious conflicts continue unabated? Probably the best answer to this question can be found in Y.B Usman's religious manipulation thesis which he defined as essentially controlling the action of a person or group without that person or group knowing the goals, purpose and method of that control, and without them being aware that a form of control is being exercised on them at all. Citing several instances where religion has been manipulated in Nigeria, Usman (1987) observes that manipulation of religion aims at having the characteristics of provocation-reaction-counter reaction, through the agency of the mass media. Indeed, most Nigerian political elites seem to have identified religion as one of the most effective mechanisms which create flexibility in the unsuspecting masses. Thus, in the ethnoreligious conflicts including the Jos plateau and the North Central where the majority ethnic groups are Christians while the minority but politically more and most powerful Hausa-Fulani settlers are Muslims, elite manipulation has produced a highly sensitive environment where political context involves members of the two religions standing on different platforms (Usman, 1987 cited in Kudu 2017).

### **Consequences of the Communal Conflicts**

As a result of communal conflicts particularly that between herders and farmers, there is a reduction in the output and income of farmers. Because of the destruction of crops by cattle and the indiscriminate burning, many farmers lost part or the whole of their crops. This meant reduced yield which translated into low income on the part of the farmers who take farming as a major occupation. This tends to negatively affect their savings, and credit repayment ability, as well as the food security and economic welfare of urban dwellers that depend on these farmers for food supply. This discourages the farmers and rural agricultural development (Ezonbi and Tari, 2016). A related consequence is the displacement of farmers and herdsmen alike. In the host communities, nomadic herdsmen relocate as a result of the conflict. Host farmers especially women who remain behind stop going to the distant farms for fear of attack by the nomads in the bush. Such displaced farmers have become a source of liability to other farmers whom they have to beg for food for themselves and their families. This has created a vicious cycle of poverty in such communities. Conflicts may lead to the break-up of societies socio-politically and economically. This can manifest in the abandonment of houses, markets etc. and the establishment of new ones. Also affected by conflicts are commercial activities-sellers and buyers restricted their activities to markets located within the areas identified with their ethnoreligious inclinations.

Human lives and properties are destroyed as a result of communal conflicts, just as developmental structures (e.g. markets, clinics, boreholes etc.) are vandalized and destroyed. A lot of killing by the nomads and reprisal killing of nomads by the host communities takes place during the conflicts. Herds of cattle belonging to the nomads are also killed. Also, some of the victims are badly injured or maimed. To buttress this point, the Daily Trust of Tuesday, October 31, 2017, revealed that violent clashes between farmers and herders have claimed over 2500 lives in four (4) states of Kaduna, Benue, Plateau and Nasarawa within one year. The paper reported that the former Head of State General Abdulsalam Abubakar revealed that over 62,000 people were displaced while the country lost \$13.7 billion to the clashes between farmers and herders in the affected states within the period.

Some criminals take advantage of the situation by resorting to internal aggression, thievery, scapegoatism, name-calling, open assaults on persons and groups, conspiracy on the part of security officers and other elements to let loose those suspected to be the cause of the mayhem (Muhammed, 2015). Another consequence of communal conflicts is low agricultural production due to the reduction in the labor force. All these have drastically reduced women, farmers, to the status of widows (Ezonbi and Tari, 2016). Another consequence of the crisis is rumour-mongering. Despite their apparent lack of actual sources, rumors can propel a crisis from one level of intensity to another. This instrument was extensively used to deepen the level of hatred between Hausa-Fulani Muslims and Christians generally (Kudu, 2017).

Generally, conflict is perceived to be a negative setback, disruptive and disintegrative, but there are instances, where conflicts bring positive development to individuals, groups or society. Otite and Albert (1999) provided a snapshot of both the positive and negative effects of conflicts. The positive effects include the definition of the ambiguous situation so that the interests and aspirations of the two parties involved become clearer to everyone concerned; conflict is an agent of social change in human societies; conflict fosters solidarity between and within groups; conflict fosters unity and emergence of general normative behavior when it is resolved. The negative effects include the destruction of lives and property leading to a general economic setback; the disruption of social and family life owing to displacement, separation and migration; persistent and widespread fear; conflicts cause untold suffering to the elderly, children and women; it causes hatred and mistrust between individuals and amongst the group of people; conflict serves as a threat to national stability since it can tear a nation apart; it breeds revenge mentality across generations.

### **Challenges to National Unity, integration and Development**

Modern nation-states tend to be pluralistic in the widest possible sense. Whilst this source of diversity can be a source of strength they have been known also to fuel mutual suspicion and constituted ready folders for the embers of conflict. This diversity has been compounded by pronounced religious and cultural differences exploited usually for political considerations by avid political classes in the context of extreme poverty and very low educational development among the mass of the populace. Whereas the constitution says Nigeria is a secular state, one nation bound in freedom, peace and unity, the prevalence of religiosity and ethnicity at all levels, has effectively undermined the objectivity that secularity would have ordinarily imbued in national politics. Much worse than this, many political leaders exploit religion and ethnicity for personal advantages.

Another challenge to national integration is the politicization of religion (whether Islam or Christianity) through actions and utterances of political leaders seeking office and by their religious leaders. Muhammed (2015) argued that the politicization of Islam has undermined the government's efforts toward national integration and it proved to be quite detrimental to the process of democratization and political development in Nigeria. Therefore, what is happening is the predominance of ethnic nationalism whereby ethnic and religious feelings are now employed as an instrument of parochialism intended to aid in the capture of the state power by the petit bourgeoisie; to actualize their dream the political elites use ethnicity and religion as prison tools to drag into action the masses, who are vulnerable adherents, who can easily be instigated into action to destabilize as well as dislocate the rival ruling class to control the machinery of government. Therefore, the communal skirmishes now prevalent in Nigeria are all an effort to find relevance in the country's resources by those ethnic groups that are marginalized in the present dispensation. A major challenge on the path of national unity, integration and development in Nigeria has been a regenerative breed of selfish and greedy political gladiators who seize power either through the barrel of the gun or through stolen electoral mandates. As they compete for power, prestige and associated benefits, the political elite in a bid to secure the support of members of their ethnic groups accentuate ethnic differences and demonize members of other ethnic groups. Onipade and Imhonopi (2013) explained that the brutal killings of youth corps members serving in Northern Nigeria following the declaration of the results of the 2011 presidential elections speak volumes of the naked thirst for the political position which brings out the beast in political leaders in Nigeria.

Another major hurdle to national integration in Nigeria is the clamor by the various ethnic groups for a review of the constitution. The country's current socio-economic and political challenges are traced to the defects in the constitution, being the supreme document that mediates political activities and processes of governance. These processes determine who exercises executive power, which makes laws, how other players get their voices heard, and how political and public office holders are made accountable. In the final analysis, contemporary socio-economic and political challenges to national integration and development make two interconnected demands on the Nigerian state and people; the need to set in motion and make an acceptable to the constitution and the imperative to establish the much-needed structural and institutional mechanisms which would facilitate the urgent attainment of critical, people-centred economic growth and development (Onifade and Imhonopi, 2013).

Corruption remains the single most debilitating problem confronting Nigeria's national cohesion and development efforts. Onifade and Imhonopi (2013) disclosed that corruption has so permeated the entire fabric of the state that the issues that cause disaffection among ethnic groups in the country such as poverty, hunger, illiteracy and its attendant limited opportunities, unemployment, marginalization, infrastructural decay, homelessness and lack of access to quality health care all are the products of corruption. The corrosive impact of corruption continues to undermine governance, stability and progress. It distorts and undermines the efficient allocation of resources and by extension the country's capacity for competitiveness. It reduces the net value of public spending as well as the quality of services, public infrastructure and the volume of tax revenues; and it encourages misappropriation and misallocation of resources. Corruption smears the nation with the most odious of perceptions and further impedes economic growth by discouraging investments both local and foreign. Politically, corruption desecrates the rule of law, respect for human rights, public accountability and transparency. It undermines the electoral process: it creates and exacerbates the problem of legitimacy for the government and its institutions. It deepens income inequality and poverty

even as it erodes the moral fabric of society and fans the embers of grievances and conflict while engendering trafficking in human and other illegal substances, armed robberies and related violent crimes including terrorism.

Another obstacle to national unity, integration and development in Nigeria is the issue of rights and freedoms of minorities and ethnic groups concerning marginalization and exclusion. As indicated earlier, Nigeria's ethnic groups are over 350 and by definition, a minority ethnic group is numerically lesser than the major ethnic groups of a given country. It may possess ethnic, religious or linguistic characteristics which differ from those of the other groups. It usually shows a sense of solidarity directed towards preserving its culture, tradition, religion or language. Over the years, the issue of the rights and freedoms of minorities and ethnic groups concerning marginalization and exclusion has come to constitute a serious challenge to national unity and development. Despite the provisions of constitutional safeguards for the protection of minorities and other forms of discrimination, some minority groups have remained disadvantaged by lumping them together with powerful hegemonic groups who monopolized political and economic power thus providing their persistent and consistent demands for the creation of additional states and/or readjustment of boundaries in the existing states (Albert, 2005).

### **Conclusion and Recommendations**

It can be concluded from the foregoing that the Nigerian society as it exists today is itself a result of a compromise of a series of conflicts. Successive governments (colonial inclusive) have had to grapple with the management of conflicts-regional, religious, tribal/ethnic etc. The pluralistic nature of Nigerian society and the ineffective management of our diversities are largely responsible for the series of ethnoreligious crises that frequently bedevil the Nigerian nation. The federal system of government was introduced in Nigeria by the colonial masters to stem widespread discontent, mutual fears and suspicion among groups, quest for self-determination, economic prosperity, and desire for unity in diversity as well as douse allegations of marginalization emanating from virtually every segment of the Nigerian society.

The history of Nigeria's plural society showed that several attempts have been made to manage the nation's diversities but no single approach can be said to be achieving or to have achieved the desired results. The earliest approach was the adoption of regionalism which later metamorphosed into federalism. The adoption of a federal system of government was aimed at enabling the component units to develop at their own pace. However, Nigeria's brand of federalism is an unusual or perhaps more accurately, an inverted type. The kind of federalism being practiced in Nigeria has proved incapable of effectively managing the challenges thrust upon us by our diversities. The federal system of government has in most cases concentrated powers at the center. The center has been overstretched with power and resources to the extent that the country's fiscal federalism has become the subject of the national question and national integration debate. The center which is the political hub has become an attraction for ethnic groups and regions to capture state power which has brought with it the interplay of overtures in which both the masses and the state are either trivialized or put into jeopardy. It should be noted that federalism in Nigeria has suffered considerably from the incursion of the military into governance. Consequently, Nigeria largely operates a unitary system of government which is disguised as federalism in nature.

It is observable that there is no system of government without merits and demerits. It is also important to note that federalism is more advantageous than other forms of government. This is because it is the most suitable option for a plural society like Nigeria. Regrettably, the quest

for national unity, integration and development had often been greeted with difficulties in Nigeria. Nonetheless, such realization could be made possible if structural and operational defects of the system in the country are overhauled. Such overhauling requires the review of the centralized nature of the federal system in Nigeria, imbalances in power relations and the need to find ways how to reduce the dependent nature of the state and local government areas on the central government. In the final analysis, if Nigerian political leaders adhered strictly to federalism or the federal tenets or principles, it is a viable system of allocation of power as well as an instrument for national integration. In view of the above, this paper recommends among others;

1. Government should strive to give an equitable sense of belonging and equal opportunities to all segments of Nigerian society. In addition, the government should ensure equity justice and fairness in the distribution of posts or employment opportunities, infrastructural facilities and services across the country by pursuing economic and social policy options that will reduce conflicts of different natures, while ensuring peace, unity and sustainable development.
2. There is also the need for the government and all aggrieved parties to seek for peaceful resolution of disagreements rather than resort to violence. Government should ensure that both parties understood the need for peace and sensitize them on the penalties for those who disrupt peace.
3. Government should be more proactive in the management of disputes and conflicts. One of the effective means of managing conflicts is through the criminal investigation into the various communal clashes by getting the offenders prosecuted. Another effective means of resolving conflicts is through third-party intervention which is in the form of either mediation or arbitration. The former refers to a situation where an outsider is specifically requested to assist the disputing or conflicting parties in reaching an agreement. The latter involves both parties agreeing to submit their dispute to an impartial arbitrator who will formulate a settlement. Both parties are bound by the decision of the arbitrator.
4. Traditional rulers and community leaders should institute alternative means of conflict resolution, especially between farmers and herdsmen which involves negotiation or communication between the conflicting parties, who seek to find a lasting solution to the existing conflict without the use of litigation. At times the negotiation is governed by pre-established procedures between representatives of the aggrieved parties.
5. There is a need for an early warning mechanism on the worsening climate condition in the Sahel Region that made the Fulani and their cattle migrate to safe areas of the Middle Belt and Southern Region. The movement brings the herders into conflict with the native farmers who are claiming their exclusive right to land tenure. In this regard, the government should come up with measures including the deployment of satellite imagery and Geographical information system (GIS) maps to track the movements of the pastoralists.
6. Government should de-emphasize tribe and ethnic origin in all official documents. The National Assembly should as a matter of urgency amend the constitution and remove all reference to indignity from the constitution. Politicians and Ethnic leaders should be mandated to disarm the militias and the government should empower the youth and militia groups through entrepreneurship training and skill acquisition.
7. The application of the federal character principle should be reviewed. The principle should be applied such that 90% of appointments are on merit, 5% on the equality of states and 5% on the ecological ground. Besides the principle should be phased out after

fifty years which is enough for the so-called educationally less developed states to catch up with the rest of the states.

8. Government should create artificial grazing land along the herders' route to avoid too much contact with the local farmers. To prevent conflicts with other tribes, adequate security should be provided around the herding route. That is, there should be consistent checking and policing along the herding routes.
9. Government should ensure the reorientation of Nigerian citizens especially politicians on the need to deemphasize the influence of ethnicity and religion in their quest for political power at all levels. Government should also give proper reorientation on the need for peaceful coexistence among people of different ethnic and religious backgrounds.
10. Government should embark on job creation programmes aimed at employment generation and poverty reduction to absorb youths who though educationally qualified but are jobless. Government should also ensure equity, justice and fairness in the distribution of employment opportunities, infrastructural facilities and services across the country.

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## VERIFICATION OF THE DETERMINANTS OF EXCHANGE RATE VOLATILITY IN NIGERIA: EMPIRICAL APPROACH

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### Abstract

*This paper explores the determinants of exchange rate volatility in Nigeria from 1986 to 2020. The annual time series data which obtained from Central Bank of Nigeria (CBN) was converted to quarterly data in order to access volatility of the variable of interest. The ARCH and GARCH Models were applied to estimate the volatility of exchange rate. Therefore, different econometrics techniques were used to verify the impact of exchange rate volatility on external debt, real gross domestic product, inflation rate and interest rate. The Johansen Cointegration test depicts the existence of long run relationship between the variables and VECM test also shows that the variables share a long run and short run relationship between the exchange rate and the independent variables. The result also depicts a positive relationship between exchange rate with inflation and interest rate and negative correlation with external debt and RGDP. To stabilize the exchange rate this paper suggests that the Central Bank should always monitor the fluctuation of exchange rate by putting yardstick in which the exchange rate can fluctuate within the economy for example setting embargo on the quantity of dollar for international transection. Lower the interest rate and checkmate inflation at the same time that would enhance domestic economic activities and in turn would improve the stability of exchange rate*

**Keywords:** Exchange Rate, External Debt, Inflation Rate, Interest Rate, Real Gross Domestic Product, Cointegration  
**JEL Classification:** F31

### Introduction

Exchange rate plays a vital role at international markets because no country can be economically self-sufficient due to different in factor endowment. One of the remaining tasks is to investigate the determinants of the equilibrium real exchange rate. The breakup of the Bretton-Wood system in 1970s caused many countries' currency rates to fluctuate. As a result, policymakers and economists continue to put more efforts on empirical studies of exchange rates. The quest to know what can be done to address the fluctuation in the values of currencies has been the major challenge for policymakers across the globe. What factors determined the

instability in the real currency values has been the significant policy issue, and how it can be forecast has been the reasons for extensive empirical research since the 1970s. Advances in econometrics, combined with the growing availability of high-quality data, have sparked a deluge of empirical work on the exchange rate (Ajao & Igbekoyi, 2013).

Excessive exchange rate volatility cause delays in investment decisions, uncertainty in the economy. The uncertainty that is caused by volatility also negatively affects economic growth by affecting investment and investor confidence, productivity, consumption and foreign trade and capital flows (Oaikhenan & Aigheyisi, 2015). Exchange rate volatility causes high degree of uncertainty in price stability and economic growth and in setting monetary and macroeconomic policy targets (Ajao, 2015).

According to Cuiobano and Divino (2010), existing empirical evidences on the main determinants of fluctuations in exchange rate suggest that monetary factors are most often responsible for influencing movements. These macroeconomic variables according to Hassan and Simione (2013), include gross domestic product, inflation, interest, and money supply. That is, exchange rates usually fluctuate as monetary variables increase or decrease. This shows that there is need for understanding the relationships and the certain monetary factors that affect exchange rate volatility.

Various exchange rate policies have been implemented in Nigeria ranging from a fixed exchange rate regime prior to 1985 to various forms of floating systems, following the liberalization of the foreign exchange market in 1986. Towards the end of 1985, the government allowed the exchange rate to be determined by market forces in consonance with the tenets of the Structural Adjustment Programme (SAP). Diverse steps had been taken by the government to maintain exchange rate stability but the Naira exchange rate to the US dollar depreciated throughout the 1980s, the recent economic meltdown by COVID-19, weak non-oil export earnings, oil earnings fluctuation, unguided trade liberalization policies, Russia and Ukraine conflict and expansionary economic policies, along with other factors, have all been ascribed to the continuous decline in the value of the Naira.

The problem confronting the exchange rate management in Nigeria is still the inability to determine the precise Naira exchange rate, which would ensure the attainment of domestic and external balances simultaneously on a sustainable basis. However, the question of exchange rate determination has been just in the core of academic debates. Though many exchange rate determination models and their reformation have been developed, scholars still cannot agree on which model best describes behavior of exchange rate. Exchange rate is an essential element of the macroeconomic variables that needs to be addressed in Nigeria. It is necessary to know the factors affecting exchange rate, in order to analyze the determinate factors and to see which of those possible factors need to be considered so as to control the exchange rate.

There are wide literatures analyzing the effect of exchange rate volatility on various macroeconomic aggregates such studies includes Ajao, (2015), Timothy et al., (2016), Kilicarslan (2018), Jibril (2019) and Waliu, (2020). However, there are not many studies including those highlighted above, that verify the determinants of exchange rate volatility in Nigeria by incorporating some silent macroeconomic instrument like external debt and extending the scope to cover period of structural break of the economy such as COVID 19 economic crises.

The objective of this study is to verify the determinants of exchange rate volatility in Nigeria for the period 1983-2020. To achieve this objective, this paper consists of the following sections: the next section provides theoretical framework on the determinants of exchange rate volatility, section three presents empirical literatures, the fourth section presents data and econometric methodology, the fifth section provides conclusion and ways forwards.

## **THEORETICAL AND EMPIRICAL LITERATURE REVIEW**

### **Theoretical Framework**

In developed and developing economies, stability of exchange rate is significant in achieving macroeconomic policy objectives. Governments have used different exchange rate policies, especially for emerging economies, to create a stable exchange rate. In terms of the fundamental determinants of exchange rate volatility, the focal point is almost exclusively focused on macroeconomic variables or fundamentals and structural features of the foreign exchange market. However, some researches have also examined the effect of "soft power" measures on exchange rate volatility (Ceviket *et al.*, 2015).

Theoretical underpin or support for the determination of the exchange rate is based on monetary and macroeconomic theories. The monetary theory assumes highly the integration of goods and capital markets. The theory reinforces the assertion of purchasing power parity (PPP) doctrine which was introduced by Gustav Cassel in 1970 to determine the exchange rate between the currencies of two countries (Jhingan, 2008). Purchasing power parity holds that the rate of exchange between two currencies must be equal to the ratio of total price levels between two countries (Asabetal., 2015).

The second theory is macroeconomic theory. This phenomenon centers its attention on the function played by the macroeconomic fundamentals in the determination of exchange rate behavior (Villavicencio & Bara, 2008). This approach is divided into two. The Balassa – Samuelsson doctrine and balance of payment. The Balassa- Samuelson approach was introduced in 1964. The doctrine centers its attention on the balance between tradable and non-tradable sectors. Therefore, the balance of payments approach was introduced by Nurkse in 1945. According to this theory, exchange rate of a country is determined by its balance of payment. A favorable balance of payment overvalued the exchange rate, while unfavorable balance of payments undervalues exchange rate of a country. However, demand for and supply of foreign exchange play an important role in the determination of exchange rate in the foreign exchange market. The debit side of the balance of payments takes care of the demand for foreign exchange. This is as a result of payments made to the foreign country for goods and services traded from them plus loans and investments made outside the economy. Thus, the supply side arises from the credit side of the balance of payments. It includes payments for goods and services traded from the domestic economy, plus loans and investments made within the economy. Additionally, the theory states that, balance of payments account is balance, if debits side and credit side of the account are equal. If credit side of the account exceeds its debits side, it is known as favorable balance of payments. While, if the debit side exceed credit side of the account, this result in an unfavorable balance of payments (Jhingan, 2008).

Below the balance of payment approach many notion of equilibrium exchange rates have been introduced. To mention a few include Capital Enhanced Equilibrium Exchange Rates (CHEER). The central idea behind this notion is the combination of functions of both uncovered interest rate parity and purchasing power parity in obtaining well defined measures of the equilibrium exchange rate. It also focused on the interaction between exchange rate and

capital account items. It ignores the role of relative output terms and net foreign assets. The essential assertion of this approach is that, there is a long run relationship between real exchange rate and interest rate differentials (MacDonald, 2000).

As noted by MacDonald (2000) Behavioral Equilibrium Exchange Rates (BEERs) is another notion that determines the behavior of exchange rate. The BEERs comprises both current and capital account items of the balance of payments as determinants of real exchange rate behavior. This approach capture a set of long-run and medium term relationship between real exchange rate and macroeconomic fundamentals that are delivered from the determinants of saving, investment and current account and a set of transitory factors influencing the real exchange rate in the short run (Villavicencio & Bara, 2008; Asiama & Kumah, 2010).

### **Empirical Literature**

There are many empirical studies that have been undertaken to identify the possible determinants of exchange rate volatility for example Al-Masbhi and Du (2021) examines the potential determinants of the exchange rate in Yemen. Johansen's cointegration test approved the existence of the long-term relationship and VECM test, shows that the variables share a long-run relationship. There is also a short-run association of the exchange rate with inflation and interest rate. The Granger causality test implies that the exchange rate granger causes interest rate and inflation rate.

Almaw (2020) analyses the relationship among the level of exchange rate in Ethiopia and selected main determinant factors argued in both flow and stock theory of exchange rate determination. The analysis was carried out by detail reviewing the prior researchers work on the area and using correlation and trend analysis. The result shows that nominal exchange rate of Ethiopia relates positively with government spending, broad money supply, inflation level, economic growth, interest rate and negatively with term of trade balance and current account balance. Moreover, it revealed that, government spending; broad money supply and nominal interest rate are the major determinants than inflation, economic growth term of trade balance, and current account balance.

Waliu (2020) Identifies key determinants of exchange rates in Nigeria and ascertain the individual and joint effects of identified variables on the Nigerian exchange rate. The Ordinary Least square method of regression estimation was adopted for analyses. None of the exogenous variables at 5% level of significance had significant effect on exchange rate, their joint effect was also not significant with an F statistics of 1.123, 21.2% of changes in exchange rate were accounted for by changes in the models variables. Domestic credit, foreign prices, reserves and real gross domestic product had negative coefficients respectively, while foreign bond and domestic bond had positive coefficients respectively.

Jibril (2019) examines the determinants of exchange rate fluctuation using Sticky-Price Monetary model in Nigeria. The technique of data analysis adopted was Autoregressive Integrated Moving Average (ARIMA) regression technique and found that monetary variables significantly affect exchange rate fluctuations in Nigeria during the period under review. The findings indicate that interest rate and levels of inflation significantly and positively impacted on the exchange rate fluctuations in Nigeria. While money supply has an insignificant negative effect on the fluctuations of exchange rate and productivity has a positive effect on the exchange rate fluctuation.

Khan, *et al.*, (2019) applied ARDL bounds test approach to investigate the effect of macroeconomic variables on exchange rate USD/CYN using yearly time series data for China economy from 1980 to 2017. They found that GDP growth and trade openness have a positive effect on exchange rate while interest rate and inflation shows negative effects on the exchange rate.

Kilicarslan, (2018) presents the theoretical framework about the determinants of exchange rate volatility and factors affecting exchange rate volatility in Turkey for a period from 1974 to 2016. In addition, the GARCH model is used to calculate the real effective exchange rate volatility. According to Johansen cointegration test results, it has been found that there is a long-run relationship between the variables involved in the analysis. Results from the FMOLS method for determining the direction and severity of the long-term relationship between the variables reveal that LGFCF, LMONEY and LTRADE positively affects significantly, while LFDI, LGDPC, LGGEXP negatively affects real effective exchange rate volatility.

Alagidede and Ibrahim (2017) have investigated the causes and effects of exchange rate Volatility on Economic Growth in Ghana. Johansen cointegration test and VECM Results showed that in the short-run, output was the most important driver of exchange rate fluctuations. In the long run, exchange rate volatility was significantly influenced by government expenditure and money supply growth and terms of trade shocks, FDI flows and domestic output movements.

Hassan *et al.*, (2017) estimates the determinants of Exchange Rate Volatility in Nigeria using Autoregressive Distributed Lag (ARDL) model and Granger Causality test. The result revealed that net foreign asset and interest rate have positive and statistically significant impact on exchange rate volatility while fiscal balance, economic openness and oil price have positive and statistically insignificant impact on exchange rate volatility. Furthermore, nominal gross domestic product has negative and statistically insignificant impact on exchange rate volatility.

Timothy *et al.* (2016) investigates the impact of inflation on real exchange rate volatility in Nigeria. The models used are GARCH (1, 1) and granger causality in Vector Auto-Regressive environment. The conditional variance of the volatility in the real exchange rate at time  $t$  was found with the use of GARCH (1, 1) model to be susceptible to its conditional variance in the previous time period, the squared error term in the previous time period, the inflation rate, imported inflation, broad money supply and the lagged nominal exchange rate. The granger causality test shows that there is a unidirectional causality running from inflation to real exchange rate volatility and there is a causality running from the whole sample variable to imported inflation which is proxied with import; an indication that there is a relationship between imported inflation, real exchange rate volatility and other sample variables.

Njindan-Iyke and Odhiambo (2016), employed ARDL bounds testing procedure, also concluded that terms of trade and trade openness were potential drivers of the equilibrium real exchange rate for Botswana in both the short-run and long-run.

Ajao (2015) used the GARCH (1, 1) and Error Correction Mechanism (ECM) to investigate the determinant of exchange rate volatility in Nigeria using data for 1981 to 2008. The study identifies trade openness, government expenditure, and interest rate movement and lagged values of exchange rates as significant factors influencing real exchange rate.

Oaikhenan, and Aigheyisi (2015) employed EGARCH to examine the factors explaining exchange rate volatility in Nigeria and the results showed that government expenditures, interest rate movements as well as the lagged exchange rate are among the major significant variables that influence REXRVOL during this period.

## SOURCES OF DATA AND METHODOLOGY

### Data Sources

The study is based on annual data ranges from 1986 to 2020. To carefully examine the volatility, the data is converted to quarterly. The data is collected from Central Bank of Nigeria (CBN) Annual Reports and statistical Bulletin. The justification for the choice of period was motivated by the availability of the relevant data from SAP era to period of COVID-19 economic crises which significantly impacted on the value of naira. The variable employed in the study is dependent variable which is exchange rate and the independent variables which are other macroeconomic instruments influencing exchange rate

### Model Specification

It has been observed that volatility in real exchange rate depends on inflation, external debt, RGDP and Interest rate. This work is based on the GARCH model as it is used to estimate volatility in the variables and use of cointegration in order to know the disequilibrium error. Adopting the model used by Ajao (2015) with some modifications in the variables, the model to be estimated is thus stated below.

$$VREXRT_t = f(INF_t, EXD_t, RGDP_t, IRT_t) \dots \dots \dots (1)$$

Where: VREXRT= Real exchange rate, INF = Inflation rate, EXD= External debt, RGDP= Real gross domestic product, IRT= Interest rate.

In modifying equation (1). The econometric model of the study therefore, is specified as follows

$$\ln VREXRT_t = \beta_0 + \beta_1 \ln INF_t + \beta_2 \ln EXD_t + \beta_3 \ln RGDP_t + IRT + U_t \dots \dots \dots (2)$$

### Stationarity Test

Since the data used in this study are time series, there is need to examine the stationarity of the data. The stationarity properties of our data were examined using the Phillips Perron (PP) test (Phillips and Perron, 1988).

### Volatility Estimate

Using the GARCH (p,q) method (Bollerslev, 1986) the real exchange rate volatility is established. The GARCH model tries to show the volatility by allowing delayed conditional variances to enter the model. The estimated model can be out spoken in equation 3 below.

$$\delta_t^2 = \gamma + \sum_{i=1}^p \alpha_i \mu_{t-1}^2 + \sum_{i=1}^q \beta_i \delta_{t-1}^2 \dots \dots \dots (3)$$

Eagled (1982) developed Lagrange Multiplier (LM) test for ARCH effect on the variable. In the case of LM >  $\chi_p^2$  (p degree of freedom) table, the null hypothesis can be rejected and the existence of ARCH effect and model specification can be decided. After accepting the ARCH effect, the GARCH (1, 1) is developed to estimate the volatility.

### Analysis of Cointegration

In order to solve the spurious regression problem and violation of the assumptions of the classical regression model; cointegration analysis is used to checked the long run relationship between real exchange rate volatility (REXRVOL) and its various determinants selected in the

model. However, to test for cointegration in order to know the disequilibrium error, equation (2) can be re express as:

$$U_t = VREXRT_t - \beta_0 - \beta_1 INF_t - \beta_2 EXD_t - \beta_3 RGDP_t - \beta_4 IRT_t \dots \dots \dots (4)$$

### Vector Error Correction Model (VECM)

The vector error correction model is used to find out the long run causality and short-term dynamics. Thus, if there is an evidence of cointegration relationship among the variables the VECM is estimated and the equation is presented below

$$\begin{aligned} InVREXRT_t = & \beta_0 + \alpha \varepsilon_{t-1} \sum_{i=1}^o j_i \Delta InVREXRT_{t-1} + \sum_{i=1}^r k_i \Delta InINF_{t-1} + \sum_{i=1}^s l_i \Delta InEXD_{t-1} \\ & + \sum_{i=1}^u m_i \Delta InRGDP_{t-1} + \sum_{i=1}^w n_i \Delta IRT_{t-1} + \mu_t \dots \dots \dots (4a) \end{aligned}$$

Where  $\varepsilon_{t-1}$  is the error correction term which reflects the deviation from the long run equilibrium path. This allows causality to determine in two ways that is long run and short run causality.

### Vector Autoregressive Model

The vector autoregressive (VAR) model is estimated in first-difference when there is absence of cointegrating relation among the variables by excluding the error correction term,  $\alpha \varepsilon_{t-1}$  as shown in equation 4a for Granger causality with a short-term interactive feedback relationship following Granger (1988) equation 4a is transformed to

$$\begin{aligned} InVREXRT_t = & \beta_0 + \sum_{i=1}^o j_i \Delta InVREXRT_{t-1} + \sum_{i=1}^r k_i \Delta InINF_{t-1} + \sum_{i=1}^s l_i \Delta InEXD_{t-1} \\ & + \sum_{i=1}^u m_i \Delta InRGDP_{t-1} + \sum_{i=1}^w n_i \Delta IRT_{t-1} + \mu_t \dots \dots \dots (4b) \end{aligned}$$

Where  $\Delta$  = the difference operator,  $\mu_t$  = the white noise error term and t-1 =the time lags

### Interpretation of results and findings

Before applying the posttests there is need to analyses and examine the unit root properties of the variables this can be seen in table 1 below.

Table: 1 unit root test result

| Philips-Perron |                          |                          |                      |
|----------------|--------------------------|--------------------------|----------------------|
| Variables      | t-statistics             | Critical values          | Order of integration |
| InEXRT         | -2.510033<br>(-5.582275) | -3.443201<br>(-3.443450) | 1(1)                 |
| InEXD          | -2.177467<br>(-5.121853) | -3.443201<br>(-3.443450) | 1(1)                 |
| InRGDP         | 0.117188<br>(-4.285632)  | -3.443201<br>(-3.443450) | 1(1)                 |
| InINF          | -3.318244                | -3.146309                | 1(0)                 |
| IRT            | -2.861865<br>(-3.807627) | -3.443201<br>(-3.443450) | 1(1)                 |

Sources: Authors Computation Using Eviews 10

Note: t-statistics and critical values in () is at first difference

From table 1, the result of the Phillips-Perron (PP) tests depicts that exchange rate(InEXRT), external debt(InEXD), real gross domestic product(InRGDP), and Interest rate( IRT) are not stationary at level but found to be stationary at first difference. However, inflation was found to be stationary at level that is integrated at level 1(0).

Table 2: Lagrange Multiplier (LM) Test results

Heteroskedasticity Test: ARCH

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 21.83015 | Prob. F(1,133)      | 0.0000 |
| Obs*R-squared | 19.03422 | Prob. Chi-Square(1) | 0.0000 |

Table 2, shows that ARCH LM test is found to be significant at 5% level. This result indicates that there is ARCH effect that is the series has volatility. Therefore the GARCH variance series shows that it can be applied as measure of volatility of exchange rate.

### Cointegration Results

The result of the unrestricted Johansen cointegration test is shown in table 3 below. The standard statistics used in the interpretation of the test are the Trace statistics and Eigenvalue at level of significant.

Table 3: Johansen Cointegration Test Result

Unrestricted Cointegration Rank Test (Trace)

| Hypothesized<br>No. of CE(s) | Eigenvalue | Trace<br>Statistic | 0.05<br>Critical Value | Prob.** |
|------------------------------|------------|--------------------|------------------------|---------|
| None *                       | 0.274429   | 86.86708           | 69.81889               | 0.0012  |
| At most 1                    | 0.162868   | 45.16358           | 47.85613               | 0.0876  |
| At most 2                    | 0.081366   | 22.05299           | 29.79707               | 0.2956  |
| At most 3                    | 0.061619   | 11.02019           | 15.49471               | 0.2103  |
| At most 4                    | 0.020949   | 2.752245           | 3.841466               | 0.0971  |

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Hypothesized<br>No. of CE(s) | Eigenvalue | Max-Eigen<br>Statistic | 0.05<br>Critical Value | Prob.** |
|------------------------------|------------|------------------------|------------------------|---------|
| None *                       | 0.274429   | 41.70349               | 33.87687               | 0.0048  |
| At most 1                    | 0.162868   | 23.11059               | 27.58434               | 0.1688  |
| At most 2                    | 0.081366   | 11.03280               | 21.13162               | 0.6441  |
| At most 3                    | 0.061619   | 8.267944               | 14.26460               | 0.3521  |
| At most 4                    | 0.020949   | 2.752245               | 3.841466               | 0.0971  |

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Table 3 depicts the existence of only one cointegration on the basis of both trace test and maximum eigenvalue test. The presence of one cointegration reveals the existence of a long run equilibrium relationship between real exchange rate and its selected determinants used in the model. Thus, the hypothesis of no cointegration is rejected.

### Long run model

The Johansen procedure is applied to obtain the long run coefficient of the model as presented in the equation below.

$$Ect_{t-1} = 1.000000\ln EXRT_{t-1} - 0.266023\ln EXD_{t-1} - 0.517831\ln RGDP_{t-1} + 0.817473 \ln INF_{t-1} + 0.007377 IRT_{t-1} + 0.155971 \dots (5)$$

From the equation we noticed that there is a positive relationship between exchange rate and external debt. Meaning an increase in exchange rate by 1% will result to increase of external debt by 26%. Moreso, RGDP also depict a positive relationship with exchange rate. This findings is similar to the findings of Khan et al.(2019) and contrary to the findings of Al-Masbhi and Du(2021) who found a negative relationship between exchange rate and GDP growth. Who shows that an increase in GDP will lead to a decrease in exchange rate.

Therefore, the equation also displayed a negative relationship between exchange rate with inflation and interest rate. That is to say an increase in inflation and interest rate will result to the decrease in exchange rate. This finding is contrary to the findings of Al-Masbhiand Du (2021) who conducted a study on the determinants of exchange rate in Yemen and reveal out a positive correlation between exchange rate with interest rate and inflation and Jibril (2019) who found also a positive relationship between exchange rate with interest rate and inflation in Nigeria.

### Vector Error Correction Model (VECM) analysis

Table 4: VECM

|          | Coefficient | Standard error | T-statistics | Probability |
|----------|-------------|----------------|--------------|-------------|
| CointEq1 | -0.050919   | 0.02455        | -2.07395     | 0.0386      |

Source: Authors computation using Eviews 10

Table 4 shows VECM test. Since we get onecointegrated equation in the study, therefore, we continue with VECM test. This model contributes to test the long run and short term relationship of the explained and explanatory variables used in the study. After analyses the VECM test, the result shows that long run relationships exist between the variables. This can be seen from the coefficient C1 which depicts a negative and statistically significant at 1%.

### Conclusion and recommendations

The volatility in exchange rate is a major concern and common characteristic of developing economies Nigeria inclusive, this as a results of increasing demand of foreign currency for importation of good and services by the citizens. Therefore, this paper investigates the determinants of exchange rate volatility in Nigeria. We used some variables which belief to influence exchange rate volatility. Such variables include external debt, real gross domestic product, inflation and interest rate.

The Johansen Cointegration and Vector Error Correction Model (VECM) are applied to examine the existence of long run and short run relationship among the variables and GARCH was used to estimate the volatility of exchange rate.

The Johansen cointegration test revealed a long run relationship among the variables in the model. VECM depicts a short term associations of the exchange rate with the variables in the models. The result also presents a positive relationship between exchange rate with inflation and interest rate and negative correlation with external debt and RGDP.

However, this paper recommends that the Central Bank should always monitor the fluctuation of exchange rate by putting yardstick in which the exchange rate can fluctuate within the economy for example setting embargo on the quantity of dollar for international transaction.

Nigeria should carefully embrace digital economy in terms exchange of goods and service within and outside the economy. Increasing in productivity through diversification of the economy would help to regulate the volatility of exchange rate.

More so, there is need to lower interest rate and checkmate inflation at the same time that would enhance domestic economic activities and in turn would improve the stability of exchange rate.

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## IMPACT OF PUBLIC EXPENDITURE ON HEALTH SERVICES DELIVERY IN THE FEDERAL CAPITAL TERRITORY, NIGERIA

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### Abstract

*This study examines the impact of public expenditure on health services delivery in the Federal Capital Territory (FCT), Nigeria using the provision of medical equipment as a proxy for health services delivery in FCT. The study employs a cross-sectional research design using questionnaires as a method of data collection. Findings from the study show that government capital expenditure (CAPEXP) has a positive and statistically significant impact on the availability of medical equipment found at the various primary health care centres in FCT because a unit increase in capital public expenditure leads to 0.6457811 increase in the availability of medical equipment in FCT. This means that public capital expenditure in the year under review has an impact on health services delivery in FCT by purchasing medical equipment needed to aid health services delivery to residents of FCT. The study recommends that, firstly, the government should increase budgetary allocation for the funding of healthcare service delivery in FCT. Secondly, the existing medical equipment should be replaced with modern ones in line with international best practices. There should be functional solar systems to power medical equipment such as refrigerators that requires a constant power supply for it to work optimally.*

**Keywords:** Public Expenditure, Medical Equipment and Health Services Delivery

JEL Classofocatopn: H51, 54 & I19

### Introduction

Globally, governments are increasingly becoming the major actors in the provision of basic healthcare services for the citizens because a healthy population guarantees a productive nation. According to Ilori, Olalere&Babatola (2017), a critical issue facing our world today is health, as it allows us to develop our capacities fully, and without public funding, this human asset can be weakened physically and emotionally, causing obstacles in people's lives.(World Health

Organization [WHO] recognized the importance of the above in 2010 when it proposed issues to address the financing of health, ensuring affordable and qualitative healthcare (Ataguba&Akazili, 2010).

According to Keynes' theory of public expenditure development, the budgetary function must adapt to the changing needs of the economy for public expenditure to play an increasingly important role (Iloriet *al.*, 2017). Health delivery services are services geared toward improving people's health. It comprises health care services targeted at cubing individuals' particular challenges, such as disease prevention and cure. Health services delivery is categorized into economic, channels of delivery, and production features. In using economic classification, consideration has to be given to the measure of the transaction intensity of health care, i.e. the degree to which professional involvement is necessary. Healthcare services are provided to people through a particular channel. Clinics, health posts, health centres, and district hospitals are all examples of health facilities that provide health services (Van-Olmenet *al.*, 2010).

As in many other countries, Nigeria's government has undertaken the responsibility of providing merit goods for healthcare services and education because they add value to life. This function of the government is in line with the Romer (1986) Endogenous growth model, which incorporated a new concept of human capital, skills, and knowledge that enhance productivity. In realizing the social benefits that health confers on society as a whole, which outweighs its cost, the government decided not to leave its provision solely in the hands of profit-maximizing individuals. In 2019 and 2020, N1.483 billion and N1.422 billion were allocated to the primary health care centres in FCT, Abuja (Federal Capital Territory- Primary Health Care Development Board [FCT-PHCDB], 2021). According to Kress, Yangfang& Wang (2016), Nigeria has several Primary Health Care Centres with reasonable geographical spread and relatively high health personnel density. The FCT has a total of 300 primary healthcare centres across the six area councils providing healthcare services to the residents of FCT (Ijoko, Magaji&Gombe 2021)

It is still observed that Nigeria is lagging in its efforts to achieve the Sustainable Development Goal (SDG3) target of promoting good health and well-being. Despite the concerted international and national efforts to reposition healthcare for better service delivery, poor health service delivery has continued to be a major concern for policymakers in Nigeria. One of the stated targets of (SDG3) is to increase health financing, recruiting, developing, training and retaining health professionals in small island developing states and least developed countries that are especially vulnerable. In reality, most Sub-Saharan African countries, including Nigeria, are not on track to achieve a SDG3. Health statistics for Nigeria and Ghana indicated that the neonatal mortality rate is 35.9 and 23.1 death per 1000 live births, the infant mortality rate 74.2 and 33.9 per 1000 live births, the child mortality rate 117.2 46.2 per 1000 live births, the maternal mortality ratio 917 and 308 deaths per 100,000 live births and life expectancy rate 54.7 and 64.1 years respectively (Ijoko, *et al.*, 2021). These statistics are not encouraging when compared with the developing countries of the worlds which are on course to achieving the (SDG3).

The government cannot ignore the role of improved public expenditure on primary healthcare centres because it can promote economic growth. Therefore, there has been an increase in government revenue allocations to cater fundamentally for the development of medical equipment and expansions of the old ones and an increase in the supply of health personnel for better health outcomes. Previous studies in Nigeria (Dalaba, Welaga, & Matsubara, 2017; Danladi, 2021; Emecheta, Edeme, Omeje, 2017; Kiross et al., 2020 and Osakede, 2020) all

focused on public expenditures that were primarily examined in relation to conventional health outcome measures, such as neonatal mortality rate, infant mortality rate, under-5 mortality rate, maternal mortality rate and life expectancy rate except a study by Ijokoet *al.*, (2021) that study the impact of public expenditure on health infrastructure in FCT with less attention on medical equipment. This study is, therefore, an improvement from previous studies. It is also important to focus research efforts on the impact of public expenditure on health service delivery in Nigeria to generate new scientific evidence on how best to direct government revenue allocation into the sector for optimal performance.

The remainder of the paper is structured as thus. The second section discusses the empirical review, section three includes methodology, section four contains results and discussion, and section five concludes the paper.

### **Empirical Literature**

Due to the increasing participation of the government in financing healthcare globally, Public expenditure and health have been studied by scholars at different times. For example, Christian Aid (2015) carry out an Assessment of Primary Health Centres in Anambra, Benue, Kaduna, and Plateau States adopting quantitative and qualitative techniques, such as WHO Service Availability Mapping (SAM), Service Availability and Readiness Assessment (SARA) including the WHO Service Availability Mapping (SAM) tool, and IHC developed Clients' Satisfaction. More than half of the health centres were found with available stethoscopes; less than half with functional pressure machines/cuffs; scarce functional thermometers; non-existent functional pulse oximeter which is required for measuring oxygen saturation; inadequate human resources wherein medical official ratio to catchment area population of (per 20,000) across the states was 0.430 falling short of the National Primary Health Care Development Agency (NPHCDA) minimum standards, which requires that a PHC have to serve a population of between 10,000 and 20,000 with at least one doctor in its employ. Regarding training and capacity building needs, of all the facilities assessed, staff of only 13 of the health facilities had received training on some important health issues. Equally, none of the facilities had guidelines for the various service areas. The study only collected data on basic information about health services without consideration for government expenditure (the major focus of the current study) on the provision of health services. Considering government expenditure in a study would have enabled the study to determine if the unavailability of facilities and inadequate personnel training was due to poor government funding or some other confounding variables.

Bashir (2016) studied the Impact of Government Expenditure on Infrastructure on the performance of the Nigerian health sector from 2000 to 2013. The study employed Pearson's moment correlation and found that public expenditure and infant mortality have a strong correlation of -0.899, indicating a direct relationship between the provision and availability of health infrastructures and a decrease in infant mortality rate. At the same time, there is a weak correlation between public expenditure and life expectancy by 0.081. The study recommends that the government take urgent steps to provide affordable and qualitative health infrastructure for better healthcare delivery in Nigeria. The study's finding is in line with the objective of this current study which seeks to examine the impact of public expenditure on the availability of medical health equipment in FCT. However, this current study is a micro-study focusing on the primary healthcare centres in FCT.

Using Primary Health Care Performance Indicators conceptual framework Kress, Yanfang & Wang (2016) examine Nigeria's PHC system. In this study, the World Bank Service Delivery

Indicators Survey was used to collect facility-level data and found segmented supply chains, highly fragmented governance structures, lack of financial access to PHC, missing basic infrastructure (electricity, running water, and toilets) of 77% of facilities, and inadequate drugs, equipment, and vaccines at the facility level hinder the performance of PHC facilities. In contrast to other African countries, the Nigerian government spends the least on health (0.88% of GDP). A number of policies were recommended that addressed the challenges related to systemic governance and financing. The study was carried out using the World Bank Service Delivery Indicators, covering 12 states out of the 36 states in Nigeria. But, this present study is only concerned with FCT using primary data obtained from the health facilities.

Based on the availability of essential drugs and medical equipment in 2480 healthcare facilities across 12 states in Nigeria's six geopolitical zones between 2013 and 2014, Oyekale (2017) analyzed the service readiness of PHC facilities in Nigeria. Using descriptive statistics and OLS, the study discovered that functional stethoscopes in the PHC were reported by 77.22% of the healthcare facilities surveyed, while about 68.10% of the health facilities had sphygmomanometers. Health facilities reported low availability rates for basic drugs like azithromycin, nifedipine, dexamethasone, and misoprostol, respectively, while paracetamol and folic acid were high (74.31%). Among southern Nigerian states that also have some sources of power (such as electricity, solar, or generators with batteries) and some forms of medical equipment, indices of drug and medical equipment availability increased significantly ( $p < 0.05$ ). Equipment availability indices were significantly reduced by travel time to headquarters and rural facilities ( $P < 0.05$ ). The study analyses the service readiness of the Primary Health Care facilities in Nigeria from 2013 to 2014. A small sample size limits the study. The scholar did not show the linkage between public expenditure and the services delivery in the primary health care centres studied.

In estimating the cost of providing health care in primary health care facilities in Ghana, Dalaba, Welaga & Matsubara (2017) employ Quantitative and Cross-sectional data sourced from health providers. Costs of delivery of health services and unit costs per Outpatient Department (OPD) attendance were estimated. In the study, the average annual cost of providing health services through Community-based Health Planning Services (CHPS) and Health Centers (HCs) was US\$10,923 and US\$44,638, respectively, and the primary cause for the high cost was personnel costs. To improve primary health care in the country, the government should follow these findings when making financial decisions, making decisions, and allocating resources. The study was conducted to examine the cost of delivering health care services at primary health facilities in Ghana using quantity and cross-sectional data. The scholars did not indicate whether public or private owned primary health care facilities are charging these user fees. As such, it would be difficult to adapt their findings for policymaking by the government.

Nketiah-Amponsah (2019) examines the impact of health expenditure on health outcomes in Sub-Saharan Africa. The study utilizes data from 46 sub-Saharan African countries covering 2000–2015. According to the results, health expenditures in the region are determined by Gross Domestic Product (GDP) per capita, physicians per 1,000 people, people over 65 years old, and under-five mortality rates. As a result of an increase of 1 percent in health expenditure per capita, under-five mortality decreased by 0.5 percent, maternal mortality decreased by 0.35 percent, and life expectancy improved by 0.06 percent. The study examines the impact of health expenditure on health outcomes proxied by life expectancy rate, maternal mortality rate and under-five mortality rate in 46 countries in Sub-Saharan Africa. The study covers the total

health expenditures of these countries, while this current study is only concerned with public expenditure and its impact on health services delivery in FCT.

Kapologwe *et al.* (2020) employ a descriptive analysis to assess public primary health facility infrastructure development in Tanzania between 2015 and 2019. According to the study, 46 percent of primary health care facilities were in good physical condition, while 33% needed minor renovations and the remaining needed major renovations. According to this finding, most facilities did not provide high-quality health care services, because their amenities were inadequate. Moreover, only 33 percent of health facilities studied had running water, indicating that hygiene and sanitation remain major challenges in most healthcare facilities, which poses a challenge to health services delivery. As one limitation of this study, no questionnaires were administered or interviews conducted in the conduct of the study; instead, mainly secondary sources were used for the data collection. Secondly, amenities were the main focus of the study with less attention to health outcomes. Thirdly, the study ignored the impact of public expenditure on the facilities studied.

Using time series data from 1980 to 2017, Osakede (2020) analyzes whether or not the quality of governance affects health status and indirectly determines the effectiveness of public health spending in Nigeria. A two-stage least square regression model was used to check for endogeneity using the Hausman statistical tests. When government health spending is controlled by corruption, maternal deaths drop by 0.03%. Conversely, maternal mortality increased by 0.02% when government health expenditures were combined with the rule of law. Similarly, when health spending interacts with regulatory quality, it improves life expectancy, and political stability interacts with public expenditure on health, which induces a decrease in the life expectancy of the people in Nigeria. The study recommended that effective health spending be a top priority agenda in policymaking. The study was carried out in Nigeria to analyze and show the relationship between health outcomes and public expenditure on health such as maternal deaths and life expectancy by controlling for quality of governance using time series data. However, this study utilized cross-sectional data obtained from primary sources.

Ijoko, *et al.* (2021) carry out an empirical analysis of the impact of public expenditure on health infrastructure in primary healthcare centres in FCT. An inferential and descriptive statistical approach was used in data analysis using Ordinary Least Squares (OLS). The empirical findings reveal that capital public expenditure (CAPEXP) has a positive relationship with a coefficient of 1.539369 on the provision of health infrastructure in FCT. The study recommends increased funding allocation to PHC in FCT.

Arising from the empirical reviews, it can be deduced that findings from the previous studies have opposing views; while some agree that public expenditure has a positive and significant impact on health services delivery, others find different results. One common thing in these previous studies is that they both stressed the importance of improvement and proper channelling of public health spending to reposition the health sector. Hence the current study examines the impact of public expenditure on health services delivery in the Federal Capital Territory, Abuja.

## **METHODOLOGY**

### **Study Design**

This study is an empirical study that utilizes a cross-sectional research design. The questionnaire was used as an instrument of data collection from primary sources. The

questionnaires were administered to selected Primary Healthcare Centers across the six area councils of FCT (Abaji, AMAC, Bwari, Gwagwalada, Kwali, and Kuje), using a stratified simple random sampling technique. This study adopts the health service delivery indicators (SDI) as defined by World Health Organization in 2013; and aims to measure health service delivery performance and quality by collecting data on their accuracy, availability, and functionality. As part of the Nigerian Service Delivery Indicator survey, the World Health Organization first adopted it in 2013 to gain insight into the state of health care in Nigeria (WHO 2013). The researchers employed inferential statistics to present and analyze the data collected.

### Study Location

The study was conducted at Primary Healthcare Centres (PHC) located in Abuja's six Area Councils of the Federal Capital Territory (FCT). The choice of FCT was because it is the capital city of Nigeria with a large population size of people from different parts of the country. The researchers chose the Primary Healthcare Centres in FCT because of their relative importance and nearness to the people compared to the Secondary and Tertiary Healthcare Centres.

### Population and Sample

The empirical study embarked upon cuts across the six (6) Area Councils in the FCT Abaji, Kuje, Gwagwalada, Bwari, Abuja Municipal Area Council (AMAC) and Kwali. There are 300 Primary Healthcare Centres in all the Area Councils (Ijokoet *al.*, 2021). Only public Primary Healthcare Centres were considered for this study. There are 31 in Abaji Area Council, 49 in Kuje Area Council, 34 in Gwagwalada Area Council, 55 in Bwari Area Council, 86 in AMAC and 44 in Kwali Area Council. Thus, the study population comprises the 300 public Primary Healthcare Centers in the six Area Councils in FCT from which a sample was drawn.

This study employed stratified random sampling to identify the samples on which the survey instruments are administered. The use of sampling techniques allowed for disaggregation by geographical location (Area councils). The population was further stratified into different groups by their geographical distribution with AMAC called group 1, Bwari group 2, Gwagwalada group 3, Abaji group 4, Kwali group 5 and Kuje group 6. From the groups, the researcher selected sixty-one (61) primary healthcare centres randomly from group 1, forty-six (46) from group 2, thirty-five (35) from group 3, thirty-four (34) from group 4, forty (40) from group 5 and forty three (43) from group 6 making a total of two hundred and fifty-nine (259) primary healthcare centres sampled. The survey instruments were randomly administered to the respondents across the two hundred and fifty-nine primary healthcare centres selected in the Area Councils, out of which two hundred and five (205) questionnaires were filled and returned.

### Data Analysis

To achieve the study objective, which is to assess the impact of public expenditure on health services delivery in FCT using the availability of medical equipment as a proxy for health service delivery in the FCT. The functional relationship, as well as the econometrics model explaining the relationship between public expenditure and medical equipment, is given as:

$$\text{MEdEquip} = f(\text{PEX}) \text{-----}(3.10)$$

Where,

MEdEquip = Medical Equipment

PEX = Public Expenditure

This can be restated further when public expenditure is disaggregated into recurrent and capital expenditure as follows:

$$\text{MEdEquip} = f(\text{CAPEXP}, \text{RECEXP}) \text{-----} (3.11)$$

Correspondingly, the econometrics model is given as:

$$\text{MEdEquip}_i = \beta_0 + \beta_1 \text{CAPEXP}_i + \beta_3 \text{RECEXP}_i + \mu_i \text{-----} (3.12)$$

Where,

MEdEquip = Medical Equipment (medical equipment examined in this study are Thermometer, Stethoscope, Weighing Scale, Refrigerator, and Sterilization equipment)

CAPEXP = Capital Expenditure

RECEXP = Recurrent Expenditure

$\beta_0, \beta_1$  and  $\beta_3$  = Parameters

**Table 1 Distribution of Regression Results**

| Variable                  | Co-efficient | Standard Error | t-Statistic | Probability |
|---------------------------|--------------|----------------|-------------|-------------|
| <b>C</b>                  | 2.444444     | 0.1261767      | 19.37       | 0.000       |
| <b>CAPEXP</b>             | 0.6457811    | 0.15665        | 4.12        | 0.000       |
| <b>R<sup>2</sup></b>      | 0.0772       |                |             |             |
| <b>Adj. R<sup>2</sup></b> | 0.0727       |                |             |             |
| <b>F-statistic</b>        | 16.99        |                |             |             |
| <b>Prob. (F-stat.)</b>    | 0.0001       |                |             |             |

Source: Author's computation STATA 14.2.

### Hypothesis I

The null hypothesis is that capital public expenditures have no significant impact on medical equipment available in the primary healthcare centres in FCT.

### RESULTS AND DISCUSSION

From Table 1, the medical equipment available in the primary healthcare centres in FCT (dependent variable) was associated with capital public expenditure variables (independent Variables) to the tune of  $R^2 = 0.0772$ . This implies no strong relationship exists between the availability of medical equipment and public expenditure in FCT. Conversely, 7.7% of public expenditure is associated with medical equipment availability in FCT. The result of  $R^2$  reveals that about 7.7% variation in the availability of medical equipment is explained by public expenditure proxies. Adjusted  $R^2$  shows that public expenditure proxies both accounted for 7.2% variation in the availability of medical equipment.

The calculated F-statistics is 16.99 and the estimated significant value is 0.0001. According to the significance test, the model explains the variation well at 1% statistical significance in the availability of medical equipment in the PHCs in FCT. Consequently, the model is found to be well-fitted. The constant value of 2.444444 was the average value of the availability of medical equipment in the absence of capital public expenditure. Assuming all other variables remain constant, CAPEXP's coefficient is 0.6457811 and its significant value is 0.000. Meaning that if capital public expenditure increases by a unit, it will cause 0.6457811 increase in the availability of medical equipment in the primary healthcare centres in FCT. The result is positive as expected because the improved public expenditure is expected to result in an increase in the availability of medical equipment needed to deliver better health services to the people.

Additionally, the p-value 0.000 establishes that capital public expenditure has a significant impact on the availability of medical equipment in FCT. Given the above, we can say that the

result of the capital public expenditure indicator shows that there is no significant impact of capital public expenditure on the availability of medical equipment in FCT. Hence, we accepted the alternate hypothesis that there is a significant positive impact of capital public expenditure on the availability of medical equipment in FCT while the null hypothesis was rejected.

This study investigates the impact of public capital expenditure on the provision of medical equipment in FCT. Findings from the study show that government capital expenditure (CAPEXP) has a positive and statistically significant impact on the availability of medical equipment found at the various primary health care centres in FCT because a unit increase in capital public expenditure leads to a 0.6457811 increase in the availability of medical equipment in FCT. Therefore, public capital expenditure in the year under study impacts health services delivery in FCT. In tandem with our findings, Oyekale (2017) reveals that functional stethoscopes were reported by 77.22% of the healthcare facilities, while 68.10% had sphygmomanometers in Nigeria. Also, the researcher found medical equipment such as thermometers, stethoscopes and sphygmomanometers etc., to be available and functional in 80% of the primary healthcare centres visited in FCT. The economic implication of this finding is that the availability of medical equipment will aid diagnostic testing of patients suffering from certain illnesses, leading to the treatment of any discovered disease, and thereby increasing the life expectancy of the people in FCT. Consequently, these people will have more time to work and earn a living while also contributing to the country's productivity level. This study supports the findings of Nketiah-Amponsah (2019) that by increasing health spending per capita by 1%, it was found that under-five mortality dropped by 0.5%, maternal mortality dropped by 0.35 percent, and life expectancy increased by 0.6%. Similarly, Miladinov (2020) found that through economic growth and development in a country, GDP per capita increases life expectancy and thus lengthens lifespan.

## Conclusion

The impact of public expenditure on health services delivery in FCT is evident as major health services delivery indicators' coefficients were statistically significant. From the study's findings, it could be concluded that the optimum functionality of the Primary Health care centres in FCT is tied to public expenditure. The empirical finding shows a significant impact of capital public expenditure on the availability of medical equipment in FCT exhibiting a significant positive relationship with a coefficient of 0.6457811 and an estimated significant value of 0.000. This means that a unit increase in capital public expenditure will result in to increase in the availability of medical equipment such as thermometers, stethoscopes, sphygmomanometers, weighing scales and refrigerators in the primary health care centres in FCT.

Arising from the findings of this study, the following recommendations are put forward for the policymakers to adopt:

- i. The government should increase budgetary allocation for the funding of healthcare service delivery in FCT.
- ii. The government should replace the existing medical equipment with modern ones in line with international best practices.
- iii. There should be functional solar systems that will serve as an alternative source of energy to power medical equipment such as refrigerators that require a constant power supply to work optimally.

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## THE IMPACT OF MILITARY EXPENDITURE ON ECONOMIC GROWTH IN NIGERIA: ABOUTSTRAP ARDL APPROACH

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### Abstract

*Military expenditure has been on the increase with a slow rate of economic growth over the years in Nigeria. This continuous increase in military expenditure with a slow economic growth rate has generated an intense debate among scholars in public finance, which warrants this study. The study makes use of annual time series data from 1980 – 2019, sourced from the World Development Indicator and Central Bank of Nigeria (CBN) statistical bulletin. Bootstrap Auto-Regressive Distributed Lag (ARDL) technique was adopted for the study, following the mixture of the order of integration and the existence of a long-run relationship among the variables used. The finding shows that military expenditure has an insignificant negative impact, in the short-run and a significant positive relationship in the long run on economic growth. Also, education expenditure and human capital development are found to have a significant short-run and long-run relation with economic growth. The study recommended improved and cautious funding for security and should closely be monitored to make sure it serves the purpose, as it has a positive contribution to economic growth. Likewise, expenditure on education needs to be enhanced as it has a significant impact on economic growth, vocational and technical education should be given special attention as it contributes significantly to GDP and will eventually lead to the development of human capital which was found to have a very valuable and significant link with economic growth.*

**Keywords** Military Expenditure, Economic growth, Human Capital Development, Bootstrap ARDL  
JEL Classification: C1, O42

### 1. Introduction

Several countries of the world have committed huge resources in human, capital, and financial assets to achieve and maintain peace in their country, United Nations will spend \$6.38 billion (US Dollars) for peacekeeping missions from July 2021 to June 2022 (UN peacekeeping factsheet 2021). The need for every nation of the world to install sustainable peace and security

in and outside her territory conceives the chore of the country's investment in the military and other law enforcement agencies. Military expenditure has been increasing in recent years whereby it surpassed the two trillion-dollar mark in 2021, with a 0.7 percent increase in total military expenditure in real terms. The current rate of conflict and insecurity in the world has necessitated an increase in military expenditure. The year 2021 has recorded large military expenditure to a record high of \$2.1 trillion. (Stockholm International Peace Research Institute SIPRI 2022)

According to SIPRI Report 2022, African military spending has followed three unique trends whereby it first rose continuously between 2012 and 2014 followed by four years of decline in 2018 then rose from 2019 to 2021 to give an overall increase of 2.5 percent whereby the continent has spent \$39.7 billion on military hardware in 2021. The North Africa region has a military expenditure increase of 1.7 percent with a total of \$19.6 billion and sub-Saharan Africa with a total of \$20.1 billion showing a 4.1 percent increase compared to 2020, the increase in military expenditure is primarily associated with Nigeria the biggest spender in the sub-region.

Nigeria has been increasing its military expenditure due to the rate of insecurity in the country (Zakari & Umar, 2020), especially from the birth of insurgency in North-Eastern Nigeria arising from the armed rebellious group against the government (Boko Haram), organized crime committed by outlaws typically involving the threat or use of violence (Banditry), the action of abducting someone and holding them captive (Kidnapping) and the nationalist separatist group in Nigeria that aims to restore the republic of Biafra (IPOB). Military expenditure as a percentage of the total Federal Government budgetary provision was 4.33 percent in 1974 and 8.12 percent in 1975 (Apanisile & Okunlola 2014). In 1989, military expenditure in Nigeria was \$0.17billion, this constitutes about 0.58 percent of the GDP. Military expenditure has been on the increase since 2012, it rose to about \$0.502 billion, then in 2018, it increases to \$0.506 billion of 0.51% GDP while in 2020 it rose to \$0.62 billion (World Development Indicator, WDI, 2021). This upward trend provoked public outcry in the country because the country has not been able to fight and win the war, due to the continuous increase in insecurity in the country and the expenses on the military are not justifiable. The government has tried to tackle the menace of insecurity but the problems have remained a disturbing dilemma for both the federal and state government, successive government has employed several security outfits like community policing, civilian Joint Task Force (JTF), and even granted amnesty to a repented individual in order to reduce the rate of insecurity.

Nigeria's security problem has been attributed to the rate of illiteracy and poverty in the country, the total adult literacy rate of 51.1 percent makes Nigeria one of the worst performing countries in the world in this area. Nigeria's illiteracy epidemic may remain a major issue for decade United Nations International Children Emergency Fund (UNICEF) and the idea that poverty breeds insecurity has been a major debate among scholars with those believing that poverty and insecurity has a direct link, while others argue otherwise that insecurity has other vices. Otolorin (2017) revealed that major causes of insecurity are predominantly poverty, religious violence, terrorism, lack of skills, and sources of livelihood. while other scholars agreed that poverty has no link with insecurity but other factors such as unemployment, illiteracy, faulty institutions and corruption are some of the factors responsible for National insecurity. National insecurity is characterized by violence, kidnapping, assassinations, armed robbery, food insecurity, and environmental insecurity (Akpan, 2015). which has caused businesses, agriculture, and investment to be comatose and has subjected people to unemployment and abject poverty in the country.

Military expenditure and economic growth have generated a lot of debate in literature which has shown that they are a significant fraction of the financial provision of developing economies is expended on the military at the expense of other social needs (Khalid & Mustapha, 2014). A disproportionately large military expenditure would usually be at the cost of social service provision and also impact other critical sectors of the economy that require significant fiscal provisions. Military expenditure can affect an economy positively through an expansion of aggregate demand or through increased security or negatively through crowding out of the investment (Enimola & Akoko 2011). Military expenditure has overshadowed most of the sectors of the Nigeria economy such as health, power, and education from 2011 to 2022 because of the continuous rise in insecurity, the public spending on the health sector has failed to address the shortfall even though the national budget has grown more than 20 fold since 1999 (Nigeria health budget analysis 2018). The continuous increase in military expenditure will not only divert the available resources from other sectors but will likely increase the poverty level in the country because most military hardware is imported not manufactured in the country. Therefore, this draws attention to the question of how does military expenditure affect several sectors of the economy most especially health and education as well as human capital development as it related to economic growth in the economy? These will give rise to the question of does military expenditure impact negatively or positively on economic growth. And addressing this question will shade more light on policy formation in the country as well as provide a link between current military expenditure and the growth of the economy.

It is against this backdrop that this study examines the impact of military expenditure on economic growth in Nigeria, using a period of 1980 to 2019. However, does military expenditure cause crowding out of the investment and interfere with other sectors of the economy and should Military expenditure be reduced to concentrate on human capital development as a major goal of the government? Otolorin (2017) research reveals that total expenditure on security harmed GDP in both the short run and long run respectively and Løvereide (2020) revealed that military expenditure has no significant effect on economic growth neither for the full nor grouped samples. In addition, this paper determines whether due to the increase in the military expenditure the insecurity situation has been reducing or even worsening in the country.

The paper is divided into five sections, section 1 Introduction, Section 2 presents the conceptual, theoretical and empirical literature; section 3 presents the methodology; section 4 results and discussion, and the last section concludes.

## **2. Literature Review**

According to the classical school of thought, which encourages an increase in government spending and military expenditure is regarded as part of government expenditure in a country which is likely to encourage economic growth, this is based on the theory that increased government expenditure will reduce the level of private sector investment, low consumption which will result to low aggregate demand and bring about crowding out of private investment while a reversed relationship is the Keynesian theory which encourages total spending in the economy and its effects on output, employment and inflation, it is considered a demand-side theory that focuses on changes in the economy over the short run. It advocated an expansionary fiscal policy whereby government increase expenditure and was lower taxed to stimulate demand. The theory provided a new way of spending, output and inflation. A drawback is that overdoing Keynesian policies increase inflation. The Keynesian theory advocated for increased government spending which will increase demand and Keynes advocated a countercyclical fiscal policy in which during periods of economic woe the government should undertake deficit

spending to make up for the decline in investment and boost consumer spending to stabilize aggregate demand. Nigeria's deficit spending from 2016 to 2021 increased the debt profile of Nigeria and Nigeria is servicing debt of over 2 trillion in 2021 which has reduced the economic growth of Nigeria and the country has gone into recession twice recently.

Military expenditure is a necessary expenditure of the government because it is saddled with the responsibility of protecting the life and property of its citizens which will enable economic growth, military expenditure stimulates economic growth through security, technological and aggregate demand effect. Therefore, military expenditure is an important part of government expenditure which is in line with the Keynesian theory of government injecting into the economy, which will stimulate the economy into growth and development. An increase in aggregate demand variables will also increase the level of capital in the economy which in turn leads to more investment and greater profit, whereby they will higher growth rate in the economy. Benoit (1973, 1978) argued that with an increase in military expenditure, economic growth can be promoted by increasing the human capital capabilities of the workforce through the provision of education and the military industries can provide valuable skills. There are also externalities in defence spending that are crucial to economic growth like the provision of road infrastructure which can be used by both the military and civilians (Barro and Sala-i-Martin 1995). A country can benefit from several activities of the military industry like a spillover effect of investments in their research and development sector, providing the necessary infrastructure in several communities especially the community they have their infrastructure and bringing stability both internally and externally to the country.

There are several empirical findings on the impact of military expenditure which has generated a lot of debate since Beniot (1973) found a positive relationship, some researchers have debunked Beniot findings such as Enimola and Akoko (2006); Apanisile And Okunlola (2014); Khalid and Razaq (2015) and Otolorin (2017); found a negative relationship between military expenditure and economic growth.

Oriavwote and Eshenake (2013) investigate the impact of security expenditure on the level of economic growth in Nigeria, using Error Correction Model, which shows that defence expenditure has impacted economic growth negatively and expenditure on internal security has an important in generating the desired economic growth even though they are flaws in budgeting and implementation in the defence sector.

Micheal A Akume, Gylych Jelilov and Benedict Akanegbu (2019) used the Autoregressive Distributed Lag (ARDL) bounds testing approach to co-integration for the period from 1988 to 2017 to investigate the impact of this increase in military spending on the economic well-being (measured by GDP per capita) of Nigerians and it found out a positive relationship between military spending and economic well-being in Nigeria but wellbeing is not occurring as the variable is only significant after the current year spending; which does not last longer than a year.

Ayange, Samuel, Prince and Ndubuaku Ayange, Samuel, Prince and Ndubuaku (2020) found a long-run positive and significant impact on economic growth and human capital development while in the short-run a negative relationship. Using ARDL bounds test and Error Correction Model (ECM) on quarterly time-series data from January 2010-December 2018 to examine security expenditure as an economically contributive or a non-contributive expenditure on human capital development and economic growth in Nigeria.

Ajala (2021) investigate the relationship between military expenditure and economic growth in Nigeria using the autoregressive distributed lag (ARDL) estimation technique from 1981 to 2017 using annual time series data and the result shows that there is a significant positive long-run relationship between military expenditure and economic growth.

Mbah, Agu and Aneke (2021) Employ quarterly time series data spanning from the first quarter of 1999 to the fourth quarter of 2019 using the Autoregressive Distributed Lag (ARDL) estimating technique, they found internal security to be positively and significantly related to economic growth in the short-run but exhibits a negative and significant relationship with economic growth in the long-run it further reveals that The result also revealed foreign direct investment and economic growth is negative.

Maheswaranathan and Jerusha (2021) investigated the relationship between defence expenditure and the growth of the economy in Sri Lanka using the ARDL bounds test and the Granger causality test from the period of 1990 to 2019. the study found that Granger causality confirms the one-way association between the growth of the economy and defence expenditure and that defence spending has a significant and positive effect on economic growth in the long-run while Exchange rate, capital investment and broad money supply have a significant and positive influence in the short-run and long-run.

Temitope and Olayinka (2021) used the autoregressive distributed lag (ARDL) estimation technique to test the impact of military expenditure and economic growth in Nigeria using annual time series data from 1981 – 2017. A simple growth model that incorporates military expenditure as a share of government expenditure for the period of study was used and they found out that there is a significant positive long-run relationship between military expenditure and economic growth.

Yusuf and Mohd (2022) implore ARDL methodology to analyze the fiscal and socio-economic consequences of insecurity on economic growth in Nigeria using annual time-series data from 1980 to 2019. they found that security, high unemployment rate, domestic capital formation, foreign direct investment and government spending on education are negatively affected by the growing level of insecurity and consequently retarded growth in the long and short run.

### **3. Methodology**

#### **3.1 Model Specification, Data Description and Estimation Technique**

This study adapts and modifies Barro (1990) model as put forward by D'Agostino, Dunne and Pieroni (2017) to investigate the impact of military expenditure on economic growth, inflation was introduced to reflex the continuous increase in the price level of goods and services in the economy. The annual time series data of Economic Growth, Inflation, Military expenditure and human capital were sourced from WDI, while the data of Education expenditure was gotten from the Central Bank of Nigeria (CBN) Bulletin from 1980 – 2019 which will underline the study.

The study examines the relationship between economic growth, military expenditure, human capital, investment, inflation and education expenditure in Nigeria. The method used in this study is Autoregressive Distributed lag (ARDL) originally introduced by Pesaran and Shin (1999) and further extended by Pesaran, Shin and Smith (2001). Several benefits exist with this approach that may be contrasted with the Johansen and Juselius cointegration methods. (Umar, Zakari, & Abdulkarim, 2022; Umar & Zakari, 2020; Zakari & Umar, 2020). In addition, the researcher intended to provide new empirical literature by testing the impact of the military expenditure on economic growth in Nigeria using the newly developed Bootstrap ARDL

testing technique as proposed by (McNown et al. 2018). The recent form of ARDL includes an additional t-test or F-test on the coefficients of lagged independent variables or coefficients of lagged dependent variables (Alhodiry et al., 2021; Umar et al., 2022). The critical values (CV) in the bootstrap ARDL approach lead to eliminating unstable results of the ARDL bounds testing model (Alhodiry et al., 2021; Goh et al., 2019). However, McNown et al. (2018) critical values gained by bootstrap simulation will lead to better results than the traditional ARDL bounds test. The Pesaran et al. (2001) CV allows for (1) endogeneity of all explanatory examined variables. Also, this approach is more suitable for data that contains more than one explanatory variable to be endogenous, while the CV generated with a bootstrap technique allows for the endogeneity of all explanatory examined variables. Moreover, the bootstrap ARDL test has one unique quality as compared to other bounds tests, it eradicates the possibility of indeterminacy (Shaoet al., 2022). Furthermore, the Bootstrap procedure has the additional advantage of eliminating the possibility of inconclusive inferences (Lin et al., 2017). The linear model is presented below:

$$Y = \beta_0 + \beta_1 EDE + \beta_2 ME + \beta_3 HC + \beta_4 INFL + \varepsilon_t \text{-----}(1)$$

Where Y is the real GDP in the country, ME is the military expenditure, EDE is education expenditure, HC is Human capital development proxy by school enrolment and INFL is the inflation rate,  $\varepsilon_t$  is the error term.

The ARDL representation of the equation below is expressed as follows:

$$\begin{aligned} (LGDP)_t = & \beta_0 + \sum_{i=1}^a \beta_1 \Delta l(GDP)_{t-i} + \sum_{i=0}^e \beta_2 \Delta l(EDE)_{t-i} + \sum_{i=0}^w \beta_3 \Delta l(ME)_{t-i} \\ & + \sum_{i=0}^f \beta_4 \Delta l(HC)_{t-i} + \sum_{i=0}^g \beta_5 \Delta l(INFL)_{t-i} + l(GDP)_{t-i} + l(EDE)_{t-i} \\ & + l(ME)_{t-i} + l(HC)_{t-i} + (INFL)_{t-i} + e_t \dots \dots \dots 2 \end{aligned}$$

To get the short-run coefficients, an error correction model (ECM) is estimated. The ARDL specification of the ECM is represented in the Equation below.

$$\begin{aligned} (\Delta LGDP)_t = & \beta_0 + \sum_{i=1}^a \beta_1 \Delta l(GDP)_{t-i} + \sum_{i=0}^e \beta_2 \Delta l(EDE)_{t-i} + \sum_{i=0}^w \beta_3 \Delta l(ME)_{t-i} \\ & + \sum_{i=0}^f \beta_4 \Delta l(HC)_{t-i} + \sum_{i=0}^g \beta_5 \Delta l(INFL)_{t-i} + \phi ECT_{t-i} + e_t \dots \dots \dots 3 \end{aligned}$$

The short-run equation coefficients are coefficients relating to the short-run dynamics of the model's convergence to equilibrium and  $\phi$  in the equation above represent the speed of adjustment. Secondary school enrolment as a proxy for human capital development. inflation (INFL) and ME is the military expenditure. Furthermore, the long-run model of ARDL is estimated given as follows:

$$\begin{aligned} (LGDP)_t = & \beta_0 + \sum_{i=1}^a \beta_1 l(GDP)_{t-i} + \sum_{i=0}^e \beta_2 l(EDE)_{t-i} + \sum_{i=0}^w \beta_3 l(ME)_{t-i} + \sum_{i=0}^f \beta_4 l(HC)_{t-i} \\ & + \sum_{i=0}^g \beta_5 (INFL)_{t-i} + e_t \dots \dots \dots 4 \end{aligned}$$

#### 4.Estimation and Interpretation of Result

A stationarity test for all variables is necessary to determine their order of integration before proceeding with the ARDL bounds test, although the bound's testing procedure is not based on prior information on the order of integration of the series examined. It is necessary so that variables that are integrated at I(2) stationary are not included to avoid spurious results. Inferences in the bounds testing procedure through the computed F-statistics for bounds testing assume that the variables are level or first-differenced stationery. ADF and PP methods are used to determine the stationarity of the variables and the results are presented in table 1.

#### 4.1. Unit Root Test

Augmented Dickey-Fuller (ADF) and Philip Perron (PP) tests were used to test for unit root on the variables and the order of integration was presented in Table 1. It shows that all variables except Military expenditure were non-stationary at levels. After taking the first difference, the unit-roots were eliminated and became stationary and therefore integrated are integrated of order one, I(1).

**Table 1: Summary of Unit Root Test**

| Variables | Augmented Dickey-Fuller |                | Remarks | Philip – Perron |                | Remarks |
|-----------|-------------------------|----------------|---------|-----------------|----------------|---------|
|           | Levels                  | 1st Difference |         | Levels          | 1st Difference |         |
| LGDP      | -1.0476                 | -3.3925*       | I(1)    | -0.4465         | -3.7220***     | I(1)    |
| LEDE      | -2.8434                 | -5.1341***     | I(1)    | -1.3348         | -14.7685***    | I(1)    |
| ME        | -4.1646***              | -              | I(0)    | -7.1436***      | -              | I(0)    |
| LHC       | -2.5598                 | -5.4432***     | I(1)    | -2.4432         | -7.06713***    | I(1)    |
| INFL      | -2.4418                 | -6.2140***     | I(1)    | -2.8700         | -11.8021***    | I(1)    |

**Source:** Author's calculation (2022), \*/\*\*\* represent stationary at 10 and 1 percent level of significance respectively

#### Bootstrap ARDL Bounds Testin to Cointegration

This study employed the Bootstrap ARDL bounds test approach and evaluates the existence of long-run cointegration between the variables in the model. The study conducted all the tests (F and T-test of lag level variables, T-test of lag level dependent variable and F and T-test of lag level independent variables) highlighted by McKnown et al. (2018), from the result all three tests statistics exceed the CV of 1% in absolute terms, there is co-integration and confirm strong evidence of long-run cointegration between LGDP, ME, LHC, LEDE and INF in the model (see Table 2).

**Table 2: Cointegration result using Bootstrap ARDL Bound Test**

|                    | Dependent Variable F |          | Tdep       | Findep result |
|--------------------|----------------------|----------|------------|---------------|
| LGDP               | 16.282***            | 6.012*** | 265.106*** |               |
| Bootstrap Table CV |                      | 1%       | 5.62       | 12.579.05     |
|                    |                      | 5%       | 4.12       | 7.335.77      |
|                    |                      | 10%      | 3.46       | 5.204.43      |

**Source:** Author's calculation (2022), \*\*\* denotes statistical significance at a 1% level. Note: F is the F-statistic for the coefficients, tdep denotes the t-statistics for the dependent variable, findep denotes the t-statistics for the independent variable.

#### ARDL Bound Cointegration Test

ARDL bounds cointegration tests were reported in table 3. Whereby the value of F-statistic 25.9016 is higher than the upper critical bound at 1% critical value, the null hypothesis will be rejected that they are no cointegration at both levels of significance. Therefore, the ARDL bounds test shows that there is a long-run relationship among the variables, having established that a long-run relationship exists among the variables, the next step is to estimate the long-run

and short-run relationships, both the long-run and short-run dynamic parameters for the variables were obtained and the short and long-run model is presented below in Table 3.

**Table 3: ARDL Bounds test for Cointegration**

| F-statistics value = 25.9016*** |            |            |
|---------------------------------|------------|------------|
| A critical value of bounds      |            |            |
| Significance                    | I(0) Bound | I(1) Bound |
| 10%                             | 2.2        | 3.09       |
| 5%                              | 2.56       | 3.49       |
| 2.5%                            | 2.88       | 3.87       |
| 1%                              | 3.29       | 4.37       |

**Source:** Author's calculation (2022),\*\*\* represents a 1% level of significance. NOTE: K = 4.

### Results of Long-run and Short-run Models

Since the long-run relationship between the variables has been established using Bootstrap ARDL bounds testing to cointegration, the ARDL model was estimated. The optimal lag length of (1, 2, 0, 3, 3) was based on Akaike Information Criterion (AIC) which is -4.657857. Table 4 presented the short-run and long-run results of the ARDL model which explains the impact of military expenditure on economic growth. the result shows that an increase in military expenditure by 1% will lead to a decrease in Economic Growth by 1.7% and 38% in the short run and long run respectively, military expenditure is not statistically significant in the short run but it is significant in the long run. This confirmed the previous findings such as Apanisile and Okunlola (2014) and Oriavwote and Eshenake (2013) that found out military expenditure has a negative relationship with economic growth in the short run and a positive relationship in the long run. Perhaps due to the underdevelopment nature of Nigeria's arms industry, the purchase of our military wares come from a foreign nation of the world which has increased the cost of military wares due to inflation and the high exchange rate which is likely to bloat Nigeria's current deficit in GDP. Most developing economies facing insecurity like Nigeria cannot spend on military expenditure to boost the economy and military personnel cannot transfer their skills because they are killed daily. Therefore, due to limited resources of the country, the country is borrowing heavily to finance the military, and the little resources generated in the country are also diverted for military expenditure which stunts growth and because Nigeria is import dependent most of their expenditure on military wares are from foreign countries which will cause capital flight and it's a leakage in the economy. Also, an improvement in education expenditure by 1% increases GDP by 0.54% and 6.2% in the short run and long run respectively, Educational expenditure is not statistically significant in the short run but it is significant in the long run. This affirms the studies of Connolly & Li, (2016) and Derouen & Heo (2000) who found a positive relationship between Government Expenditure on education and GDP. However, it contradicts the studies of Edame & Nwankwo, (2013) and Mbah, Agu & Umunna, (2016).

On the other hand, Inflation shows a negative and significant relationship in both the short run and long run whereby a 1% increase in inflation in the short run will result in a 0.05% decrease in economic growth, likewise, in the long and increase in inflation by 1% will decrease GDP by 0.63%. Though controlling inflation is vital to ensure macroeconomic stability, the results in violation of a priori expectation suggest that a slight increase in the general level of prices of goods and services will stimulate long-term growth. The result contradicts the work of Okoli, Mbah & Agu. (2016) who also found evidence for a positive and significant inflation-growth relationship in Nigeria. But it is in line with the findings of Agu & Nyatanga (2020) established a negative inflation growth relationship.

However, an improvement in Human capital has a positive and significant relationship which revealed that a 1% improvement in human capital will result in a 92% increase in economic growth. The result is an encouraging connection between human capital and growth it shows that investment in human development has a momentous and valuable impact on economic growth. The significantly positive effect of human capital on growth is consistent with the study conducted by Karim & Amin (2018), and Azam (2020). The finding is also in line with the view of (Deger 1986) that factors of production used by the military are not available for civilian use and may hurt economic growth. He states that defence expenditure allocates scarce resources away from productive civilian investment and fails to mobilize or create any additional savings. More importantly, it significantly depresses the savings-income ratio, which ultimately harms growth and development (Deger, 1986).

The co-integrating equation indicates that about 25% of the disequilibrium in GDP growth rate shows the amount by which the short-run adjustment annually and it is statistically significant at 1% which suggests a long-run stability relationship between economic growth and military expenditure. Also, the adjusted  $R^2$  indicates that 77.4% of the total variation in the GDP is accounted for by the explanatory variables combined. Thus, the regression gives a good fit. The F-Statistic 25.9016 is significant at 1% which infers that the independent variables are jointly significant in explaining the dependent variable.

**Table 4: Result of ARDL Model**

| <b>Panel A: Long-run Coefficients – dependent variable is LGDP</b>                     |              |                |         |        |
|----------------------------------------------------------------------------------------|--------------|----------------|---------|--------|
| Regressor                                                                              | Coefficients | Standard Error | T-Ratio | Prob.  |
| C                                                                                      | 23.3374      | 0.4523         | 51.5872 | 0.0000 |
| ME                                                                                     | -0.3855      | 0.0989         | -3.8971 | 0.0007 |
| LHC                                                                                    | 0.9214       | 0.1225         | 7.5171  | 0.0000 |
| LEDE                                                                                   | 0.0629       | 0.0173         | 3.6288  | 0.0014 |
| INFL                                                                                   | -0.0063      | 0.0022         | -2.8606 | 0.0089 |
| <b>Panel B: Short-run Coefficients – dependent variable is <math>\Delta</math>LGDP</b> |              |                |         |        |
| D(ME)                                                                                  | -0.0175      | 0.0184         | -0.9514 | 0.3513 |
| D(ME(-1))                                                                              | 0.0370       | 0.0188         | 1.9680  | 0.0612 |
| D(LEDE)                                                                                | 0.0054       | 0.0070         | 0.7783  | 0.4443 |
| D(LEDE(-1))                                                                            | -0.0309      | 0.0070         | -4.3798 | 0.0002 |
| D(LEDE(-2))                                                                            | -0.0245      | 0.0065         | -3.7237 | 0.0011 |
| D(INFL)                                                                                | -0.0005      | 0.0002         | -1.9850 | 0.0592 |
| D(INFL(-1))                                                                            | 0.0013       | 0.0003         | 4.5295  | 0.0002 |
| D(INFL(-2))                                                                            | 0.0015       | 0.0003         | 4.1537  | 0.0004 |
| $ECT_{t-1}$                                                                            | -0.2530      | 0.0183         | -13.754 | 0.0000 |
| Adjusted $R^2$                                                                         | 0.7740       |                |         |        |
| F-Statistics                                                                           | 25.9016      |                |         | 0.0000 |
| D.W Statistic                                                                          | 2.2342       |                |         |        |

**Source:** Author's calculation (2022)

#### 4.5 Result of Diagnostic Tests

The results of the diagnostic tests are presented in Table 5, The serial correlation test result demonstrates that there is no existence of serial correlation among the errors. Also, the Ramsey Reset F-statistic is 0.4794 with a probability of 0.6362. this finding illustrates that there is no problem of misspecification in the estimated model. Furthermore, the Jacque-Bera statistic with a value of 0.0989 and the Probability value of 0.9517 indicates that there is no problem of non-

normality, Therefore, the model is normally distributed. Also, the test statistics for heteroskedasticity is 1.3518 with a probability value of 0.2579. Hence, there is no heteroskedasticity in the error terms. This is desirable for the study because it signifies that there is no heteroskedasticity problem in the model and that the variance of the residual terms is homoscedastic. Furthermore, the plots of the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMQ) (Figure 1 and Figure 2) are within the boundaries. This confirms the stability of the model in the long run.

**Table 5: Result of Diagnostic Tests**

| Test Statistic                      | Results        |
|-------------------------------------|----------------|
| Serial Correlation: CHSQ(2,20)      | 0.0283[0.9721] |
| Functional Form: Reset F-stat(1,23) | 0.4794[0.6362] |
| Normality: Jarque-Bera              | 0.0989[0.9517] |
| Heteroscedasticity: CHSQ(13,22)     | 1.3518[0.2579] |

**Source:** Author's calculation (2022)

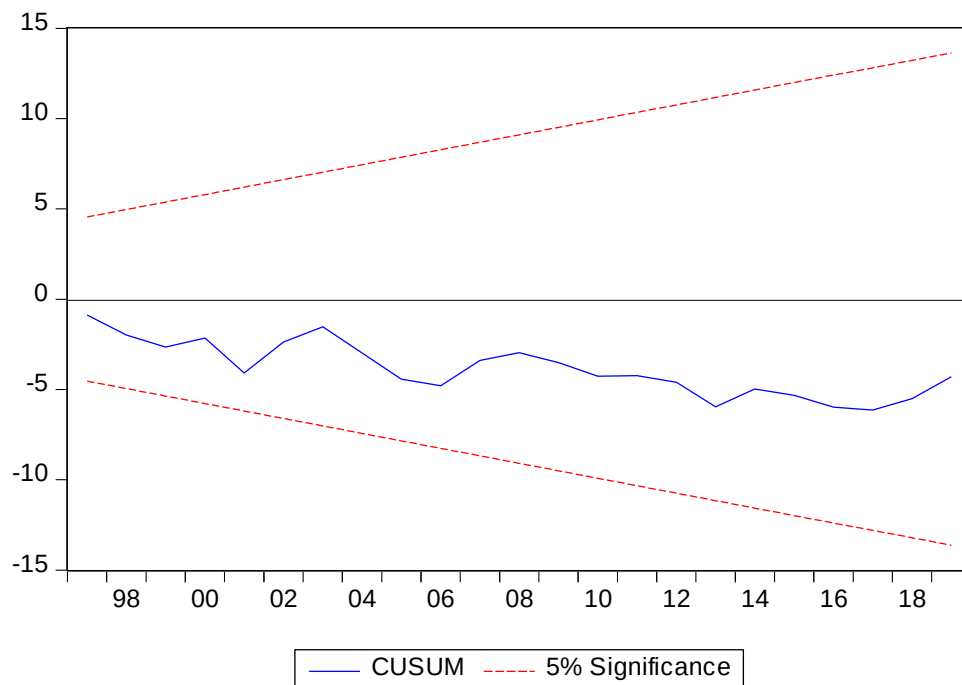


**Figure 1:** Plot of Cumulative Sum of Recursive Residuals

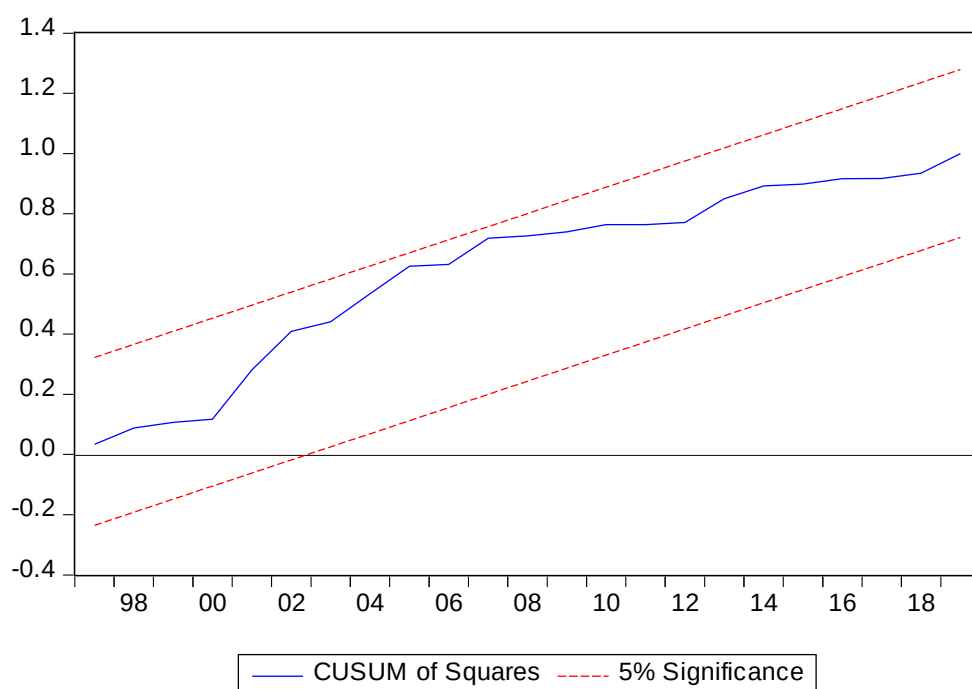


**Figure 2:** Plot of the cumulative sum of Squares of Recursive Residuals

## 5. Conclusion and Recommendations

This study investigates the impact of military expenditure on economic growth in Nigeria using annual time series data from 1980 to 2019, Bootstrap ARDL was used. The study finds out that, military expenditure and economic growth have an inverse relationship in the short run and have a significant positive relationship in the long run. therefore, suggest that in the short-run, there might not be immediate positive economic growth gains from government military expenditure, however, in the long-run, the positive impact of such military expenditure on economic growth will be gained. This corresponds with expectations from previous studies as highlighted earlier that for net arms importing countries that are faced with insecurity challenges and are forced to spend on their military in the face of other competing needs, such expenditure may not drive growth in the immediate shortterm, but may have a long run growth effect. However, inflation has a negative relationship with economic growth, both in the short run and long run while human capital development has a positive relationship in the long run. Also, education expenditure has a positive and significant relationship with economic growth in both the short and long run. Therefore, the study recommended for an improved and cautious fund to be channelled on security and should closely be monitored to make sure it serves the purpose, as it has a positive contribution to economic growth. Likewise, expenditure on education needs to be enhanced as it has a significant long-run relationship with economic growth, this is because no economy can grow significantly with the majority of its populace uneducated, vocational and technical education should be given special attention as it contributes significantly to GDP and will eventually lead to the development of human capital which was found to have a very valuable and significant link with economic growth.

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## **POVERTY REDUCTION THROUGH NAPEP PROGRAMS IN GWALE LOCAL GOVERNMENT AREA OF KANO STATE, NIGERIA**

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### **Abstract**

Poverty remains a major challenge both in rural and urban areas of Nigeria. This study sets to assess poverty reduction through NAPEP in Gwale Local Government Area of Kano State. Specifically, the study intends to describe the profile of the respondents and evaluates the level of appreciation of the NAPEP beneficiaries. The study used primary data collected using a structured questionnaire among 156 respondents in Gwale Local Government Area and found that NAPEP beneficiaries are dominant males and married most of who engage in food processing. It equally found that the level of beneficiaries' appreciation is higher than its benchmark category. Lastly, it recommends the need for government to ensure higher inclusion of other businesses and the need for better utilization of NAPEP programme among the beneficiaries.

**Keywords:** ANOVA, NAPEP, Poverty, Reduction and Programs

JEL Classification: I38, O22

### **Introduction**

Poverty is one of the most serious contemporary issues in developing economies Nigeria inclusive, which has assumed multifarious dimensions. (Garba, Ibrahim and Kabara, 2017). Nigeria faces serious poverty challenges and it is estimated that about 2/3 of Nigerians live below the poverty line (Abdulkadir, 2010).

In their efforts, several Nigerian governments have designed and implemented various poverty alleviation strategies since the 'oil boom era of the 1970s. Therefore, poverty alleviation strategies are important policy options over the years with varying results. However, there is still much debate as to whether urban poverty differs from rural poverty and whether policies to address the two should focus on a different aspects of poverty. In some views, rural and urban poverty are interrelated and there is a need to attack concurrently (Garba, 2017).

In Kano State particularly Gwale Local Government Area, poverty remains a topical issue. Amidst the long-lasting government interventions in poverty reduction, the repercussion is practically indeterminate and may be due to poor coordination, corruption, embezzlement, and missing priority to mention but a few. Because of this, the study sets to empirically assess the NAPEP poverty reduction strategies in Gwale Local Government Area. Specifically, the study describes the profile of the respondents and evaluates the level of appreciation of the NAPEP beneficiaries. This study comprises an introduction, literature review, methodology, findings and recommendations.

## **Literature Review**

Empirically, Saheed, Duru and Fatima (2019), conducted a survey study on Agricultural Cooperation and Poverty Alleviation in Kaduna State: A Case Study of Igabi Local Government Area using the Binary Logistic Regression Model. The study reveals that the poverty rate among the cooperative's members decreases with an increase in the level of the members' income.

Garba, Ibrahim and Kabara (2017), Fagge (2010) and Jalingo and Adamu (2010) researched an Empirical Assessment of NAPEP Poverty Reduction Strategies using varying techniques and came up with different recommendations. In another study, Abdulkadir (2010), Aliero and Abdullahi (2010) and Dantama and Aliyu (2010) carried out reviewed studies differently on poverty alleviation in Nigeria. Their studies reached different conclusions.

Ghazooouni and Goaiad (2001) and Serumaga-Zake and Naude (2002) carried out a study on the determinants of urban and rural poverty in Tunisia using a survey on budget consumption of the household carried out in 1990 using logit and Probit models and found that the main factors that determined poverty levels in the study area were the head of family levels of education, dependency ratio, the socio-professional category of the head, family residence and regional dummies. Also, Serumaga-Zake and Naude (2002), examined the determinants of urban and rural household poverty in the north-west province of South Africa, using data gathered from a survey of 593 black households across the province using the Probit model and found that the major determinants of residence and household both urban and rural areas are education and household size. In variably, Sarwar and Simbowale (2003), examined the poverty level in the Agege area of Lagos, a metropolitan city in Nigeria using the Multiple Regression Model and found that education and income were the major determinants of poverty in the study area.

## **Theoretical Framework**

**Vicious Circle of Poverty:** This study is based on the vicious cycle of poverty as used in the work of Garba (2017). According to the theory, in poor developing economies, the level of income is very low which means low purchasing power. Since the purchasing power of the people is low and the scope of investment is practically limited. As a result, productivity is low and the incomes are small. Underdeveloped countries face the vicious circle of poverty on the demand side of capital formation because the level of real income is low in these countries and

the level of demand is also low. Therefore, there is not much inducement for businesses to make investments which further reflects low capital formation. Hence, investment is discouraged and productivity per worker is low. The productivity per worker being low leads to low per capita income and thereby it results in poverty.

## Methodology

This study is designed to be a descriptive survey in nature in which views of the NAPEP beneficiaries" are collected and analyzed. The population of the NAPEP beneficiaries in Gwale Local Government is put at 9,230 (Gwale Local Government Area, 2017). The data will be collected using a structured questionnaire to be administered among 156 sampled beneficiaries determined using Yamane (1976). Multi-stage sampling technique will be used to administer the instrument systematically.

## Method of Data Analysis

*Descriptive Statistics:* This analysis is going to be used to achieve the objective of the study particularly the use of tables and Simple Percentage.

*Inferential Statistics:* This analytical tool is going to be used to evaluate the entrepreneurial strategies adopted by the NAPEP for urban poverty reduction.

## Model Specification

Specifically, an ANOVA form of the Ordinary Least Squares (OLS) regression model will be adopted following the work of Ijeoma (2012). The merit of using ordinary least square rests on the fact that it poses a blue property which is the best linear unbiased estimator (Koutsoyannis, 1997).

$$\text{INCOME} = f(\text{EDUC}, \text{TRAIN}, \text{NAPRED}) \dots \dots \dots (i)$$

The above model is transformed into an econometric form, thus:

$$\text{INCOM}_i = \beta_0 + \beta_1 \text{EDUC}_{i1} + \beta_2 \text{TRAIN}_{i2} + \beta_3 \text{NAPRED}_{i3} + \mu_i \dots \dots \dots (ii)$$

Where;

INCOM represents the income of the NAPEP beneficiaries;

EDUC represents the educational level of the NAPEP beneficiaries (1 indicates no education, 2 indicates O Level education, 3 indicates undergraduate education and 4 indicates postgraduate education).

TRAIN represents the training received by the NAPEP beneficiaries (1 indicates training experience but 0 otherwise).

NAPRED represents the beneficiaries' assessment of the NAPEP programme (1 indicates good but 0 indicates otherwise);

## Measurement of Variables

*Income:* This measures the NAPEP beneficiaries' monthly earnings which are continuous variables.

*Napep Poverty Reduction:* This measures the appreciation of the NAPEP beneficiaries during the programme which is categorical variable and is expected to be positively related to their income.

*Training:* This measures the training experience of the NAPEP beneficiaries during the programme which is a categorical variable and is expected to be positively related to their income.

*Education Level:* This measures the beneficiaries' level of income before the NAPEP programme which is a categorical variable and is expected to be positively related to their income.

## Results and Discussions

### Socio-Economic Characteristics of NAPEP Beneficiaries

Below is the socio-economic distribution of NAPEP beneficiaries in Gwale Local Government Area comprising sex, marital status, household size, educational qualification and nature of the business.

**Table 1: Socio-Economic Characteristics of NAPEP Beneficiaries**

| S/N | ITEM                     | FREQUENCY | PERCENTAGE (%) |
|-----|--------------------------|-----------|----------------|
| 1   | SEX                      |           |                |
|     | Male                     | 100       | 64.10          |
|     | Female                   | 56        | 35.90          |
|     | Total                    | 156       | 100            |
| 2   | Marital Status           |           |                |
|     | Married                  | 98        | 62.82          |
|     | Single                   | 58        | 37.18          |
|     | Total                    | 156       | 100            |
| 3   | Household Size           |           |                |
|     | 1 – 5                    | 90        | 57.69          |
|     | 6 – 10                   | 55        | 35.26          |
|     | Above 10                 | 11        | 7.5            |
|     | Total                    | 156       | 100            |
| 4   | Education Level          |           |                |
|     | With Formal Education    | 105       | 67.31          |
|     | With no Formal Education | 51        | 32.69          |
|     | Total                    | 156       | 100            |
| 5   | Nature of Business       |           |                |
|     | Hand Craft               | 31        | 19.87          |
|     | Trading                  | 35        | 22.44          |
|     | Food Processing          | 90        | 57.69          |
|     | Total                    | 156       | 100            |

Source: Researchers' Field Survey, 2021.

From table 1 above, we can see that NAPEP beneficiaries are dominant males who are married having at least 1 – 5 household size most of who possess formal education and engage in food processing.

### ANOVA Result

| Variable       | Parameter | Coefficient | P – Value |
|----------------|-----------|-------------|-----------|
| EDU            | $\beta_1$ | 0.0144      | 0.0000*   |
| TRAIN          | $\beta_2$ | 0.7240      | 0.05220*  |
| NAPRED         | $\beta_3$ | 0.9809      | 0.4888*   |
| R <sup>2</sup> |           | 0.3698      |           |

Source: Researcher's Computation using STATA 14, 2021.

Table 2 shows that the mean education of the NAPEP beneficiaries is 0.01, the average length of their training 0.72 while the average appreciation of the NAPEP programme by the beneficiaries is higher by 0.98. Since all their differential intercept coefficients are statistically

significant at a different level of confidence we reject the null hypothesis of no difference and conclude that the NAPEP beneficiaries' incomes are different

### **Summary and Recommendations**

NAPEP beneficiaries are dominant males of active economic age who engage in food processing possessing at least 1 – 5 household size. Also, the level of the beneficiaries' appreciation is higher than the benchmark category (educational level).

Based on the above results the study offers the following recommendation:

- i. There is a need for government to ensure higher inclusion of other businesses in benefiting from the NAPEP programme.
- ii. There is a need for better utilization of NAPEP programme among the beneficiaries to attain higher satisfaction.

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## FINANCIAL AND NON-FINANCIAL PERFORMANCE OF THE RURAL WOMEN ENTREPRENEURS IN JIGAWA STATE BEFORE AND AFTER THE STATE ECONOMIC EMPOWERMENT PROGRAMME OF 2008 – 2015.

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### **Abstract**

*Most of the female business owners in the Jigawa State have not yet transitioned from micro to small or medium enterprises, despite having enjoyed government interventions. It is important to comprehend the economic and social advancements made by these women beneficiaries in such a setting. Therefore, the objective of this study is to examine the financial and non-financial performance of rural women business owners in Jigawa State before and after the State government intervention program of 2008 - 2015. The study employed primary data generated from a survey of 405 rural women entrepreneurs in three different locations of the state. This study adopted the Bivariate Correlation technique, frequency, charts, mean difference, and the difference-in-difference (DID) methods of analysis to analyze the data generated. The difference in difference results, showed that, the economic empowerment intervention in Jigawa State had impacted positively on the rural women entrepreneurs' ability to generate greater enterprise performance with 58.2% increase in output level, 84.8% on profit, 31.4% on income, 41.3% on savings and 96% of them had additional employment at different degrees. Furthermore, the correlation result reveals that the pairs of savings and income have the highest significant relationship with a value of 0.923. Based on the study's findings, it can be said that economic empowerment had an effect on rural women entrepreneurs' productivity in the State. It is evident from the statistics above that rural women entrepreneurs' economic activities serve as crucial performance indicators. The study's findings showed that economic empowerment had a beneficial effect on rural women entrepreneurial success in Jigawa State. It is advised that the State government expand such programs to encourage increased involvement of rural women for better wellbeing.*

**Keywords:** Financial, Non-Financial, Performance, Rural Women Entrepreneurs, Economic Empowerment Programme, Jigawa State

JEL Classification: P43, L25, L26, M54

## **1.0 Introduction**

In lower middle-income nations, the status of women entrepreneurs is rapidly growing in importance as an employment and a source of cash that boosts a nation's Gross Domestic Product (GDP). For those who reside in Jigawa State, Nigeria's rural villages, economic empowerment is nothing new. Promising entrepreneurial endeavors have long had access to a variety of traditional economic empowerment sources, including *Asusu*, *Adashe*, the Family Fund Pool, and the operations of money lenders, among others, that emancipated consumers, particularly women. In the framework of self-help, the method promotes savings and using modest loans from people, friends, or family, money lenders, and organizations to launch various types of entrepreneurial endeavors (Ogundele, Idris & Ahmed-Ogundipe, 2014).

The majority of women's entrepreneurial operations are informal in Jigawa State, a rural region of northwestern Nigeria. The informal sector is available to all kinds of individuals who want to participate in any commercial venture located within the communities, making it simple to enter. Additionally, the sector is distinguished by family-owned business, labor-intensive production methods, and a significant dependence on local resources (Taiwo, Agwu, Adetiloye, et al, 2016). Additionally, they may easily juggle their entrepreneurial pursuits with household obligations, and most informal sector businesses can be established with little to no money.

Jigawa State, has benefited from some economic empowerment initiatives launched by the federal government and donor organizations. However, the state government established the Ministry of Economic Empowerment (MOEE) in 2008 to close any remaining gaps in economic empowerment by focusing on youth, particularly school dropouts, physically challenged individuals, and rural women who lack access to financial resources. More than sixty thousand (60,000) recipients across the State received economic empowerment services from the ministry until 2011, including the provision of equipment, training in new skills, and cash advances. According to the information at hand, roughly 35,000 of the recipients were women who worked as microbusiness owners in the fields of knitting, shoe and bag manufacture, tailoring, tie-and-dye, and horse ornamentation (MOEE, 2012).

Unfortunately, daily experiences and observations show that the number of operational microfinance banks in the State that were expected to have increased as a result of the rural women's participation in the economic empowerment program has now decreased from 18 in 2012 to only 6 as of 2019. The economic empowerment program (2008-2015) was expected to have drastically changed the economic status of the women beneficiaries. Most of the female business owners in the study regions have not yet transitioned from micro to small or medium enterprises. It is important to comprehend the economic and social advancements made by women beneficiaries in such a setting. Therefore, the goal of this study is to compare the financial and non-financial performance of rural women business owners in Jigawa State before and after the intervention program of the State government within the period.

## **2.0 Literature Review**

### **2.1 Theoretical Review**

The financial self-sustainability theory (also referred to as the financial systems approach or sustainability approach) propounded by Rhyne and Otero (1994) underlies the models of microfinance which was promoted since the mid-1990s by most donor agencies and the Best Practice guidelines for empowerment promoted in publications by USAID, World Bank and UNDP. The ultimate aim is on large programmes which are profitable and fully self-supporting

in competition with other private sector banking institutions and able to raise funds from international financial markets rather than relying on funds from development agencies. The main target group, despite claims to reach the poorest, is the 'bankable poor': small entrepreneurs and farmers.

This theory is related to the 'financial systems approach' which offers a commercial – oriented and a minimalist package of financial services for economically active poor (Kabeer, 2005). It includes neo-liberal development model which supports the provision of credits to women as a tool for their empowerment, especially economic empowerment (Basu, 2008). Economic empowerment is defined in this model as expansion of individual choice and capacities for self-reliance (Mayoux, 1998). It underlies the models of microfinance promoted since the mid – 1990s by most donor agencies and the Best Practice guidelines promoted in publications by USAID, World Bank, UNDP and CGAP (Mayoux, 2006). Its main policy focus is the financially self-sustainable microfinance programmes which increase access to micro-finance services to large numbers of poor people, especially the women entrepreneurial poor who are the key targeted group (Mayoux, 2006). Women are targeted in this regard because of the high female repayments rates and the increasing contribution of women's economic activity to economic growth.

Moreover, the main assumption of this model is that access to Microfinance services will automatically lead to economic performance without other complementary interventions or change in the macro-economic growth agenda through enabling women's decisions about savings and credit use, enabling women to set up microenterprise, increasing incomes under their control. It is also assumed that this increased economic performance will lead to increased well-being of women and also to social and political empowerment (Mayoux, 2006).

Despite the fact that the model is widely accepted by policy makers, researchers, and the general public, both the term and the concept are problematic. In the literature critiques focus primarily on two overlapping areas: (1) self-sufficiency is difficult to define and thus even more difficult to evaluate and (2) the term is itself limited, unattainable, and insufficient for policymaking. Bratt and Keyes (1997) add that the term and its concomitant policy approach suggest that people who are not "self-sufficient" are somehow "insufficient." They also note that the term implies that individuals who receive government assistance need no support once they leave the welfare system.

## **2.2 Empirical Review**

Igbo (2008) while studying entrepreneurial skills in Home Economics noted that the acquisition of these skills has the capability to augment and inspire productivity, and to further improve income generating activities among rural people in Nigeria. Igbo further identified some of the entrepreneurial skills acquired to include clothing and textiles a weaving and designing, knitting, dyeing, buying and merchandising job, fashion designing, tailoring, crocheting, costume designing, tie and dye, batik making, hair dressing and beauty care among others. The study further reported that the longer they stayed in the entrepreneurial activity, the better the income they generate.

Hoque and Itohara (2009) used the descriptive statistics to examine the empowerment of women through participation in the micro credit programme in Bangladesh. The authors reported that, 58 per cent of the women who participated in the micro credit programme also participated in family decision-making process, and 97 per cent of them have direct contribution in household income compared to those who did not participate in the micro credit

programme. The increase in participation was attributed to increase in income from the micro credit facilities that resulted to engagement in small entrepreneurship activities.

Simeyo, Martin, Nyamano, Odondo & Patrick, (2011) evaluated the effect of provision of micro finance on the performance of youth micro enterprises under K-REP programme in Kisii County, Kenya. Using primary data selected from 86 youth micro enterprises. The study employed a cross sectional survey design, descriptive statistics, multiple regression analysis and Pearson correlation coefficient. Their study revealed that in Kenya, loan with  $\beta$  value of (0.673) had the largest significant effect on performance of micro enterprises and concludes that provision of micro finance has a significant effect on the performance of youth micro enterprises in Kenya.

Suliyanto and Rahab, (2012) reported that, women often lack access to training and experience in marketing and business management that will strengthen the activities of owner manager toward achieving their stated objectives. They also added that lack of exposure to training or modern processors, machineries to increase productivity and enhance production affects the performance of women-owned small-scale enterprises.

Taiwo, Agwu, Adetiloye and Afolabi (2016) reported that a 1 per cent increase in grants provision to women entrepreneurs would increase employment generation by 6.21 per cent and their efforts also results in multiple employment generation through improvement in their business activities, thereby increasing the number of self-employed individuals in the country. Mayoux, (1998) reported that empowering women economically and suitable use of the empowerment by them, will automatically improve their well-being, social, and legal aspect in the society. Mayoux reported further that, micro-credit is viewed as a means to improve well-being by reducing household poverty and vulnerability.

Sari and Purnomo (2017) reported the occupational performance of business woman in Iwapi city, Bandung has more effect when they receive empowerment grants. A study conducted in Indonesia by Megananda and Maulana (2006) found that economic empowerment grants have positive impact on the improvement of Micro and Small Enterprises (MSE's) performance indicated by sales. Opata and Aura (2017) in Enugu, south-eastern Nigeria, using descriptive and simple linear regression model, reported that repayment of grants received was related to savings generated by the informal women groups. Thus, the informal women co-operatives have increased the volumes of savings of their clients as well as the volume of credit available to their clients.

Using data from 22 countries, Welsh et al. (2021) explores the relationship between country economic and political contexts and assesses the importance of entrepreneurs' networks and managerial skills on women's entrepreneurial success. Their results showed that stock (managerial skill) and flow (family and non-family support) differentially influence women's entrepreneurial success in countries at varying levels of competitive development. In particular, the results confirm the positive influence of managerial skills and family moral and financial support on women's entrepreneurial success (based on annual income) in countries at a higher level of competitive development and confirm their negative influence in countries at a lower level of competitive growth.

The study by Renu, (2021) was aimed at finding the impact of participation in financial inclusion on income and savings of the women in India and to evaluate the impact of financial

inclusions on Economic empowerment of women in rural India. The study reveals that financial inclusions help women to stand shoulder to shoulder with male members of their family as well as help in economic development of the country. This improves their economic empowerment as well as non-financial empowerment too.

### 3.0 Methodology

#### 3.1 Sample size and sampling techniques

The study population comprised of 27,000 rural women entrepreneurs in the State who have benefitted from the Ministry of Economic Empowerment from 2008 to 2011 interventions and also enjoyed the 2012 entrepreneurship development support by the government of Jigawa State. The population size is too large to cover; hence the application of Taro Yamane formula to arrive at 395 women entrepreneur beneficiaries that were selected using the simple random sampling technique.

The sample population, if divided across the 27 chosen communities will approximately be 15 copies of questionnaire (i.e.,  $395/27 = 14.63$ ). For even distribution of respondents, given the fact that equal numbers of beneficiaries were selected for the intervention, each sampled community in the selected LGA was administered 15 copies of questionnaire. These provided a total of 405 (i.e.,  $15 \times 27 = 405$ ). Table 3.1 presents the sample distribution while Figure 3.1 shows the selected communities. The sample size was computed as shown by the Taro Yamane formula, thus:

$$n = \frac{N}{1 + N(e)^2} = \frac{27000}{1 + 27000(0.05)^2} = 395$$

Where;  $n$  is the sample size,  $N$  is the population,  $e$  is the level of precision (Yamane, 1967).

**Table 3.1: Sample Size of the Study Area**

| S/N | Senatorial Zones            | Selected LGAs      | Selected Communities            | No. of Beneficiaries |
|-----|-----------------------------|--------------------|---------------------------------|----------------------|
| 1.  | Jigawa North East (Hadejia) | Kaugama            | Turmi, Marke & Dakaiyawa        | $15 \times 3 = 45$   |
|     |                             | Kiri-Kasamma       | Turabu, Madaci & Kuit           | $15 \times 3 = 45$   |
|     |                             | Auyo               | Auyakayi, Ayama & Gadimari.     | $15 \times 3 = 45$   |
|     |                             | <i>Sub Total</i>   |                                 | <i>135</i>           |
| 2.  | Jigawa North West (Gumel)   | Gwiwa              | Daurawa, Indirawa & Tsubut.     | $15 \times 3 = 45$   |
|     |                             | Garki              | Muku, Sugungun & Bawan Allah.   | $15 \times 3 = 45$   |
|     |                             | Gagarawa           | Medu, Makerabu & Maikilili.     | $15 \times 3 = 45$   |
|     |                             | <i>Sub Total</i>   |                                 | <i>135</i>           |
| 3.  | Jigawa Central (Dutse)      | Buji               | Gwadayi, Kukuma & Unguwar Maina | $15 \times 3 = 45$   |
|     |                             | Miga               | Tsakuwawa, Hantsu & Jamaga      | $15 \times 3 = 45$   |
|     |                             | Kiyawa             | Shuwarin, Balagu & Tsirma       | $15 \times 3 = 45$   |
|     |                             | <i>Sub Total</i>   |                                 | <i>135</i>           |
|     |                             | <b>Grand Total</b> |                                 | <b>405</b>           |

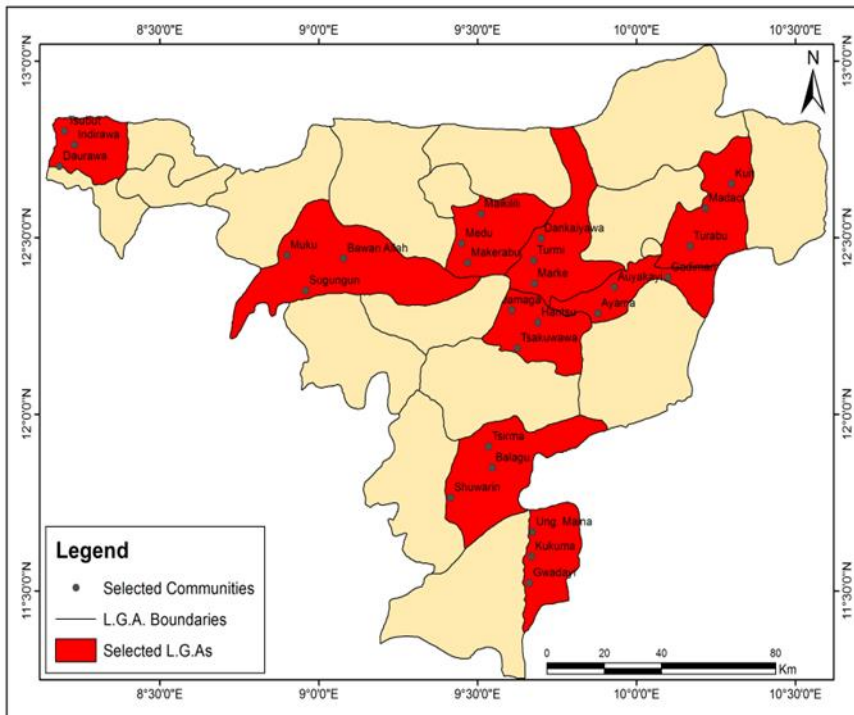


**Figure 3.1:** Map of Jigawa State showing Selected LGAs and Communities

### 3.2 Method of data analysis

This study adopted the Bivariate Correlation technique, frequency, charts, mean difference, and the difference-in-difference (DID) methods of analysis to analyze the data generated. An analytical strategy called difference-in-differences makes causal inference conceivable even when randomization is not feasible. However, a population participating in a program (the treatment group [in this case, it is before intervention]) is compared to a population that is not using the difference-in-differences method to examine how outcomes have changed over time (the comparison group [in this case the after intervention]). The tool is helpful for data analysis.

### 4.0 Results and Summary of Findings

The financial performance was measured using the enterprise current capital, output, income, profit and savings levels in relation to their status before and after the intervention. On the other hand, the non-financial performance includes; the saving methods, additional tools/machine/equipment purchased, introduction of new production method. Others includes; provision of quality products, break in production, employment generation and future projections.

#### 4.1 Respondents Present Capital as at 2019

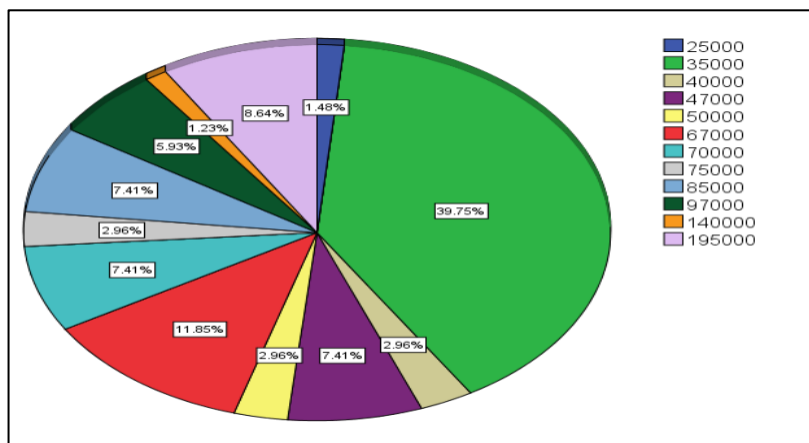


**Figure 4.1: Present Capital of the Respondents**

Source: Field Survey, (2019).

Figure 4.1 indicate that about 3% of the respondents have a total of ₦195,000 as their present capital which includes cash at hand and cost of equipment, while less than 2% of them have a total of ₦25,000 only as their present capital. However, majority of the sampled women entrepreneurs' (about 40%) have ₦35,000 as their present capital. The scenario showed that very small percentages of the women entrepreneurs have succeeded in generating greater financial base for their enterprise operations and large number of them are operating at break-even level but striving to attain to the greater financial base status.

#### 4.2 Respondents Profit Per Annum before and After the Intervention

Profitability is an important index in the measurement of enterprise performance. It is the fundamental pillar upon which all other indices such as income, savings, investment and consumption rest on. The profit of the entrepreneurs is the total money earned minus total expenditures incurred for a period of one year but rounded up to the nearest N1,000 is what this study used as most of them were not able to recall their yearly profits. To measure the profits of the sampled entrepreneurs, two periods were categorized i.e., before and after the intervention.

**Table 4.1: Difference-in-Difference Computation for Profit Earned Per Annum Before and After the Intervention**

| Level of Profit          | Before the intervention |              | After the intervention |              | Standard Deviation | Difference-in-Difference |             |
|--------------------------|-------------------------|--------------|------------------------|--------------|--------------------|--------------------------|-------------|
|                          | Freq.                   | Perc.        | Freq.                  | Perc.        |                    | Mean Difference          | Perc.       |
| <₦20,000                 | 191                     | 47.2         | 27                     | 6.7          |                    |                          |             |
| ₦20,001 – ₦40,000        | 102                     | 25.2         | 125                    | 30.9         |                    |                          |             |
| ₦40,001 – ₦60,000        | 53                      | 13.1         | 162                    | 40.0         |                    |                          |             |
| ₦60,001 – ₦80,000        | 35                      | 8.6          | 52                     | 12.8         |                    |                          |             |
| >₦80,000                 | 24                      | 5.9          | 39                     | 9.6          |                    |                          |             |
| <b>Total</b>             | <b>405</b>              | <b>100.0</b> | <b>405</b>             | <b>100.0</b> |                    |                          |             |
| <b>Mean Profit Level</b> | <b>₦30,479.01</b>       |              | <b>₦56,333.33</b>      |              | <b>₦41,949.9</b>   | <b>₦25,854.3</b>         | <b>84.8</b> |

Source: Field Survey, (2019).

Table 4.1 shows that the mean profit before and after the intervention were ₦30,479.01 and ₦56,333.33 respectively, with their standard deviations of ₦20,748.9 and ₦62,698.8. The difference-in-difference value is 84.8%, which indicates a significant difference in the profit level of the rural women entrepreneurs after the intervention.

The trend in the distribution of the profit levels displayed in Table 4.1 on rural women entrepreneurs' profitability before and after the intervention is a positive indicator that the beneficiaries have effectively and judiciously comprehend, adopt and applied the knowledge acquired in the economic empowerment programme such as the skills acquisition, capacity building, equipment provision as well as the cash advanced to them in the operations of the enterprise for greater improvement in the output and production, marketing strategies, among others which culminated and further heightened the opportunities for greater profit generation. This finding corroborates the work of Simeyo, et al., (2011) who reported that the provision of micro finance has a significant effect on the performance of youth micro enterprises in Kenya.

### 4.3 Respondents Income Per Annum before and After the Intervention

In this study, the income earned of the entrepreneurs is the total money earned for a period of one year but rounded up to the nearest N1,000 is what this study used as most of them were not able to recall their yearly income. To measure the income level of the responding entrepreneurs for the study period, two periods were also considered; as before and after the intervention.

**Table 4.2: Difference-in-Difference Computation for Income Earned Per Annum Before and After the Intervention**

| Level of Income          | Before the intervention |       | After the intervention |       | Standard Deviation | Difference-in-Difference |       |
|--------------------------|-------------------------|-------|------------------------|-------|--------------------|--------------------------|-------|
|                          | Freq.                   | Perc  | Freq.                  | Perc  |                    | Mean Difference          | Perc. |
| <₦60,000                 | 174                     | 43.0  | 12                     | 3.0   |                    |                          |       |
| ₦60,001 – ₦90,000        | 84                      | 20.7  | 36                     | 8.9   |                    |                          |       |
| ₦90,001 – ₦120,000       | 88                      | 21.7  | 198                    | 48.9  |                    |                          |       |
| ₦120,001 – ₦150,000      | 37                      | 9.1   | 71                     | 17.5  |                    |                          |       |
| >₦150,000                | 22                      | 5.4   | 88                     | 21.7  |                    |                          |       |
| <b>Total</b>             | 405                     | 100.0 | 405                    | 100.0 |                    |                          |       |
| <b>Mean Income Level</b> | ₦108,790.12             |       | ₦142,913.58            |       | ₦6,792.43          | ₦34,123.46               | 31.4  |

Source: Field Survey, (2019).

Table 4.2 reveals that the mean income before and after the intervention were ₦108,790.12 and ₦142,913.58 respectively, with their standard deviations of ₦74,789.43 and ₦81581.85. The difference-in-difference value is 31.4%, which indicates a significant difference in the income level of the rural women entrepreneurs after the intervention.

The dramatic change in the income earned by the rural women entrepreneurs after the intervention as observed in Table 4.2 is a testimony to the fact that the economic empowerment programme they have benefitted from had really to a larger extent positively impacted on the entrepreneurial performance of the beneficiaries in Jigawa State. This has agreed with the findings by Igbo (2008) who reported that the acquisition of skills has the capability to augment and inspire productivity, and to further income generating life endeavours among rural people. It also agrees with Hoque and Itohara (2009) who reported that increase in income was as a result of participation in the micro credit facilities which resulted in engagement of small entrepreneurship activities.

#### 4.4 Respondents Savings per Annum before and after the Intervention

Savings is an important component of entrepreneurial performance because it is used for re-investment, i.e., expansion and also acts as a sinking fund in case of business setback. The savings of the entrepreneurs in this study is the total money saved for a period of one year but rounded up to the nearest N1,000 is what this study used as most of them were not able to recall exactly their yearly savings. To measure the savings of the responding entrepreneurs for the study period, two periods were also considered as before and after the intervention.

**Table 4.3: Difference-in-Difference Computation for Savings per Annum Before and After the Intervention**

| Level of Savings          | Before the intervention |              | After the intervention |              | Standard Deviation | Difference-in-Difference |             |
|---------------------------|-------------------------|--------------|------------------------|--------------|--------------------|--------------------------|-------------|
|                           | Freq.                   | Perc.        | Freq.                  | Per.         |                    | Mean Difference          | Perc.       |
| <N20,000                  | 174                     | 43.0         | 12                     | 3.0          |                    |                          |             |
| N20,001 – N40,000         | 84                      | 20.7         | 36                     | 8.9          |                    |                          |             |
| N40,001 – N60,000         | 88                      | 21.7         | 198                    | 48.9         |                    |                          |             |
| N60,001 – N80,000         | 37                      | 9.1          | 71                     | 17.5         |                    |                          |             |
| >N80,000                  | 22                      | 5.4          | 88                     | 21.7         |                    |                          |             |
| Total                     | 395                     | 97.5         | 395                    | 97.5         |                    |                          |             |
| Not applicable            | 10                      | 2.5          | 10                     | 2.5          |                    |                          |             |
| <b>Total</b>              | <b>405</b>              | <b>100.0</b> | <b>405</b>             | <b>100.0</b> |                    |                          |             |
| <b>Mean Savings Level</b> | <b>N32,243.04</b>       |              | <b>N45,554.43</b>      |              | <b>N5,706.72</b>   | <b>N13,311.39</b>        | <b>41.3</b> |

Source: Field Survey, (2019).

Table 4.3 presents that the mean savings before and after the intervention were N32,243.04 and N45,554.43 respectively, with their standard deviations of N20,965.93 and N26,672.65. The difference-in-difference value is 41.3%, which indicates a significant difference in the savings level of the rural women entrepreneurs after the intervention.

The differentials in the savings by the rural women entrepreneurs after the intervention as observed in Table 4.3 is a testimony to the fact that the rural women entrepreneurs generated greater profit that enabled them to save.

#### 4.5 Rural Women Entrepreneurs Methods of Savings

Rural women save using a variety of medium. This includes formal and informal medium as shown in Figure 4.2

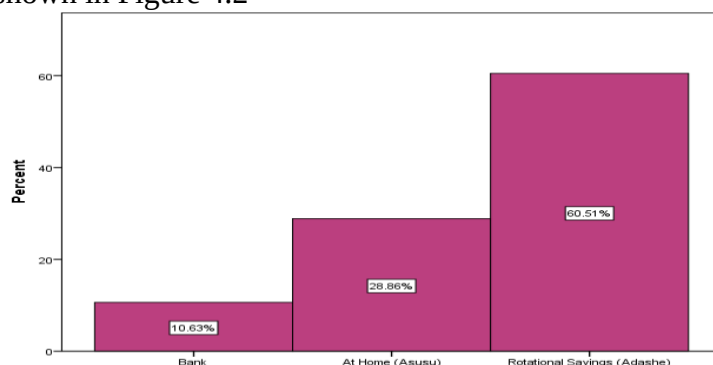


**Figure 4.2: Savings method**

Source: Field Survey, (2019).

From the survey, most of the sampled women keep their savings by utilizing the rotational savings scheme known as *adashe* while others use the traditional means of *asusu* and close to 11% keep it in the bank. The low rate of those keeping their savings in the bank may be one of

the major reasons why most of the microfinance banks closed down in Jigawa State as most of the rural women entrepreneurs were still not comfortable with keeping their monies in the bank for reasons such as paying transportation to and fro before getting the money from the bank, poor network in accessing the money from ATMs, the rural syndrome, and in addition, commercial banks do not generally have branches in the rural communities of the State.

It is hopeful that with the recent campaign launched in the State by some commercial banks such as the Jaiz bank on financial inclusion to specifically capture small business owners including women, there is a tendency that savings in the bank by women entrepreneurs may improve and give room to a greater business performance.

#### 4.6 Correlation Matrix on Performance Indicators

The Bivariate Correlation technique was used to tests for the pairwise associations on the set of performance variables in this study (i.e., output, income, savings and profits) as well as the independence and measures of association. It is useful for determining the power as well as bearing of association among the paired variables. The bivariate correlation was done for after the intervention. The correlation matrix is presented in Table 4.34

Table 4.4: Performance Indicators

|         |                 | Output | Income | Savings | Profit |
|---------|-----------------|--------|--------|---------|--------|
| Output  | Pearson         | 1      |        |         |        |
|         | Correlation     |        |        |         |        |
|         | Sig. (2-tailed) |        |        |         |        |
|         | N               | 930    |        |         |        |
| Income  | Pearson         | .611** | 1      |         |        |
|         | Correlation     |        |        |         |        |
|         | Sig. (2-tailed) | .000   |        |         |        |
|         | N               | 930    | 930    |         |        |
| Savings | Pearson         | .657** | .923** | 1       |        |
|         | Correlation     |        |        |         |        |
|         | Sig. (2-tailed) | .000   | .000   |         |        |
|         | N               | 910    | 910    | 910     |        |
| Profit  | Pearson         | .180** | .660** | .714**  | 1      |
|         | Correlation     |        |        |         |        |
|         | Sig. (2-tailed) | .000   | .000   | .000    |        |
|         | N               | 930    | 930    | 910     | 930    |

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

*Source: Author's Computation, (2019).*

The result shown in Table 4.4 above is the Pearson correlation coefficients matrix of the performance associations. It shows that there are six pairs of variables (output – income, output – savings, output – profit, income – savings, income – profit, and savings - profit) out of the ten pairs of variables that have a highly significant association, all of which had a positive significant association.

From Table 4.4, the pairs of savings and income have the highest significant relationship with a correlation value of 0.923, which implies that as more income is generated, the savings level of the rural women entrepreneurs increases, while the lowest significant relationship is that of output and profitability with a correlation value of 0.180, which implies that as the output

volume of the rural women entrepreneurs increases, the profit level increases but at a decreasing rate. Other pairs of variables fall within the two extremes. Therefore, the more the income they generate, the profit level will increase and hence, savings will be greater.

## **5.0 Summary, Conclusion and Policy Recommendations**

The difference in results showed that, the economic empowerment intervention in Jigawa State had impacted positively on the rural women entrepreneurs' ability to generate greater enterprise performance with 58.2% increase in output level, 84.8% on profit, 31.4% on income, 41.3% on savings and 96% of them had additional employment at different degrees. Furthermore, the correlation result reveals that the pairs of savings and income have the highest significant relationship with a value of 0.923. This means that as more income is generated, the savings level of the rural women entrepreneurs increases. Therefore, the more the income generate, profit level will increase and hence, savings will be greater.

Based on the study's findings, it can be said that economic empowerment had an effect on rural women entrepreneurs' productivity in Jigawa State, Nigeria. It is evident from the statistics above that rural women entrepreneurs' economic activities serve as crucial performance indicators. The study's findings showed that economic empowerment had a beneficial effect on rural women entrepreneurial success in Jigawa State. Therefore, it is advisable that Jigawa State government expands such programs to encourage increased involvement of rural women for better wellbeing.

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## ISLAMIC BANKING EFFICIENCY: A CROSS-COUNTRY ANALYSIS OF AFRICA AND ASIA

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### Abstract

*The Islamic banking system has been adopted by many countries, as a veritable alternative to interest-based banking in the area of intermediation and inclusive finance. However, the efficiency of the system which is fundamental to the competitiveness of the banks is currently being questioned. This study, therefore, made a country-wise analysis of Islamic banking efficiency in selected countries of Africa and Asia from 2012 to 2019. Fifty-Six Islamic banks were selected from Seventeen Countries and data were collected from annual reports of the banks. Data Envelopment Analysis (DEA) was used to estimate the technical efficiency scores of the banks. Country-level average efficiencies were then used for the analysis. The study found that the selected Islamic banks were not fully efficient. It was also found that the observed inefficiencies were majorly pure technical. The study concluded that Islamic banking systems in the selected countries were technically inefficient due to pure technical inefficiencies (managerial underperformance- lack of skills, competence) in Islamic banking operations. Employment of competent managerial staff is therefore recommended to boost the technical efficiency of the banks and enhance their competitive positions in the market.*

**Keywords:** Africa, Asia, Efficiency, DEA, Islamic Banking.

JEL Classification: G24, O22

### Introduction

Islamic banking is a veritable alternative to the interest-based banking system in the area of intermediation and inclusive finance. Many countries across the globe, have embraced the initiative in recognition of the banking model (Hussain, Shahmoradi & Turk, 2015). Countries like Malaysia, Bangladesh and Indonesia pioneered the banking system in Asia in an attempt to meet people's demand for *Shariah*-compliant products or services (Komijani & Taghizadeh-Hesary, 2018). Today, the Asian market leads in the provision of such services as Islamic banking dominates the entire Islamic financial market in the region. On the global scale, Asia

accounts for more than 22% of the global Islamic financial assets (Komijani&Taghizadeh-Hesary, 2018). The success recorded so far in Asia was due to the contributions of countries like Malaysia, Iran and Saudi Arabia which collectively hold about 60% of global Islamic banking assets (Li, 2016). This means that Islamic banking now constitutes a major part of the Asian banking market.

In Africa, Abdu, Jibri, Abdullah and Rabi (2018) stated that Islamic banking was adopted following the Asian model, due to people's perceptions about interest (*riba*). Several countries (across Eastern, Western, Northern and Southern parts) of Africa now operate Islamic banking either from full-fledged banks or as windows of conventional banks. Sudan has the highest number of full-fledged Islamic banks with a hundred percent *shariah*-compliant services. Countries like Algeria, Djibouti, Egypt, Nigeria, Kenya, Tanzania, and Tunisia, among others are playing different roles deepening in the financial sector and promoting financial inclusion via Islamic banking in Africa (Faye, Triki & Kangoye, 2013). It should however be noted that the African market for Islamic banking is still evolving with a market share of 0.85% in 2018 (IFSB, 2019).

Although it has been established that countries from Africa and Asia have contributed immensely to the growth of the Islamic banking system, the banking market still occupies a small position in the entire commercial banking sector. According to Goh (2018), the ratio of Islamic banking to total commercial (domestic) banking assets was around 30%, while that of Africa was even not up to 10% of domestic banking assets in the region. The small market share of Islamic banks in the two regions may affect their competitiveness and the developmental efforts of the countries, in this regard, may not yield expected results except the banks are efficient despite the smallness of their market share. In other words, these banks should be efficient technically for them to remain in the market. Several studies have examined the efficiency of Islamic banks (Altun-Ada & Dalkilic 2014; Bahrini, 2017; Tahir & Haron, 2012; Wanke, Hassan & Gaviao, 2017). Country-level comparison is however missing in the literature, particularly among African and Asian countries. This study, therefore, contributes to the literature by making a country-wise analysis of Islamic banks' efficiency in some selected countries of Africa and Asia.

## **Literature Review**

### **Concept of Efficiency**

According to Kumar and Gulati (2010), efficiency means the allocation of resources to alternative uses in a manner that a given level of output is achieved with minimum resource input. It is a measure of an organization's ability to get maximum results in terms of output from a given input or use minimum input to produce a given level of output. Efficiency is the ability of a production or a decision-making unit to use available inputs (resources) for the production of a maximum or optimal output. In other words, the most efficient technique of making a product or discharging a service is that which utilizes the minimum (least) resources (Ogunyinka & Ajibefun, 2003).

Efficiency is therefore a measure of association between inputs and outputs as well as the degree of success achieved in the transformation of the inputs into outputs (Low, 2000). The degree of success measured by efficiency means that the firm is successful in the process of resource utilization which might not necessarily transform into market performance. The concept of efficiency is better understood when the term is decomposed into technical, pure technical and scale efficiencies.

### ***Technical Efficiency***

Zieba (2011) defines technical efficiency as managerial ability which is demonstrated in deriving the maximum amount of output from the resources available to a firm, using the existing production technology. Also Watkins, Hristovska, Mazzanti, Wilson & Schmidt (2014) state that technical efficiency measures the ability of a decision-making unit (like a bank) to employ a set of inputs in the production of maximum feasible output (output-oriented) or obtain a given level of output by utilizing the minimum amount of inputs (input-oriented).

The implication of the above definition of technical efficiency is that the utilization of available resources to produce maximum output depends on the skills, expertise and capability and as a matter of fact, willingness of the management. In the words of Shanmugam and Venkataramani (2006), technical efficiency represents both the ability and willingness of a firm to produce the maximum possible output from a given amount of input, under the existing technological and environmental conditions. In measuring the economic profitability of a firm, technical efficiency is a key element because it shows the ability of the firm to achieve maximal output from the few resources at the firm's disposal (Giroh, 2012).

Technical efficiency is a measure of the process that an organization follows in converting its input to output as compared to its maximum potential of doing the same as assumed by the production possibility frontier (Barros & Mascarenhas, 2005). In this context, a technically efficient firm is a firm that operates on the production frontier while any firm operating below the frontier is technically inefficient. Inefficiency could be corrected either by putting more effort to increase output with the same input (reduction of wastage) or by using fewer inputs to produce the same amount of output (Rukwe & Zubair, 2019). Production frontier analysis of technical efficiency indicates that the closer a production unit (firm) moves to the frontier, the better in terms of technical efficiency (Rahman, Ajayi & Gabriel, 2005).

### ***Pure Technical Efficiency***

A further decomposition of technical efficiency is what brings about pure technical and scale efficiencies. According to Kumar and Gulati (2008), pure technical efficiency is obtained by measuring technical efficiency with no consideration for scale efficiency. Pure technical efficiency shows the extent to which the inputs of a firm can be proportionally reduced with no effect on its status on the variable return to scale (VRS) frontier (Diacon et al., 2002). This implies that pure technical efficiency is normally estimated under the variable return to scale (VRS) assumption. The resultant efficiency measure is pure technical which shows the level of managerial performance in organizing the available inputs to achieve the maximum output in the production process (Kumar & Gulati, 2008). In a nutshell, pure technical efficiency is a measure of managerial performance. If a firm is pure technically inefficient, it means there is managerial underperformance in the resource utilization of the firm.

### ***Scale Efficiency***

Scale efficiency is defined as the kind of relationship which exists between the level of output and average cost. It thus relates to the firm's size of operation (Abel & Bara, 2017). Scale efficiency, according to Kumar and Gulati (2008), measures the ability of management in selecting the optimum size of resources for the firm's operation. That is the selection of production scale required for the expected level of production. Such selection requires some managerial skills because an inappropriate size of operation may lead to technical inefficiency (Iqbal & Awan, 2015). The scale efficiency operates under three possibilities which are constant returns to scale (CRS), increasing returns to scale (IRS) and decreasing returns to scale

(DRS). For the CRS, change in output results from proportional change (increase or decrease) in inputs and any firm operating on CRS is assumed to be scale efficient.

When a firm is found to be operating at the IRS, such that the output increases more than the input, it means that the firm is not efficient in terms of the scale of operation. There is a need to increase its size as the firm is operating below the optimal size. Lastly, a firm which operates at a DRS will have a change (increase) in its output far less than the increase in input. The implication is that the firm operating above the optimal size, also implying scale inefficiency. A firm is therefore said to be scale efficient if it operates at a constant return to scale. Operating at either increasing returns to scale or decreasing returns to scale means, that the firm is characterized by scale inefficiency (Abel & Bara, 2017).

### **Empirical Review**

Several empirical studies have analysed the efficiency of Islamic banks in many countries of Africa and Asia. Hussein (2003) reported inefficiencies for Islamic banks in Sudan as the study found that the Islamic banks had sub-optimal performance in resource utilization. This means that the Sudanese Islamic banks were not efficient. Yudistira (2004) included Algeria, Egypt, Gambia and Sudan in a cross-country analysis of the efficiency of Islamic banks in the Middle East and non-Middle East countries. The efficiency of the Middle East banks was found to be higher than that of the Non-Middle East. Islamic banks in Gambia and Sudan were also found to be inefficient.

Ahmad, Noor and Sufian(2010) studied bank efficiency of Islamic banks along the World Bank economic classification of countries. The study selected a sample of seventy-eight Islamic banks from high-income and low-income countries and data extracted from their annual reports and bank scope database. Using the Data Envelopment Analysis (DEA), Islamic banks from high-income countries were found with higher efficiency. Contrarily, Tahir and Haron (2010) employed a stochastic frontier approach (SFA) to analyse the efficiency of Islamic banks in countries of Africa, Asia and Europe. One Hundred and Ninety-Three banks were selected for which data were obtained from Bankscope. A higher level of efficiency was reported for Islamic banks in Africa and they were found to be more efficient than those in Asia.

In a study involving Islamic and conventional banks, Ahmad and Abdulrahman (2012) selected eight conventional banks and two Islamic banks in Malaysia. The banks' efficiency was estimated with Data Envelopment Analysis (DEA). The result of the analysis showed that Islamic banks were less efficient technically in comparison with conventional banks. However, Yahya, Muhammad and AbdulHadi (2012) found that Islamic banks were more technically efficient than conventional banks. A similar result was reported by Ismail, Abdulmajid and Abdulrahim (2013) for scale efficiency. In terms of pure technical efficiency, however, Ismail et al. (2013) found that conventional banks were more efficient.

In another comparative study, Qureshi, Norway and Shaikh(2012) estimated the efficiency levels of banks in Pakistan using DEA. It was revealed that Islamic banks were more cost-efficient than their conventional counterparts but less efficient in the area of revenue. This contradicted Al-Khasawneh, Bassedat, Aktan and Thapa(2012) who found that conventional banks are less efficient than Islamic banks in terms of revenue generation. Similar to Ismail et al. (2013), Naeem-Ullah (2013) found that the technical efficiency of Islamic banks is lower than conventional banks in Pakistan. In a related study of Asian banks, Saeed, et al. (2013) reported that conventional banks are more efficient than Islamic banks. Fakarudin, Nordin,

Muhammad and Abdulhamid (2014) found that, in GCC countries, conventional banks recorded higher efficiency than Islamic banks in terms of cost, revenue and profit.

Rozzani and Abdulrahman (2013) assessed the profit efficiency of Islamic and conventional banks in Malaysia from 2008 to 2011. Stochastic Frontier Analysis was used to measure the efficiency of the banks. The study could not differentiate between Islamic and conventional banks in terms of profit efficiency. Considering only Islamic banks, Ab-Rahim et al.(2013) studied the efficiency of full-fledged Islamic banks in Malaysia. The selected Islamic banks were found to be inefficient. The study of Altun-Ada and Dalklic (2014) also found a higher efficiency for Islamic banks in Malaysia than in Turkey.

Decomposing the efficiency of the banks, Abdulsamad (2015) revealed that Bangladeshi Islamic banks have higher scale efficiency than pure technical efficiency scores. Also, Effendi (2016) reported that Islamic rural banks in Indonesia were technically efficient. Like Fakarudin et al. (2014), Alharbi (2016) examined the cost and revenue efficiency of Islamic and conventional banks in the OIC countries. Islamic banks were found with higher cost efficiency but lower revenue efficiency than conventional banks. Following Abdulsamad (2015), Bahrini (2017) decomposed efficiency into pure technical and scale for Islamic banks in the MENA and GCC countries. the study found that MENA Islamic banks were more scale efficient. Also, Yildirim (2017) reported that Islamic banks in QISMUT countries were neither pure technically nor scale efficiently.

The above empirical review shows that there is still a dearth of research on the country-wise analysis of the efficiency level of Islamic banks.

### **Efficient Structure Hypothesis**

According to Demsetz (1973), the hypothesis proposed that only efficient firms survive the market competition and achieve sustainable growth. Surviving such competition will lead to an increase in the size and market share of the firms. Homma et al. (2014) opined that the larger the firms become the greater the opportunity for more profitable activities. In other words, the hypothesis held that an increase in size and market share, as well as higher profitability, are products of the high-efficiency level of the firm. Profitable firms tend to have long-run survival and growth and this is basically due to the cost reduction capability of an efficient firm (Chortareas et al., 2011). In summary, increased size, market power and market share and profitability are the necessary ingredients for a firm's survival and growth. The efficacy of these ingredients in achieving long-term growth depends largely on the efficiency level of the firm (Chortareas et al., 2011).

The theoretical relationships between efficiency, competition and profitability as established by the efficient-structure hypothesis have been validated in past empirical studies like Mensi and Zouari (2010), Seelanatha(2010), Kasman et al.(2011) and Ferrouhi (2018). Many of these studies reported results confirming of efficient structure hypothesis.

The efficient structure hypothesis serves as the theoretical underpinning for this study because the efficiency of Islamic banks tends to improve the competitiveness, profitability and long-term growth of the banks. A high level of efficiency will enable Islamic banks to compete favourably with conventional ones in the area of financial intermediation. Thus the efficient structure hypothesis is used to explain the country-level technical efficiency of Islamic banking in Africa and Asia.

## 1. Methodology

This study selected 56 full-fledged Islamic banks from 17 countries across Africa and Asia. The World Bank economic classification of countries was used as the yardstick for the selection and thus the study was restricted to the Low-income economies of Africa and Asia. The sample of the 56 banks was conveniently selected from a population of eighty (80) full-fledged Islamic banks collated from the countries' Central bank's websites. The sample selection was made up of those banks whose annual reports are readily available in the public domain. Based on these facts, 36 banks were selected from 10 African countries while 20 banks were selected from 7 Asia countries. Therefore, the scope of this study is on 17 Low-income countries that adopt the Islamic banking system for 8 years period from 2012-2019 (Appendix 1).

Data were collected from the annual reports of the banks and efficiency scores were estimated with DEA. The DEA model is stated as follows:

$$Max a_r = \frac{\sum_{j=1}^l u_j y_{jr}}{\sum_{i=1}^k v_i x_{ir}} \dots\dots\dots 1$$

Subject to the following constraints:

$$\sum_{i=1}^k v_i x_{ir} = 1, \dots\dots\dots 2$$

$$\sum_{j=1}^l u_j y_{jr} - \sum_{i=1}^k v_i x_{ir} \leq 0, \dots\dots\dots 3.$$

$$u_j, v_i \geq 0, \dots\dots\dots 4$$

$$u_j, v_i = 1, \dots\dots\dots 5$$

$$j = 1, 2, \dots\dots\dots l, i = 1, 2, \dots\dots\dots k \text{ and } r = 1, 2, \dots\dots\dots s.$$

Based on the above model, the efficiency score ( $a_r$ ) for bank  $r$ , was via the CCR model, where  $0 \leq a_r \leq 1$ . The BCC model was estimated for the purpose of PTE and SE estimations. The SE was given as  $SE = a_r^{CCR} / a_r^{BCC}$ . For the purpose of country-wise analysis, efficiency scores for OTE, PTE and SE were estimated for each bank from all the selected countries and country-level averages were calculated and reported appropriately.

## 2. Results

Table 1 provides a description of estimators of overall technical efficiency (OTE), pure technical efficiency (PTE) and scale efficiency (SE) for Islamic banks in the low-income countries of Africa and Asia over a period of eight years from 2012 to 2019.

**Table 1: Descriptive Analysis of Efficiency Estimates**

| Estimator | OTE    | PTE    | SE     |
|-----------|--------|--------|--------|
| Mean      | 0.7875 | 0.8663 | 0.9076 |
| Max       | 1.0000 | 1.0000 | 1.0000 |
| Min       | 0.2500 | 0.2600 | 0.4500 |
| Obs       | 448    | 448    | 448    |

Source: Authors' computation (2022)

From Table 1, the overall technical efficiency (OTE) of the selected banks showed a mean value of 0.7875 indicating that on average the banks were not technically efficient. This is because the OTE score is less than 100% ( $a_r = 0.7875$ ;  $a_r < 1$ ) for all the selected banks over the period of the study. Both the purely technical and scale efficiency score was also less than 1. The PTE shows a mean score of 0.8663 while that of SE is 0.9076. According to Kumar & Gulati, (2008) pure technical shows the level of managerial performance in organizing the available inputs to achieve the maximum output in the production process. That is, pure technical inefficiency indicates managerial underperformance in resource utilization.

The banks could not also achieve full efficiency in the scale of operation with the average of the banks' SE being less than 1. This also means that the inability of the banks to reach the technical efficiency frontier could also be traced to poor selection of operating scale as opined by Iqbal and Awan (2015). Therefore the above results indicate that the banks were not efficient and their inability to reach full efficiency resulted from managerial inefficiency and scale of operation.

According to Table 1, the banks, once in a while, reach the efficiency frontier (full efficiency) in all three estimators (OTE, PTE, SE). This is indicated by the maximum score of 1.000 as reported in the Table. The minimum values showed the highest level of inefficiencies attributed to the selected banks for the period under consideration.

**Table 2: Average Efficiency Scores**

| Year    | OTE      | PTE      | SE       |
|---------|----------|----------|----------|
| 2012    | 0.786757 | 0.865442 | 0.907631 |
| 2013    | 0.786538 | 0.865747 | 0.907136 |
| 2014    | 0.786591 | 0.865824 | 0.90712  |
| 2015    | 0.787072 | 0.866126 | 0.90733  |
| 2016    | 0.787551 | 0.866427 | 0.90754  |
| 2017    | 0.788027 | 0.866726 | 0.907748 |
| 2018    | 0.788501 | 0.867025 | 0.907955 |
| 2019    | 0.788929 | 0.867299 | 0.908139 |
| Average | 0.787496 | 0.866327 | 0.907575 |

Source: Authors' computation (2022)

Table 2 showed technical efficiencies (OTE, PTE, SE) of selected Islamic banks in Africa and Asia from 2012 to 2019. The mean score of 0.787 shows that averagely, the banks were technically inefficient. The average scores of purely technical and scale efficiencies were 0.866 and 0.907 respectively. The average score for OTE means that for any of the banks to achieve full efficiency, efforts must be made to increase its output (financing contracts) by (1-0.79) 21%. For PTE and SE, the such bank will only be efficient by increasing its PTE and SE by (1-0.87) 13% and (1-91) 9% respectively. The implication is that the banks were more scale efficient and the inefficiencies observed overall, resulted largely from pure technical inefficiencies. Also, the highest efficiency for all the banks was recorded in 2019 across the three estimators (OTE, PTE, SE).

**Table 3: Average Efficiency Measures by Country**

| S/N | Country     | OTE  | PTE  | SE   | Number of banks |
|-----|-------------|------|------|------|-----------------|
| 1   | Afghanistan | 0.75 | 0.86 | 0.86 | 1               |
| 2   | Bangladesh  | 0.84 | 0.91 | 0.93 | 9               |
| 3   | Djibouti    | 0.80 | 0.89 | 0.89 | 3               |
| 4   | Egypt       | 0.85 | 0.89 | 0.95 | 3               |
| 5   | Gambia      | 0.82 | 0.87 | 0.94 | 1               |
| 6   | Indonesia   | 0.79 | 0.89 | 0.89 | 2               |
| 7   | Jordan      | 0.95 | 0.97 | 0.98 | 1               |
| 8   | Kenya       | 0.81 | 0.90 | 0.90 | 2               |
| 9   | Mauritania  | 0.75 | 0.85 | 0.88 | 3               |
| 10  | Nigeria     | 0.78 | 0.86 | 0.91 | 1               |
| 11  | Pakistan    | 0.81 | 0.84 | 0.96 | 2               |
| 12  | Palestine   | 0.90 | 0.95 | 0.94 | 1               |
| 13  | Senegal     | 0.67 | 0.75 | 0.89 | 1               |
| 14  | Sudan       | 0.73 | 0.82 | 0.89 | 18              |
| 15  | Tanzania    | 0.73 | 0.83 | 0.88 | 1               |
| 16  | Tunisia     | 0.87 | 0.95 | 0.91 | 3               |
| 17  | Yemen       | 0.82 | 0.89 | 0.92 | 4               |

Authors' computation (2022)

Table 3 presents the 17 countries and the number of banks selected from each country. From the Table, 18 Islamic banks were selected from Sudan. This represents about 32% of the sample. The selection was possible because the Sudanese banking system is *shariah*-based. In Bangladesh, 9 banks were selected while 4 Islamic banks were chosen from Yemen. The study featured 3 banks each from the African countries of Djibouti, Egypt, Mauritania and Tunisia. Also, 2 banks each were selected from Indonesia, Kenya and Pakistan. Other countries-Afghanistan, Gambia, Jordan, Nigeria, Palestine, Senegal, and Tanzania had 1 bank each within the sample. Efficiency scores were estimated for each bank from all the selected countries and country-level averages were reported in Table 3 for the three estimators. The country-wise analysis was made using Figure 1 presented below.

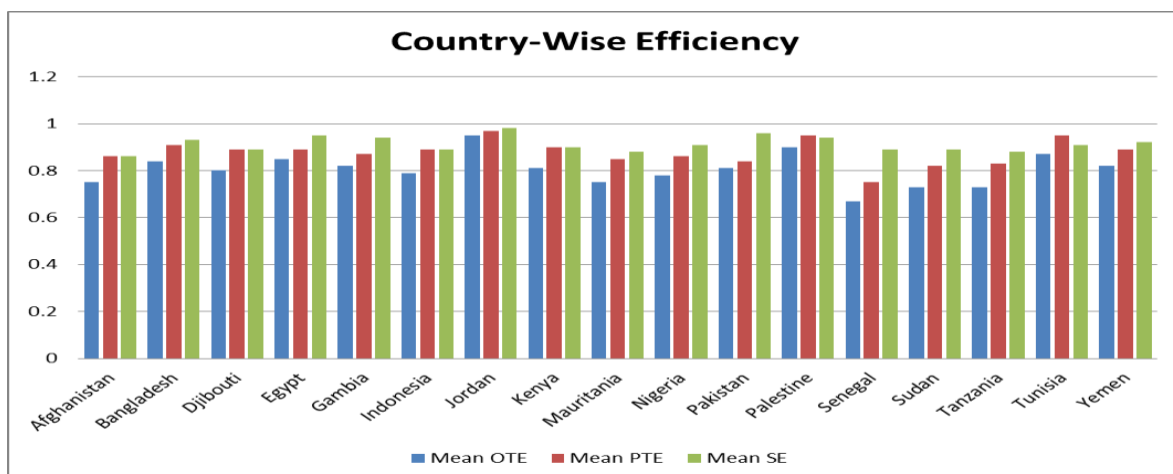


Figure 1: Efficiency measures by Country

Source: Authors' presentation (2022)

Average efficiency scores of all banks from each country were taken and reported as presented in the Figure1 above. This allows some comparative inferences regarding the efficiency of Islamic banking in the selected countries. Figure1 is the bar chart for country-level analysis of OTE, PTE and SE for comparative purposes. According to the chart, Jordan was found to be the only country with the most efficient Islamic banking system, having its efficiencies estimated to be close to 1. According to Table 3, which is represented by the chart, the OTE, PTE and SE were recorded as 95%, 97% and 98% respectively. This implies that the inefficiency in the country's Islamic banking is just around 5% overall and it is traceable to both pure technical and scale inefficiencies. Palestine comes second on the log with a 90% overall technical efficiency score over the period of the study. The result indicates that the efforts of Islamic banks in the country should be directed on how to improve their efficiency by 10% for it to be on the efficiency frontier. This may be achievable by working on both the purely technical and scale efficiencies which recorded average measures of 95% and 94% respectively.

Tunisia, an African country was found as the third most efficient in terms of the Islamic banking system. The average efficiency scores of the three Islamic banks selected from Tunisia show 87% OTE with PTE and SE of about 95% and 91% respectively. That is, overall, the most efficient country in Africa in the area of Islamic banking is far from the frontier of the best practice bank by about 13%. However, the purely technical and scale efficiencies show that the banking system is not doing badly when compared with a more efficient system in Palestine. According to Figure 1, the PTE of Tunisia and Palestine, which is the second most efficient system according to the study are the same.

Bangladesh, Egypt and Kenya also recorded high pure technical and scale efficiencies. Bangladesh recorded 91% pure technical efficiency (PTE) and 93% scale efficiency (SE). Egypt has a lower PTE of 89% but higher scale efficiency of 95%. This means that while Bangladesh from Asia is purely technically efficient than Egypt, the African country has a higher level of scale efficiency. Egypt was more scale efficient than Palestine which was found as the second with the most efficient Islamic banking system.

Countries like Pakistan, Gambia, Yemen, and Nigeria were found to have high-scale efficiency, though were not doing too well in the aspect of overall and pure technical efficiencies. Pakistan was found to be scale efficient to the tune of 96% but with inefficiencies of about 19% and 16% in the area of overall technical and pure technical efficiencies respectively. The Gambia is 2% lower than Pakistan on the scale efficiency measures. That is, the Gambia has 94% on a scale but 18% (82% efficiency) inefficiency overall. Yemen and Nigeria scored an average of 92% and 91% respectively on their scale efficiency measures.

However, Countries like Senegal, Sudan, Tanzania, Mauritania, Indonesia, Afghanistan and Djibouti exhibited low efficiencies over the periods of the study. According to Figure 1, the overall technical efficiency (OTE) for Senegal was 67% implying 33% inefficiency. The country also recorded 25% pure technical inefficiency (PTE, 75%). The highest efficiency estimate for Senegal was 89% which is in the operating scale (SE). In the case of Sudan whose banking system is 100% Islamic, efficiency scores were 73%, 82% and 89% for OTE, PTE and SE respectively. In other words, the Sudanese Islamic banks need to put efforts into ensuring that 28%, 18% and 11% are added to their intermediation outputs or reduced from their input resources to reach full efficiency in relation to OTE, PTE and SE respectively.

An efficiency pattern similar to that of Sudan was displayed for Tanzania. The overall technical efficiency for Tanzania was 73% requiring about a 27% increase in output for the country's Islamic banks to be fully efficient. Decomposing the technical efficiency, Tanzania shows 17% pure technical inefficiency (0.83) and 12% scale inefficiency (0.88). Tanzania's Islamic banking inefficiency was just about 2% lower than that of Mauritania in the area of OTE and PTE. Both countries recorded the same values for scale efficiency (0.88) and so, their scale inefficiency is 12%.

In Afghanistan, Islamic banks scored 75% overall technical efficiency on average. This distances the banks to the efficiency frontier of the best practice bank(s) by 25%. The inefficiency score recorded overall, could be traced to both managerial incompetence and the wrong choice of operating scale. That is, the PTE and SE each of which recorded an efficiency score of 86% Indonesia and Djibouti have the same scores (0.89) for PTE and SE while Djibouti is 1 % higher overall than Indonesia as could be rightly observed from the chart. It is also important to note from the above analysis that none of the selected banks is fully efficient over the selected periods.

### 3. Discussion

The study examined Islamic banking efficiency in some selected countries in the low-income economies of Africa and Asia. It was found that the banks were not technically efficient as average efficiency scores across the countries are less than 1. Thus, no country's Islamic banking was fully efficient during the period under consideration. This result was in line with Ahmad et al. (2010) who reported that low-income countries' Islamic banks were technically inefficient. The findings of Naeem-Ullah (2013) and Saeed et al. (2013) were also consistent with the result of this study. Conversely, Al-Khasawney, et al. (2012) reported a contradictory result regarding the technical efficiency of Islamic banks.

However, some countries were found to be more efficient than others as shown by the technical efficiency estimators (OTE, PTE, SE). The differences in the efficiency levels across the countries could be traced to different environmental factors like underdevelopment of financial markets, unislamic banking environment that manifested in fiduciary trust deficit, poor corporate governance and unethical behaviour of bank staff and customers. According to Alharbi (2019), the underdevelopment of the financial market in terms of market liquidity affects bank efficiency. It could also be implied from the findings that, in those countries with higher technical efficiency, Islamic banks would be able to compete favourably with conventional banks in the area of financial intermediation as suggested by the efficient structure hypothesis. The findings of this work also support the report of Altun-Ada and Dalklic (2014) on the efficiency of Islamic banks.

The study also revealed that the selected banks across the countries recorded higher efficiency scores for SE. This means that the countries with Islamic banks were more scale efficient. The implication is that the observed inefficiencies in the overall technical efficiency of the banks are majorly pure technical. Pure technical measured the level of managerial performance in organizing the available inputs to attain maximum output in the production process. For a bank, it has to do with how much financial services are provided from the available resources. That is, pure technical inefficiency indicates managerial underperformance in resource utilization. Also, reports by Abdulsamad (2015), Effendi (2016) and Bahrini (2017) were in tandem with high-scale efficiency recorded in most of the selected banks across the selected countries. The result however contradicted Yildirim (2017) who found low-scale efficiency for Islamic banks.

This implies that for the selected banks, scale inefficiency contributed less to the observed inefficiencies.

#### **4. Conclusion**

The study hinged upon the theoretical explanation provided by the efficient structure hypothesis to conduct a country-wise analysis of Islamic banking efficiency in some selected countries of low-income economies of Africa and Asia. Results of the analysis revealed that Islamic banking systems across the selected countries were technically inefficient though high efficiency was recorded in a few countries like Jordan and Palestine with overall efficiency scores above 90%. The study also reports that the scale efficiency was higher than pure technical efficiency in most of the countries with Islamic banks. It is based on these findings that the study concluded that Islamic banking systems in the selected countries were technically inefficient due to pure technical inefficiencies (managerial underperformance- lack of skills, competencies) in Islamic banking operations. Competent managerial staff are recommended for recruitment, to boost the technical efficiency of the banks and enhance their competitive positions in the market. Future research should increase the sample size and coverage period to have a more robust analysis as this study was restricted in these areas due to the inaccessibility of data for some Islamic banks.

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**APPENDIX 1: LIST OF SELECTED ISLAMIC BANKS FROM AFRICA AND ASIA**

| S/N | Bank Name                           | Date Founded | started operation | Country     | Continent/Region |
|-----|-------------------------------------|--------------|-------------------|-------------|------------------|
| 1   | Abu Dhabi Islamic Bank (ADIB)       | 2007         | 2007              | Egypt       | Africa           |
| 2   | Faisal Islamic Bank,                | 1977         | 1979              | Egypt       | Africa           |
| 3   | AL Baraka Bank                      | 1980         | 1980              | Egypt       | Africa           |
| 4   | Jaiz Bank Plc                       | 2011         | 2012              | Nigeria     | Africa           |
| 5   | First Community Bank                | 2007         | 2008              | Kenya       | Africa           |
| 6   | Gulf African Bank                   | 2005         | 2008              | Kenya       | Africa           |
| 7   | Wifack Int'l Bank                   | 2002         | 2002              | Tunisia     | Africa           |
| 8   | Zitouna Bank                        | 2009         | 2010              | Tunisia     | Africa           |
| 9   | Al Baraka Bank                      | 1983         | 1983              | Tunisia     | Africa           |
| 10  | Amana Bank (AB)                     | 2011         | 2011              | Tanzania    | Africa           |
| 11  | AlBaraka Bank (ABS)                 | 1984         | 1984              | Sudan       | Africa           |
| 12  | AlSalam Bank (AISB)                 | 2004         | 2004              | Sudan       | Africa           |
| 13  | Al Shamal Bank (AShB)               | 1983         | 1983              | Sudan       | Africa           |
| 14  | Aljazeera Sudanese & Jordanian Bank | 2006         | 2008              | Sudan       | Africa           |
| 15  | United Capital Bank (UCB)           | 2005         | 2006              | Sudan       | Africa           |
| 16  | Sudanese Egyptian Bank (SEB)        | 2004         | 2004              | Sudan       | Africa           |
| 17  | Faisal Islamic Bank(FIB)            | 1977         | 1978              | Sudan       | Africa           |
| 18  | El Nilein Bank                      | 2007         | 2007              | Sudan       | Africa           |
| 19  | Balad Bank                          | 1983         | 1983              | Sudan       | Africa           |
| 20  | Saudi Sudanese bank                 | 1984         | 1984              | Sudan       | Africa           |
| 21  | Nile Bank                           | 1983         | 1983              | Sudan       | Africa           |
| 22  | Ivory Bank                          | 1994         | 1994              | Sudan       | Africa           |
| 23  | Sudanese French bank                | 1978         | 1978              | Sudan       | Africa           |
| 24  | Qatar National Bank Sudan           | 2011         | 2011              | Sudan       | Africa           |
| 25  | Farmers commercial bank             | 1998         | 1998              | Sudan       | Africa           |
| 26  | Byblos Bank                         | 2003         | 2003              | Sudan       | Africa           |
| 27  | Tadamon Islamic Bank                | 1981         | 1983              | Sudan       | Africa           |
| 28  | Omdurman National Bank (ONB)        | 1969         | 1969              | Sudan       | Africa           |
| 29  | Al-Wava Islamic Bank,               | 1985         | 1985              | Mauritania  | Africa           |
| 30  | Al MuamelatAssahiha Bank            | 2012         | 2012              | Mauritania  | Africa           |
| 31  | Al Baraka Bank                      | 1990         | 1990              | Mauritania  | Africa           |
| 32  | Agib Bank                           | 1997         | 1997              | The Gambia  | Africa           |
| 33  | Saba Islamic Bank                   | 1997         | 1997              | Djibouti    | Africa           |
| 34  | Salaam African Bank                 | 2007         | 2008              | Djibouti    | Africa           |
| 35  | East Africa Bank                    | 2010         | 2010              | Djibouti    | Africa           |
| 36  | Islamic Bank of Senegal             | 1982         | 1982              | Senegal     | Africa           |
| 37  | Bakhtar Bank                        | 2009         | 2009              | Afghanistan | Asia             |
| 38  | Al-Arafah Islamic Bank,             | 1995         | 1995              | Bangladesh  | Asia             |
| 39  | First SecurtyIslami Bank            | 1999         | 1999              | Bangladesh  | Asia             |

|    |                                                   |      |      |            |      |
|----|---------------------------------------------------|------|------|------------|------|
| 40 | Union Bank                                        | 2013 | 2013 | Bangladesh | Asia |
| 41 | CIMB Islamic Bank                                 | 2008 | 2008 | Bangladesh | Asia |
| 42 | Islami Bank of Bangladesh                         | 1983 | 1983 | Bangladesh | Asia |
| 43 | ICB Islamic Bank                                  | 1987 | 1987 | Bangladesh | Asia |
| 44 | ShahjalalIslami Bank                              | 2001 | 2001 | Bangladesh | Asia |
| 45 | Sonali Bank                                       | 1972 | 1972 | Bangladesh | Asia |
| 46 | EXIM Bank                                         | 1999 | 1999 | Bangladesh | Asia |
| 47 | Bank Muamalat                                     | 1991 | 1991 | Indonesia  | Asia |
| 48 | Bank SyariahMandir (BSM)                          | 1997 | 1999 | Indonesia  | Asia |
| 49 | Islamic International Arab Bank                   | 1998 | 1998 | Jordan     | Asia |
| 50 | Meezan Bank                                       | 2002 | 2002 | Pakistan   | Asia |
| 51 | BankIslami                                        | 2004 | 2004 | Pakistan   | Asia |
| 52 | Saba Islamic Bank                                 | 1997 | 1997 | Yemen      | Asia |
| 53 | Tadhamon International Islamic Bank               | 1996 | 1996 | Yemen      | Asia |
| 54 | Islamic Bank of Yemen for Finance and Investment, | 1996 | 1996 | Yemen      | Asia |
| 55 | Shamil Bank of Yemen and Bahrain,                 | 2002 | 2002 | Yemen      | Asia |
| 56 | Arab Islamic Bank                                 | 1995 | 1995 | Palestine  | Asia |

**Source:** Central Banks of the selected countries, bank websites



## **COVID-19 AND ECONOMIC GROWTH IN WEST AFRICA: EVIDENCE FROM SOME SELECTED COUNTRIES.**

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### **Abstract**

The covid-19 pandemic as a global tragedy has been affecting human welfare from various angles. This paper is designed to examine the impact of government expenditure on Covid-19 on the economic growth of some selected West African countries using monthly data Spanning the period of 2020 April to 2021 December. Panel data series in this study were sourced from World Development Indicators and CBN. The data were subjected to unit root tests and found non-stationary at level, but stationary after differencing. Also, the panel co-integration test was conducted based on the Kao residual framework and the ADF of which P-values were found significant (91%) leading to the non-rejection of the null hypothesis afterwards. This result directed us to carry out estimation using the Panel VAR framework which is traditionally conducted via the Static Models (Fixed Effect Model and Random Effect Model). After the estimation of the Models, Hausman Test was conducted which qualifies the appropriateness of the Fixed Effect Model. The result reveals that all the explanatory variables with exception of ExpCovid(-1) were found to be positive and statistically significant, signifying that with a 1 per cent increase in government expenditure on Covid-19, economic growth of the selected West African countries will decrease by 10%. And lastly, the study recommends that governments should strategize ways of making rational expenditures on Covid-19 to curtail too much withdrawal from their economies.

**Keywords:** Covid-19, Economic Growth, Fixed Effect Model, Government Expenditure, Hausman Test, Panel VAR, West Africa and Random Effect Model,  
**JEL Classification:** H51, O22, O47

## **Introduction**

The COVID-19 crisis of 2020 was a truly global tragedy affecting both wealthy and poor countries alike. Great economies like the US, Canada, UK, Germany, France, Russia and Italy suffered seriously with the novel pandemic. Despite the late arrival, the COVID-19 virus has spread rapidly across Africa, particularly West Africa. The COVID-19 pandemic has taken a toll on human life and brought major disruption to economic activity across the world (United Nations Development Programme [UNDP], 2020). As of April 7 2020, relatively large numbers of COVID-19 cases have been confirmed in Africa (International Monetary Fund [IMF], 2021). The UN's Framework for the Immediate Socio-Economic Response to the COVID-19 Crisis warns that the COVID-19 pandemic is far more than a health crisis: it is affecting societies and economies at its core (UNDP, 2020). While the impact of the pandemic will vary from country to country, it will most likely affect economic growth, increase poverty and inequalities on a global scale, making the achievement of SDGs even more urgent.

Therefore, the United Nations mobilized the full capacity of the UN system through its 131 country teams serving 162 countries and territories, to support national authorities in developing public health preparedness and response plans to the COVID-19 crisis (United Nations, 2020). Despite the buoyant external environment, Africa is expected to be the world's slowest growing region in 2021 due to Covid-19 (IMF, 2020). Therefore, the global health response must emphasize solidarity towards developing countries, particularly Africa, guided by the notion of health as a global public good. This is because the COVID-19 pandemic has arrived at a moment when prospects for many African countries were promising. In support of this fact, IMF (2021), reported that at the beginning of 2020, Africa was on track to continue its economic expansion, with growth projected to rise from 2.9 per cent in 2019 to 3.2 per cent in 2020, and 3.5 per cent in 2021. But with the emergence of the virus as of 18th May 2020, the virus had recorded 84,183 cases and claimed the lives of 2,739 (IMF, 2020). Also, in many African countries, 75% have recorded not fewer than 1,000 cases (IMF, 2020).

Furthermore, with the fact that the pandemic is affecting the whole African countries differently, given its varied strengths and vulnerabilities, early estimates and reports were pessimistic regarding its impact on the entire African continent. But with the relatively lower numbers of COVID-19 cases reported in West African countries much had been expatriated abroad for the purchase of testing equipment and other facilities needed against the continuous spread of the pandemic (United Nations, 2020). This expenditure reflects a great withdrawal of income from the national circular flow of income which must have both short-run and long-run effects on the economy in general. While the immediate health impact of Covid-19 is still evolving, the indirect consequences like food insecurity, lack of medical supplies, loss of income and livelihood, difficulties in applying sanitary and physical distancing measures, a looming debt crisis, as well as related political and security risks, are all beyond health and already bring a heavy toll.

It is against this backdrop, that this study is conducted to specifically examine the impact of government expenditure on Covid-19 on the economic growth of some selected West African countries using panel quarterly data series. To achieve this target, the study is designed in five (5) sections. Besides section one (1) which is the introduction, section two is the literature review and theoretical framework, section three is the methodology, section four is the result and discussion and section five is the conclusion and recommendations.

## **Literature Review**

### **Background on Covid-19**

On December 31, 2019, the China Health Authority alerted the World Health Organization (WHO) to several cases of pneumonia of unknown aetiology in Wuhan City in Hubei Province in central China (United Nations, 2020). It further reported that the cases had been reported since December 8, 2019, and many patients worked at or lived around the local Huanan Seafood Wholesale Market although early cases had no exposure to this market. On January 7, a novel coronavirus, initially abbreviated as 2019-nCoV by WHO, was officially identified from the throat swab sample of a patient (United Nations Development Programme, 2020). This pathogen was later renamed Severe Acute Respiratory Syndrome CoronaVirus 2 (SARS-CoV-2) by the Coronavirus Study Group and the disease was named coronavirus disease 2019 (COVID-19) by the WHO (United Nations, 2020). As of January 30th, 7,736 confirmed and 12,167 suspected cases had been reported in China and 82 confirmed cases had been detected in 18 other countries (Harapan, Itoh, Yufika, Winardi, Keam, Te, ..., & Mudatsir, 2020). As of April 7 2020, the COVID-19 virus has spread rapidly across Africa, particularly West Africa (UNDP, 2020).

### Concept of Economic Growth

Since the late 1980s, economists have done intensive work on the determinant of economic growth. However, there are few widely agreed-on results. Following the practice at the national level, economic growth may be measured by examining the various outcomes of the production systems. Gross Domestic Product (GDP) is suggested as an appropriate growth measure. And Malizia (no date), justified the use of employment as the second best measure currently available for economic growth.

In the conceptualization of Romer (1991), economic growth occurs whenever people take resources and rearrange them in such a way that is more valuable for economic progress. Economic growth can also be conceptualized as an increase in the capacity of an economy to produce products (goods, services, ideas and events), compared from one period of time to another. Therefore, economic growth can be measured in nominal or real terms. And in this study, growth is referred to in the nominal form.

### Theoretical Framework

The study on Covid-19 and economic growth is theoretically anchored by the Keynesian Theory of National Income in four-sector equilibrium. According to the theory, national income or output is a direct function of private consumption (C), Private Investment (I), Government Expenditure (G) and International Trade which is represented by Export (E) and Import (M) (Ison, 1996). For this study, Aggregate income/output is represented by Growth Domestic Product (GDP), international trade is represented by Foreign Direct Investment (FDI), and government expenditure is represented by public expenditure on Covid-19, based on a justification that government expenditure on health is an investment on human capital. Therefore, augmenting the Keynesian model on the Cobb-Douglass framework gives us a theoretical skeletal upon which this study will be hinged. Thus:

$$GDP = C + I + G + (X - M) \dots \dots \dots (i)$$

### Empirical Literature

Inegbedion (2021), conducted an empirical investigation on the impact of covid-19 on economic growth in Nigeria: Opinion and attitudes, using a cross-sectional survey. The analysis was conducted using simple percentage and Least Square methods. The study found that covid-19 induced lockdown has significantly constrained economic activities and the circular flow of income. In a similar study, Ozili (2020), investigated the Covid-19 pandemic and economic crisis: The Nigerian experience and structural causes, using content analysis and

descriptive statistics. The study found that the economic downturn in Nigeria was triggered by a combination of declining oil prices and spillovers from the covid-19 outbreak which not only led to a fall in the demand for oil products but also stopped economic activities from taking place with the placement of social distancing policies. Roy (2020), researched the economic impact of the COVID-19 Pandemic on the tourism industry, oil industry, aviation industry, financial sector and healthcare sector using regression analysis. The study found that the COVID-19 pandemic negatively affects interest rates, financial market liquidity, international trade, and making demand and supply shocks in the markets.

Also, Ejem and Ogbonna (2020), conducted research on the causal relationship between macroeconomic variables and the COVID-19 pandemic in Nigeria, using VEC Granger Causality and Unrestricted VAR Approach covering data from February 03, 2020, to June 30, 2020, sourced from CBN and NBS. The VEC Granger result showed that all the macroeconomic variables i.e. all share index, oil prices, saving rates, inflation rate, exchange rate, and monetary policy rate, had bidirectional causality. Impulse response results revealed that the macroeconomic variables under investigation respond positively to shocks. The unrestricted VAR result revealed that the macroeconomic variables are transient within the period of the COVID-19 pandemic.

Hamadou (2020), investigated the free movement of persons in west Africa under the strain of covid-19, using secondary data utilized via content analysis. The study concluded that ECOWAS member states have relied on Covid-19 justifications to shut down cross-border movement, undermining the legal framework of free movement in the process.

David, Iretiayo, Olofinsao and Aborode (2020), conducted an empirical investigation on the effect of covid-19 on the African economy, using time series annual data, estimated via Ordinary Least Squares and found that the covid-19 outbreak affects the workings of economic activities in Africa. In another study, Lucas (2020), investigated the impacts of Covid-19 on inclusive economic growth in middle-income countries using content analysis and found that covid-19 economic impacts are broader and more severe than most past crises and it disrupted global value chains which account for more than two-thirds of the world trade. A similar study by Gondwe (2020), investigated the effect of the COVID-19 pandemic on economic development in Africa, using OLS. The study found that COVID-19 drags African economies about a 1.4 per cent fall in GDP due to export adjustments influencing primary commodity exporters, and losses to public revenue are 5 per cent which decreases the capacity of the government to shoulder its statutory responsibilities. Furthermore, Kassa and Grace (2020), looked into the race against death or starvation. Covid-19 and its impact on African populations, using documentary evidence issued between January and 8<sup>th</sup> August sourced from the Google Scholar, PubMed, Scopus and Web Science database. The result of this study reveals that the Covid-19 pandemic is responsible for a fourfold crisis in Africa and its economic crisis manifested by a decline in GDP and mass unemployment.

In conducting this research, various empirical studies reviewed and applied different techniques of estimation using different variables with different findings. To the best knowledge of this research, none of the previous studies applied the Static panel VAR framework which may be the reason for the inconclusive finding. Therefore, this study has taken a step forward toward contributing to the literature by applying the Static Panel VAR model of Fixed Effect and Random Effect Model in measuring the impact of government expenditure on Covid-19 on economic growth among the selected West African countries.

## **Methodology**

This study applied panel time series data sourced from the Central Bank of Nigeria (CBN) and World Development Indicators of the World Bank (WDI), on four variables of the study i.e. Gross Domestic Product (GDP), public expenditure on Covid-19, Foreign Direct Investment (FDI) and Inflation Rate. Some of the data (Gross Domestic Product, Foreign Direct Investment and Inflation Rate) were annual but converted into monthly by division into twelve (12) entities using Excel Spreadsheet while public expenditure on Covid-19 was initially generated on monthly basis. Therefore, the empirical analysis of this study is based on monthly time series data. In analysing the effect of public expenditure on Covid-19 on economic growth, the Keynesian Model of Income/output is adopted as in the work of Olaoye (2019). The selection of the countries of the study is purposive and its period coverage is based on data availability.

### Method of Data Analysis

**Description Statistics:** In this study, a descriptive statistical tool such as the table is used to present the descriptive behaviour of the variables and the output of the estimated relationship.

**Fixed and Random Effects VAR Model:** This study adopts the traditional Panel VAR Regression models i.e. Fixed Effect and Random Effect Models to estimate the effect of the regressor(s) on the dependent variable which is the economic growth. The use of this model follows the work of Abdulkarim (2018), who used the model to estimate the impact of Islamic and conventional banking sector development on the economic structure and growth of some selected OIC countries.

**Panel Unit Root Tests:** Panel unit root test is conducted to determine the series properties of the data collected and it is very essential as it reveals the stationary status of the data. In this study, the unit root test adopted follows the work of Ukashatu, Gwadabe, Imam and Koki (2019), in their remittance and economic growth in some selected Sub-Saharan African countries: Evidence from Panel Granger Causality Test, in which they employed Levin, Lin and Chu (LLC) and In, Pesaran and Shin (IPS). Thus;

$$\Delta Y_{it} = \alpha_{it} + \rho Y_{ij-1} + \sum_{k=1}^{\infty} \phi \Delta Y_{ij-1} + \omega \pi + \theta_t + \mu_{it} \dots \dots \dots (ii)$$

### Model Specification

The Static VAR Models in this study are thus, theoretically and econometrically specified in the following equations:

$$\begin{aligned} GDP_{it} &= f(X_1, X_2, X_3) \dots \dots \dots (iii) \\ GDP_{it} &= \beta_0 + \beta_1 X_{it} + \beta_2 X_{it} + \beta_3 X_{it} + \epsilon_{it} \dots \dots \dots (iv) \end{aligned}$$

The multivariate static panel relationship could be written more explicitly with the explanatory variables ( $X_{it}$ ) expanded to include important determinants as in the following model:

$$\begin{aligned} LogGDP_{it} &= \beta_0 + \beta_1 LogExpCovid19_{it} + \beta_2 LogFDI_{it} + \beta_3 LogInfl_{it} + \epsilon_{it} \dots \dots \dots (v) \end{aligned}$$

**Result and Discussion****Table 1: Correlation Matrix**

|             | <b>LogGDP</b> | <b>LogExpCovid</b> | <b>LogFDI</b> | <b>LogInf</b> |
|-------------|---------------|--------------------|---------------|---------------|
| LogGDP      | 1.000000      | -                  | -             | -             |
| LogExpCovid | -0.24139      | 1.000000           | -             | -             |
| LogFDI      | 0.687326      | -0.11509           | 1.000000      | -             |
| LogInf      | 0.590152      | 0.30236            | 0.15703       | 1.000000      |

Source: Researchers' Computation using Eview 10.

The correlation matrix above provides evidence showing that LogGDP and LogFDI co-move at 68%, LogGDP and LogInf co-move at 59%, LogExpCovid and LogInf co-move at 30% while LogExpCovid is inversely correlated to LogGDP and LogFDI at 24% and 12%, respectively.

**Table 2: Panel Unit Root Test Results**

| <b>Series</b>      | <b>LLC<br/>Level</b> | <b>First<br/>Difference</b> | <b>ISP<br/>Level</b> | <b>First<br/>Difference</b> |
|--------------------|----------------------|-----------------------------|----------------------|-----------------------------|
| <b>GDP (NIG.)</b>  | 0.602                | 0.000                       | 0.522                | 0.000                       |
|                    | [-1.334]             | [-4.764]                    | [-1.499]             | [-4.688]                    |
| <b>ExpCovid</b>    | 0.309                | 0.000                       | 0.149                | 0.000                       |
|                    | [-1.962]             | [-9.774]                    | [-2.398]             | [-31.573]                   |
| <b>FDI</b>         | 0.189                | 0.000                       | 0.225                | 0.000                       |
|                    | [-2.262]             | [-6.732]                    | [-2.155]             | [-10.356]                   |
| <b>Inf</b>         | 0.309                | 0.006                       | 0.120                | 0.008                       |
|                    | [-1.499]             | [-3.008]                    | [-1.901]             | [-1.000]                    |
| <b>GDP (GHA)</b>   | 0.600                | 0.010                       | 0.100                | 0.000                       |
|                    | [-2.548]             | [-4.949]                    | [-1.986]             | [-6.979]                    |
| <b>ExpCovid</b>    | 0.503                | 0.000                       | 0.056                | 0.001                       |
|                    | [-1.708]             | [-5.173]                    | [-1.708]             | [-2.194]                    |
| <b>FDI</b>         | 0.706                | 0.040                       | 0.050                | 0.008                       |
|                    | [-1.674]             | [-3.213]                    | [-3.290]             | [-4.273]                    |
| <b>Inf</b>         | 0.420                | 0.000                       | 0.091                | 0.002                       |
|                    | [-2.044]             | [-4.081]                    | [-3.420]             | [-4.002]                    |
| <b>GDP (IVORY)</b> | 0.239                | 0.000                       | 0.065                | 0.000                       |
|                    | [-2.322]             | [-8.054]                    | [-1.748]             | [-4.273]                    |
| <b>ExpCovid</b>    | 0.201                | 0.000                       | 0.089                | 0.020                       |
|                    | [-1.189]             | [-8.136]                    | [-2.466]             | [-3.557]                    |
| <b>FDI</b>         | 0.070                | 0.039                       | 0.078                | 0.000                       |
|                    | [-3.654]             | [-6.890]                    | [-2.621]             | [-2.967]                    |
| <b>Inf</b>         | 0.312                | 0.001                       | 0.111                | 0.006                       |
|                    | [-1.340]             | [-3.119]                    | [-2.123]             | [-1.010]                    |

Source: Researchers' Computation using Eview 10.

The optimal lag length is selected using the Schwartz criterion (SC) and the figures in parenthesis are the t-Statistics.

From Table 4.2, we can see that all the series across the selected countries are not stationary at level but after taking the first difference, the series is found stationary. And this directs for

conducting a co-integration test to ascertain the possibility of having long-run associations among the series or otherwise.

**Table 3: Panel Co-integration Result**

| ADF               | t-Statistic | Prob.  |
|-------------------|-------------|--------|
|                   | 1.336522    | 0.0907 |
| Residual Variance | 77848302    |        |
| HAC Variance      | 1.57E+08    |        |

Source: Researchers' Computation using Eview 10.

From Table 4.3, it can be seen that a multivariate unified co-integration result based on the Kao residuals framework shows that having a P-Value of 91% which is above 5%, it is significant enough so that we do not reject the Null of 'No co-integration and conclude that the variables in question do not have long run associations as their linear combinations are not co-integrated. Therefore, this fulfils the condition of conducting the panel VAR model.

**Table 4: Fixed Effect Model Result**

| Variable       | Coefficient | Std. Error               | t-Statistic | Prob.    |
|----------------|-------------|--------------------------|-------------|----------|
| C              | 10425.91    | 12524.69                 | 0.832429    | 0.4097   |
| GDP(-1)        | 0.888079    | 0.141815                 | 6.262240    | 0.0000   |
| GDP(-2)        | 0.028538    | 0.149186                 | 0.191294    | 0.8492   |
| ExpCovid(-1)   | -0.104337   | 1.637027                 | -0.338624   | 0.0305   |
| ExpCovid(-2)   | 0.131462    | 1.677819                 | 1.508781    | 0.1385   |
| FDI(-1)        | 0.564930    | 0.201289                 | 3.109870    | 0.0000   |
| FDI(-2)        | 0.673409    | 0.120550                 | 0.230421    | 0.7365   |
| Inf(-1)        | 0.234501    | 0.097704                 | 2.400120    | 0.0000   |
| Inf(-2)        | 0.459801    | 0.231986                 | 1.982018    | 0.0089   |
| R-Squared      | 0.999432    | Mean Dependent variable  |             | 192298.9 |
| Adj. R-Squared | 0.999316    | S. D. Dependent variable |             | 225856.6 |

Source: Researchers' Computation using Eview 10.

From Table 4.4, it can be seen that all the coefficients GDP(-1), GDP(-2), ExpCovid(-2), FDI(-1), FDI(-2), Inf(-1) and Inf(-2) with exception ExpCovid(-1), are positive, correctly signed and conforms to the a priori expectations but only FDI(-1) is found negative and significant with P-Value of 0.0000. The  $R^2$  of the Fixed Effect Model shows that the model is very strong in explaining the relationship in such a way that 99% variation in economic growth across the selected countries (Nigeria, Ghana and Ivory Coast) is explained by the explanatory variables. Also, closer values of the  $R^2$  and its adjusted one show that this model has good and strong forecasting power.

**Table 4.5: Random Effect Model Result**

| Variable     | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| C            | -2298.469   | 1411.249   | -1.628677   | 0.1098 |
| GDP(-1)      | 0.973564    | 0.137658   | 7.072346    | 0.0000 |
| GDP(-2)      | 0.451844    | 0.141111   | 0.367402    | 0.7149 |
| ExpCovid(-1) | -0.129528   | 1.236147   | -0.671059   | 0.0305 |
| ExpCovid(-2) | 0.078115    | 1.231390   | 1.037945    | 0.0150 |
| FDI(-1)      | 0.300900    | 1.051289   | 0.123090    | 0.0000 |
| FDI(-2)      | 0.203409    | 0.500890   | 0.210034    | 0.0005 |
| Inf(-1)      | 0.340120    | 0.377903   | 0.900120    | 0.0001 |

|         |           |          |          |        |
|---------|-----------|----------|----------|--------|
| Inf(-2) | -0.650910 | 3.389627 | 0.192030 | 0.0210 |
|---------|-----------|----------|----------|--------|

Source: Researchers; Computation using Eview 10.

From Table 4.5, it can be seen also that all the coefficients GDP(-1), GDP(-2), ExpCovid(-2), FDI(-1), FDI(-2) and Inf(-1) with the exception ExpCovid(-1) and Inf(-2), are positive, significant, correctly signed and conforms to the a priori expectations but ExpCovid(-1) and Inf(-2) are found negative and significant at 5% level, correctly specified and conforms to their respective measurement sign and size. Therefore, we conducted the Hausman Test to help us choose the appropriate model upon which our conclusion and recommendations could be based.

**Table 4.6: Hausman Test Result**

| Test Summary  | Chi-Sq. Statistics | Chi-Sq. d.f. | Prob.  |
|---------------|--------------------|--------------|--------|
| Cross-Section | 8.935880           | 6            | 0.0267 |
| Random        |                    |              |        |

Source: Researchers' Computation using Eview 10.

From Table 4.6, it can be seen that the P-Value of 27% is above 5% and it is significant enough. Therefore, we do reject the 'Null' which says the Random effect model is appropriate and conclude the Fixed Effect Model is best in explaining the relationship between government expenditure on Covid-19, Foreign Direct Investment (FDI), Inflation Rate and economic growth across the countries of study.

### Conclusion and Recommendations

This empirical study followed the Keynesian Model of national income to investigate the impact of public expenditure on Covid-19 on the economic growth of some selected West African countries covering 20 months from 2020April to 2021December. The result of this study which is based on the Fixed Effect Model as suggested by the Hausman Test reveals that all the explanatory variables with exception of ExpCovid(-1) is found to have a positive impact on the economic growth of the selected West African countries (Nigeria, Ghana and Ivory Coast) during the months of study, while ExpCovid-19(-1) is found negative and significant in such a way that with 1 per cent additional public expenditure on Covid-19, the economic growth of the selected West African countries will be negatively affected by 10% during the months under study. Also, with a 1 per cent additional inflation rate, the economic growth of the selected West African countries will be positively affected by 46% during the months under study. This may be because inflation propels the domestic flow of income in the economy and economically domestic inflation is a blessing to the economic agent in the economy concerned.

This result concurs with the findings of David, Iretiaye, Abiodun, Aborode and Ayodele (2020). This result implies that public expenditure on Covid-19 reflects the expatriation of national resources abroad which is a withdrawal from the Nigerian circular flow of income. Based on this conclusion, the study recommends that government should strategize efficient ways of reducing too much expenditure abroad on Covid-19 by motivating home-based medical doctors and medical engineers to locally investigate and come up with facilities, drugs and vaccines against the pandemic to curtail resources withdrawal from the economies concerned.

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## ENVIRONMENTAL COSTS AND FINANCIAL PERFORMANCE: EVIDENCE FROM QUOTED CEMENT COMPANIES IN NIGERIA

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### Abstract

*This study examined the impact of environmental costs on the financial performance of quoted cement companies in Nigeria. The study used secondary data generated from annual reports and accounts of cement companies quoted on the floor of the Nigerian Stock Exchange as of 31st December 2021 covering the period from 2016 to 2020. The eleven (11) quoted cement companies in Nigeria constituted the population of the study and a census sampling method was employed in selecting the entire population as a sample size. The study adopted an ex-post facto research design and used Generalized Least Square (GLS) regression in analyzing the data of the study. The findings of the study revealed that research and development cost is the major variable that impacted the financial performance of quoted cement companies in Nigeria. The study recommended that the management of cement companies in Nigeria should invest more in research and development, especially in those strategies that would curtail the negative impact of cement production on society. This will, in turn, increase the size of their businesses and this will in turn boost the companies' financial performance.*

**Keywords:** environmental costs, employee health and safety cost, waste management cost, community development cost, research and development cost

JEL Classification: G1, Q51, Q56, O22

### Introduction

Literature shows that most environmental degradations and emissions are anthropogenic, an advent that was traceable to the industrial revolution of the late 18th century, where economic activities in many communities moved from agriculture to manufacturing. Production shifted from its traditional locations in the home and the small workshop to factories. The overall amount of goods and services produced expanded dramatically, and a new group of investors, business people, and managers took financial risks and gained great rewards. In the long run, the industrial revolution has brought economic advancement for most people in industrialized countries. Many enjoy greater fortune and improved health. There have been costs; however, industrialization has brought environmental impurities and greater land use, which have damaged the natural environment.

Environmental Accounting Guidelines inferred environmental costs as environmental conservation costs that include expenditures aimed to invest in assets for improving the quality of the environment and costs allocated for prevention, mitigation and defining methods for reducing environmental impacts, such as disaster recovery, environmental restoration, and other activities. Therefore, the total environmental conservation cost is the sum of expenses incurred for environmental conservation purposes. In addition, the total cost includes the cost of depreciation of the asset. The guideline classifies environmental conservation costs into seven categories based on its business activities, i.e. business area costs, upstream/downstream costs, administration costs, research and development costs, social activity costs, environmental remediation and other costs (Makori&Jagongo, 2013). Most often, the cost that leads to environmental changes, which affect people adversely and cause damage to the environment, are not considered before profits are determined. In other words, the profits could be wrongly determined. The result of this, in most cases, is reporting wrong and excessive profits which will also mislead the decision makers(Bessong&Tapang, 2012).

Traditionally, firms' financial performance has been measured mostly as they affect shareholders' welfare thereby forgetting the interest of other stakeholders. Contemporarily, this narrowed perspective has changed and given way to broader stakeholders' attention. Consequently, financial performance measurements should include all aspects of performance signs to satisfy the wider stakeholder considerations brought to bear on a firm's activities and expectations by environmental arrangements, externalities and responsiveness(Uadiale&Fagbemi, 2012). As a framework, this study relates proxies of financial performances to disaggregated environmental costs to ascertain the extent to which the latter affects the financial performance of firms in Nigeria. In doing this, the study adopted return on assets as the dependent variable, while community development cost, research and development costs, employee health and safety and waste management costs are the explanatory variables.

Prior empirical findings have inconclusively narrowed down the effect of environmental costs on firms' financial performance resulting in controversies by various schools of thought on the subject. The inconclusive prior findings have led to conflicting results due to the three competing schools of thought that exist recently in the field: that better environmental costs improve financial performance; the contrary that environmental costs do not improve financial performance and which opine that there is no connection between environmental and financial performances. This forms a fundamental gap on which this study is anchored. Nevertheless, most studies on the environmental costs and financial performance were conducted outside Nigeria (Ahmad et al, 2018; Hai et al, 2018; Huninun, Lindrianasari&Densiana, 2018; Nyirenda, Ngwakwe&Ambe, 2018; Azomahou, Van & Wagner, 2017; Eilola, 2017). Moreover, the few empirical studies that are documented in Nigeria concerning environmental costs and financial performance are mostly carried out in other sectors of the economy, with no empirical evidence in the area of the cement industry (Okafor, 2018; Onyali &Tochukwu, 2018; Amahalu, Ezechukwu& Obi, 2017; Agbiogwu, Ihendinihu& Okafor, 2016). Therefore, this study sought to fill such a gap.

Thus, the main aim of this study is to investigate the impact of environmental costs on the financial performance of quoted cement companies in Nigeria. Other specific objectives are to evaluate the influence of:

- i. Employee health and safety costs on the financial performance of quoted cement companies in Nigeria.
- ii. Waste management costs on the financial performance of quoted cement companies in Nigeria.

- iii. Community development costs on the financial performance of quoted cement companies in Nigeria.
- iv. Research and development costs on the financial performance of quoted cement companies in Nigeria.

Based on the above objectives, the following hypotheses are formulated to guide the outcome of the study.

**H0<sub>1</sub>:** There is no significant impact between employee health and safety costs on the financial performance of quoted cement companies in Nigeria.

**H0<sub>2</sub>:** There is no significant impact between waste management cost asset ratio and the financial performance of quoted cement companies in Nigeria.

**H0<sub>3</sub>:** There is no significant impact between community development costs and the financial performance of quoted cement companies in Nigeria.

**H0<sub>4</sub>:** There is no significant impact between research and development costs and the financial performance of quoted cement companies in Nigeria.

## **2.0 Literature Review**

### **2.1 Conceptual Framework**

#### **2.1.1 Concept of Environmental Cost**

The term environmental cost has been difficult to define. The difficulty lies in the fact that it integrates the intangible and tangible costs; the challenge of ascertaining its burden and occurrence and lastly because of the concept of externalities which are difficult to estimate or restricted to given geographical boundaries. Intangible costs are those with a high level of difficulty in measurement and most times not immediately visible. In addition to the fact that the existence of the intangibles cannot be noticed at inception, valuation of intangibles is usually difficult resulting in estimations fraught with both complexities and subjectivity. The definition of environmental cost is made more difficult by its burden and incidence. For example, the cost of environmental degradation does not fall on those responsible for the degradation (that is, the firms whose operations result in degradation); but falls on the present and future generations of the society as a whole. externality and its estimation difficulties, further compound and complicate the definition of environmental costs (Bessong&Tapang, 2012). In light of this, Edward (2011) argued that the definition of the environmental cost depends on the utilization of information in a company and that environmental costs can include conventional costs (raw materials and energy costs with environmental relevance), potentially hidden costs (costs which are captured by accounting system but then lose their identity in overheads), contingent costs (costs in a future time contingent liabilities), and image and relationship costs. Therefore, environmental costs, from a general perspective, are defined as the implicit and explicit consequences of human and industrial activities on the environment. It has become necessary to incorporate explicit and implicit implications of human and industrial activities on the environment. The definitions of environmental cost have to accommodate non-financial implications of actions or inactions of firms and include the costs of things not done or costs that cannot be readily ascertained concerning environmental degradation(Edward, 2011).

#### **2.1.2 Environmental Management Accounting (EMA)**

Environmental Management Accounting (EMA) is a designated area of accounting for firms to internally record and process environmental costs towards producing environmental reports that will meet firms' decisions concerning environmental degradation as well as a proactive measure to prevent it (Bassey, Sunday, &Okon, 2013). This is distinct from Financial Accounting and Management Accounting even though Environmental Management

Accounting immensely draws from both and contributes to them too. Judging from the difficulty of assigning a universally accepted definition for environmental costs, Environmental Management Accounting also has no single and universally accepted definition. Association of Chartered Certified Accountants (2015) defined Environmental Management Accounting as the management of environmental and economic performance through the development and implementation of appropriate environment-related accounting systems and practices, which may include reporting and auditing. In some firms, environmental management accounting usually involves life-cycle costing, full-cost accounting, benefits assessments, and strategic planning for environmental management. The scope of Environment Management Accounting, therefore, begins from the scope of environmental costs because the former flow to catch up, analyze, present and report the latter. Environmental costs vary from disposal costs to investment costs on environmental remediation and other externality costs which are usually outside the reach of the firm and cannot be easily restricted over time (Demissie, 2014).

Environmental Management Accounting is broadly defined as identifying, collecting, analyzing and using two types of information for internal decision-making (United Nations Integrated Environmental and Economic Accounting, 2003). The essence of Environmental Management Accounting to a great extent is on the observed shortcomings of conventional accounting which lumps environmental costs together with general overheads and, as such, suffocates the clarity of transactions and necessary management decisions on environmental activities. In firms' financial accounting structure, environmental costs are indistinctively classified as such in the charts of accounts, resulting in generic and incorrect classifications thereby leading to a loss of identity of the cost in overheads that translate to poor decisions on environmental matters. Consequently, access to financial information by environmental managers and experts on environmental costs is also restricted and when made available, there is difficult to separate environmental costs from the general overheads.

### **2.1.3 Concept of sustainability Risk and Environmental Responsibility**

The entire society is at risk; Sub-Saharan Africa is at a greater risk. The risk involves that of environmental degradation which is human causes in their quest for existence, ultimate present or future incidence and the effect of the risk on human generation. This risk by all measures is enormous. The time frame of the risk includes those facing the present generation that occupies the environment and those that affect the future generation that will depend on the environment for equivalent support (Moneva, & Ortas, 2010). Sustainability risk is the tendency that the environment cannot adequately sustain future generations as a result of present degradation. Wingard (2001) captured this risk from the perspective of ecological crisis and argued that the related problems of a growing world population, depletion of natural resources and pollution have led to an ecological crisis that is jeopardizing natural resources of which humans are part. The historical foundation of sustainability risk dates back to the evolution of man but contemporary environmentalists attribute this anomaly to the westernization culture which through the instrumentality of colonization has swept over the whole world. Schaltegger, Gibassier and Zvezdov (2013) averred that many contemporary environmentalists had accused the Judeo-Christian tradition of containing the historical roots of our ecological crisis. Singapurwoko and El-Wahid (2011) therefore concluded that the western view of life can be traced back to Judeo-Christian times and is founded on the assumptions that humans have the responsibility to master and influence nature to their benefit and that the natural environment has unrestricted possibilities for misuse.

Environmental responsibility is an aspect of corporate social responsibility and measures the extent to which a firm indulges in wholesome or unwholesome practices to protect the

environment. Wingard(2001) posited that corporate social responsibility is the obligation of decision makers to take actions which protect and enhance the environment as a whole, along with their welfare. The responsibility of both business and society (stakeholders) is to take appropriate legal, moral-ethical, and humanitarian actions. It has been widely argued that the environment and employees are facets of social responsibility and as such environmental responsibility can be defined as the social responsibility of organizations which involves the attitude of enterprises to do business under the ethical and moral values acceptable to society. All parties must accomplish these responsibilities within an economic framework and capabilities which are the bedrock for accomplishing the responsibilities.

#### **2.1.4 Concepts of Eco-Efficiency and Sustainability**

Eco-efficiency relates to the most proficient use of resources with the least potential for environmental damage. Recycling materials achieve this, and use of energy to convert the raw materials (Wingard, 2001). At the heart of eco-efficiency and environmental responsibility is the concept of sustainability. After taking due consideration to operate eco-efficiently and environmentally responsible, a further conscious appraisal must be carried out to ascertain that what has been done in terms of eco-efficiency and environmental responsibility turn into good results in terms of guarantees that future generations receive equivalent benefit and due share from the same environment. Sustainability is more to development than growth in the sense of realizing or returning the potential inherent in the ecosystem which is the subject of consideration, unlike growth which relates more to physical increase. In a well-thought view by renowned economists, Wingard and Vorster(2001), to grow means to increase naturally in size by adding material through assimilation or addition. He further stressed that to develop means to expand or realize the potentialities of; bringing gradually to a fuller, or better state. When something grows it gets bigger but when something develops it gets different. Therefore, the earth's ecosystem develops (evolves), but does not grow. Its subsystem, the economy, must eventually stop growing but continue to develop. The term sustainable development, therefore, makes sense for the economy only if it is understood as development without growth.

#### **2.1.5 Costs and Benefits of Environmental Responsibility**

Environmental responsibility is not without some costs and benefits. The benefits are the gains derived or derivable by firms as a result of being responsive to environmental matters and ranking high in environmental performance. The benefits are the opportunity cost of actions taken to remedy the environment and being responsible. Benefits can be explicit and/or implicit, monetary and/or non-monetary, short run and in most cases long run. Environmental performance may affect revenues (Earnhart&Lizal, 2010). Benefits from environmental responsiveness may come in various ways and different channels. For example, the perception of customers may change favourably for environmentally responsible organizations. This may lead to increased patronage for products offered for sale regardless of high price differences when compared with products of non-complying firms and may result in a positive revenue relationship. Reasonably, this may be anchored on the willingness of the customers to pay or buy more environmentally friendly products (green products). Thus, a business can increase its revenues by reducing its environmental impact to sell green products. Environmental responsibility may be an investment strategy targeted for the long-run benefits of the firm. Firms may adopt greater investment in the environment as a strategy for better and visible placement in a complicated and crowded market(Ambec, Stefan &Lanoie, 2008).

#### **2.2 Review of Empirical Studies**

Ahmad et al, (2018) examined the relationship between environmental accounting and the performance of non-financial firms listed on the Pakistan stock exchange. The study makes use of nine (9) listed companies with annual financial data from 2006 to 2016. The result showed

that there is a significant positive relationship between environmental accounting and firm size. In addition to earning per share, the return on capital employed statistically turned out to be insignificant.

Hai et al, (2018) investigated the relationship between environmental disclosures and financial performance in Singapore, using a sample of potentially polluting publicly-listed companies from 2012-2015. The issue was examined from several perspectives: (a) if there is any difference in financial performance between disclosing and non-disclosing companies of environmental information, (b) whether the extent of environmental disclosure can be linked to financial performance, and (c) if there is any impact of prior financial performance on subsequent environmental disclosures, and vice-versa. Results indicated that a positive link existed although the evidence was less strong for the impact of environmental disclosures on subsequent financial performance. The study recommended that Singapore companies should be encouraged to increase the content of their environmental reporting in annual reports.

Huninun, Lindrianasari and Densiana (2018) investigated the effect of environmental disclosure on financial performance, the study employed the ordinary least square (OLS) model. The purposive sampling method was used to gather secondary data from manufacturing companies listed on the Indonesian Stock Exchange for 2010-2014. The study revealed that environmental performance and environmental disclosure positively and significantly affect financial performance.

Nyirenda, Ngwakwe and Ambe (2018) examined the impact of environmental management practices on the financial performance of a South African mining firm. The main objective of the study was to investigate whether such practices have a close relationship with the mining firm's financial performance (represented by return on equity (ROE)). The approach was a case study of a South African mining firm listed under the socially responsible index (SRI) of the Johannesburg Stock Exchange (JSE). It uses Green-Steel (the pseudonym used in place of the real name) as a case study. Using multiple regression statistics, the return on equity of Green-Steel regressed on three environmental management practices of Green-Steel (carbon reduction, energy efficiency, and water usage). The result showed that there is no significant relationship between the variables and this lends credence to information gathered from Green-Steel environmental reports that Green-Steel's environmental management practices are driven mostly by a desire to abide by regulations and also by a moral obligation to use environmental management practices to mitigate climate change impact.

Okafor (2018) ascertained the effect of environmental costs on firm performance. To achieve the objective, the study made use of financial reports of Oil and Gas Companies quoted in the Nigerian Stock Exchange Market from years 2006-2015. Regression analysis was employed with the aid of the Statistical Package for Social Sciences (SPSS). The results of the statistical analysis indicated that better environmental performance positively impacted the business value of an organization. Moreover, environmental accounting provides the organization with an opportunity to reduce environmental and social costs and improve its performance.

Onyali and Tochukwu (2018) examined the effect of firm characteristics on the corporate environmental performance of quoted industrial goods firms in Nigeria. Specifically, the study examined the effect of firm size, profitability and firm age on waste management costs of industrial goods firms. The study adopted the ex-post facto research design. The population and sample size of the study are made up of eleven industrial goods firms quoted on the Nigerian stock exchange as of 31<sup>st</sup> December 2017. This study utilized secondary data sourced

from annual reports and accounts of the sampled firms for the study period, 2008-2017. Data analysis was done using Pearson correlation coefficient and Multivariate regression analysis. Findings of the study revealed that firm attributes (firm size, profitability and firm age) have a significant and positive effect on environmental performance (measured by waste management cost) at a 5% significant level. The study recommended that considering the need to gain competitive advantage and boost firm value, industrial goods firms should address issues partaking in environmental management by developing business models and strategies that will ensure environmental sustainability.

Amahalu, Ezechukwu and Obi (2017) ascertained how corporate social responsibility (CSR) relates to the financial performance of quoted deposit money banks in Nigeria from 2010-2016. Specifically, this study aimed to ascertain the extent of the relationship that exists between donation and return on assets; determine the extent of the relationship that exists between donation and return on equity and evaluate the extent of the relationship between donations and market-to-book value of quoted deposit money banks in Nigeria. The study employed an ex-post facto research design. The sample size of this study consists of the fifteen quoted deposit money banks in Nigeria. Pearson Coefficient Correlation, Panel Least Square (PLS) regression analysis and Granger Causality test was employed via E-View 9.0. The study found a significant positive relationship between return on asset, return on equity, market-to-book value and donations at a 5% level of significance. The study recommended among others that since CSR have a positive and significant relationship with financial position, deposit money banks should engage in CSR practices as this will guarantee a safer environment for smooth operations and maximization of shareholders' wealth.

Azomahou, Van and Wagner (2017) examined the relationship between the environmental and economic performance of firms in the European paper manufacturing industry from 2011-2015. Hypotheses were tested using pooled regression and a panel regression framework with random firm and temporal effects. It was found that for the system with return on sales as an economic performance variable, and an environmental performance index as an environmental performance variable, a significant and positive regression coefficient was estimated for the asset-turnover ratio, as well as significant and negative coefficients for the dummy variables representing the industrial and mixed sub-sector.

Eilola (2017) examined the link between corporate environmental performance (CEP) and corporate financial performance (CFP) in the forest, paper and packaging industry and the manufacturing of machinery and equipment industry in Malaysia. The study was conducted as a qualitative study although it includes some quantitative elements. Data consisted of CEP disclosures, mainly corporate social responsibility reports and annual reports. Pearson's correlation coefficients for 2011-2015 were computed for CEP and CFP figure pairs. Contradictory to the majority of earlier studies, this study indicated that there is no link between CEP and CFP-not from CEP to CFP nor CFP to CEP. The results indicated that companies are not punished for high environmental performance.

Agbiogwu, Ihendinihu and Okafor (2016) conducted a study on the impact of environmental and social costs on the performance of manufacturing companies in Nigeria. Adopting a non-experimental design for 2014 data of ten randomly selected companies. The study found that environmental and social costs significantly affect net profit margin, earnings per share and return on capital employed.

Ezeji for Recheal and Chigbo (2016) carried out a study to examine the effect of sustainability accounting on the performance of corporate firms in Nigeria. The study employed an ex-post-facto research design. The data were sourced from Annual reports of the listed firms for the period 2010-2014. The regression statistical technique was adopted in testing the formulated hypotheses of the study. The study revealed that environmental costs have no significant impact on the revenue of corporate firms. More so, the environmental costs significantly and positively influenced the profit generation of corporate firms in Nigeria.

Isanzu and Fengju (2016) conducted a study on the impact of corporate social responsibility on firms' financial performance in Tanzania. The study which adopted content analysis on one hundred and one companies for three years period covering 2010 to 2012 revealed that the return on assets (ROA) and return on investment (ROI) of companies that engaged in corporate social responsibility are significantly different from those that do not.

Akinlo and Iredele (2014) examined corporate environmental disclosures and market value of quoted companies in Nigeria for the period 2003 to 2011. The aggregate and individual impacts of Corporate Environmental Disclosure were regressed on Market Value while Firm size was factored in as an extraneous variable. The empirical analysis revealed that corporate environmental disclosure has a significant positive impact on Market Value when considered in aggregate. Considering the impact of each of the variables, Energy policy, Biodiversity, and Awards Received for installing an Environmental Management System have an insignificant positive impact on Market Value except for Environmental Research and Development cost. Also, Environmental pollution and control policy, Waste Management costs and Cost of compliance with environmental Laws have a negative impact on Market Value.

Makori and Jagongo (2013) investigated environmental accounting and firm profitability using selected firms listed on the Bombay Stock Exchange, India. The objective of this study was to establish whether there is any significant relationship between environmental accounting and the profitability of selected firms listed in India. The data for the study was collected from annual reports and accounts of 14 randomly selected quoted companies on the Bombay Stock Exchange in India from 2007-2011. The data were analyzed using multiple regression models. The fundamental findings of the study showed that there was a significant and negative relationship between Environmental Accounting and Return on Capital Employed (ROCE) and Earnings per Share (EPS), and a significant positive relationship between Environmental Accounting and Net Profit Margin and Dividend per Share.

## **2.3 Theoretical Framework**

### **2.3.1 Stakeholders' Theory**

This research work is anchored on the Stakeholders' theory. The basic proposition of the stakeholder theory is that a firm's success is dependent upon the successful management of all the relationships that a firm has with its stakeholders. The stakeholders' theory in its instrumental approach suggests that enhancing the relationship with stakeholders and incorporating their concerns into corporate strategy might improve the success of the corporation. The theory according to Pramanik, Shil and Das (2007) assumes that the disclosure of environmental information by corporations is due to pressure from stakeholders such as communities, customers, employees and suppliers. Peter and Arzizeh (2012) classified stakeholders as any individual or group who can affect or is affected by the actions, decisions, policies, practices or goals of the organization. Stakeholders can be identified by the legality of their claims which is validated by a relationship of exchange between themselves and the organization, and hence stakeholders include stockholders, creditors, managers, employees,

customers, suppliers, local communities and the general public. The stakeholder theory believes that enterprises should be accountable for their stewardship of the resources entrusted to them by a coalition of these stakeholders. The stakeholders' theory emphasized that a corporation's continued existence requires the support of the stakeholders and their consent must be sought and the activities of the corporation adjusted to gain their support. Stakeholders' theory suggests that organizations will respond to the concerns and expectations of influential stakeholders and some of the reactions will be in the form of strategic disclosures. The theory provides rich insights into the factors that stimulate managerial behaviour concerning the social and environmental disclosure practices of organizations (Peter and Arzizeh, 2012). By employing this theory, we conclude that a firm's success is reliant upon the effective management of all the affiliations that an enterprise has with its stakeholders.

### 3.0 Methodology

The study used secondary data that are generated from annual reports and accounts of cement companies quoted on the floor of the Nigerian Stock Exchange as of 31st December 2021 covering the period from 2016 to 2020. The eleven (11) quoted cement companies in Nigeria constituted the population of the study, and a census sampling method was employed in selecting the entire population as sample size. The researcher adopted an ex-post facto research design and used Generalized Least Square (GLS) regression in analyzing the data of the study.

Table 3.1 shows the list of quoted cement companies in Nigeria under three different groups. Lafarge group of companies has four listed cement companies in Nigeria, while BUA group of companies equally has four listed cement companies, and lastly, there are three quoted cement companies under the business name of Dangote group.

**Table 3.1: List of Quoted Cement Companies in Nigeria**

| S/N | Group Name          | Company Name                          | Facility Name  | City       |
|-----|---------------------|---------------------------------------|----------------|------------|
| 1.  | BUA Cement          | Cement Company of Northern Nigeria    | Sokoto         | Sokoto     |
| 2.  | BUA Cement          | Edo Cement Company Ltd.               | Edo Okpella    | Okpella    |
| 3.  | BUA Cement          | Kalambaina Cement                     | Kalambaina     | Kalambaina |
| 4.  | BUA Cement          | BUA Cement                            | Obu I & II     | Okpella    |
| 5.  | Dangote Group       | Dangote Cement Plc. (Dangcem)         | Benue          | Gboko      |
| 6.  | Dangote Group       | Dangote Cement Plc. (Dangcem)         | Ibese          | Ibese      |
| 7.  | Dangote Group       | Dangote Cement Plc. (Dangcem)         | Obajana        | Obajana    |
| 8.  | Lafarge Holcim Ltd. | Ashaka Cement Plc.                    | Ashaka         | Gombe      |
| 9.  | Lafarge Holcim Ltd. | Ltd Lafarge Africa Plc. (WAPCO)       | Ewekoro I & II | Ewekoro    |
| 10. | Lafarge Holcim Ltd. | Ltd Lafarge Africa Plc. (WAPCO)       | Sagamu         | Sagamu     |
| 11. | Lafarge Holcim Ltd. | United Cement Company of Nigeria Ltd. | Mfamosin       |            |

Source: Nigerian Stock Exchange website (2021).

### 3.1 Model Specification

To evaluate the impact of environmental costs on the financial performance of quoted cement companies in Nigeria, the study adapted with little modifications to the model used by Okafor (2018).

$$ROA = f(EHS + WMG + CDV + RDV)$$

Where;

ROA= Financial performance

EHS= Employee health and safety costs

WMG= Waste management costs

CDV= Community development costs

RDV= Research and development costs

**Table 3.2: Summary of the Variables of the Study and their Measurements**

| Variable Indication           | Description                     | Variable Measurement                            | Source                              |
|-------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------|
| <b>Dependent Variable:</b>    |                                 |                                                 |                                     |
| ROA                           | Return on Assets                | Profit After Tax/ Total Assets                  | Okafor (2018)                       |
| <b>Independent Variables:</b> |                                 |                                                 |                                     |
| EHS                           | Employee Health and Safety Cost | Total Health and Safety Costs/ Net Sales        | Okafor (2018)                       |
| WMG                           | Waste Management Cost           | Total Waste Management Costs/ Net Sales         | Onyali&Tochukwu (2018)              |
| CDV                           | Community Development Cost      | Total Community Development Costs/ Net Sales    | Agbiogwu, Ihendinihu& Okafor (2016) |
| RDV                           | Research and Development Cost   | Total Research and Development Costs/ Net Sales | Akinlo&Iredele (2014)               |

**Source:** Generated by the Researcher from the Contents of the Study.

#### 4.0 Results and Discussion

This section provides a summary of statistics of the data gathered on the dependent and explanatory variables of the study.

**Table 4.1: Descriptive Statistics of the Variables of the Study**

| Summary of the Variables |     |        |           |        |        |
|--------------------------|-----|--------|-----------|--------|--------|
| Variables                | Obs | Mean   | Std. Dev. | Min    | Max    |
| Roa                      | 55  | 0.061  | 0.011     | 0.040  | 0.081  |
| Ehs                      | 55  | 0.791  | 0.070     | 0.677  | 1.086  |
| Wmg                      | 55  | 0.942  | 0.033     | 0.835  | 0.995  |
| Cdv                      | 55  | 1.129  | 0.104     | 0.993  | 1.407  |
| Rdv                      | 55  | 15.600 | 0.242     | 15.198 | 16.143 |

**Source:** Generated by the Researcher from Annual Reports of the sampled cement companies (2016-2020) Using STATA 15.0.

From Table 4.1, it can be seen that a total of 55 observations were recorded. The result showed that the financial performance (measured as return on assets) of the sampled companies has an average value of 0.061, with minimum and maximum values of 0.040 and 0.081 respectively. This signifies that there is not much variation in the profitability of sampled companies as portrayed by the standard deviation of 0.011. This means that the sampled companies are within the same range in terms of financial performance.

**Table 4.2: Correlation Matrix of the Variables of the Study**

|     | Roa    | Ehs   | Wmg    | Cdv    | rdv   |
|-----|--------|-------|--------|--------|-------|
| Roa | 1.000  |       |        |        |       |
| Ehs | -0.133 | 1.000 |        |        |       |
| Wmg | -0.107 | 0.367 | 1.000  |        |       |
| Cdv | -0.179 | 0.053 | -0.183 | 1.000  |       |
| Rdv | -0.036 | 0.095 | 0.229  | -0.340 | 1.000 |

**Source:** Generated by the Researcher from Annual Reports of the sample cement companies (2016-2020) Using STATA 15.0.

Table 4.2 showed the degree of relationship and strength of the association between dependent and independent variables and also among independent variables themselves. It is seen from the table that there is a weak and negative relationship between employee health and safety cost, waste management cost, community development cost, research and development and financial performance with correlation coefficient values of -0.133, -0.107, -0.179 and -0.036 respectively.

**Table 4.3: GLS Regression (RE) Result of the Variables of the Study**

|                       | Roa | Coef.  | Std. Error | Z     | P>  Z |
|-----------------------|-----|--------|------------|-------|-------|
| Ehs                   |     | 0.010  | 0.006      | 1.77  | 0.076 |
| Wmg                   |     | -0.026 | 0.013      | -1.95 | 0.051 |
| Cdv                   |     | -0.017 | 0.005      | -3.28 | 0.001 |
| Rdv                   |     | -0.017 | 0.005      | -3.61 | 0.000 |
| Constant              |     | 0.370  | 0.076      | 4.85  | 0.000 |
| R Squared:            |     |        |            |       |       |
| Within                |     | 0.4586 |            |       |       |
| Between               |     | 0.2912 |            |       |       |
| Overall               |     | 0.3641 |            |       |       |
| Wald Chi <sup>2</sup> |     | 29.93  |            |       |       |
| Rho                   |     | 0.9550 |            |       |       |
| P-value               |     | 0.0000 |            |       |       |

**Source:** Generated by the Researcher from Annual Reports of the sampled cement companies (2016-2020) Using STATA 15.0.

From Table 4.3, the result showed that the overall R<sup>2</sup> coefficient of determination is 0.36. This means that 36% of the variations in financial performance are caused by explanatory variables of the study, while 64% of the variations are explained by other factors not covered by the study. From the GLS regression results, as shown in Table 4.3 above, it is seen that employee health and safety cost has an insignificant and positive impact on the financial performance of the sampled companies, with a coefficient value of 0.010 and a z-value of 0.076. This implies that an increase in employee health and safety cost leads to a decrease in the profitability of the sampled companies. This is contrary to the findings of Okafor (2018) who reported a significant and positive impact between employee health and safety costs and financial performance. Moreover, environmental accounting provides the organization with an opportunity to reduce environmental and social costs and improve its performance. The results also indicated that waste management cost has an insignificant negative impact on the financial performance of the sampled companies, with a coefficient value of -0.026 and a z-value of 0.051. This implies that an increase in waste management cost leads to a decrease in the profitability of the sampled companies. This finding is consistent with the findings of Akinlo and Iredele (2014) but contradicts the work of Onyali & Tochukwu (2018). Furthermore, the results indicated that community development cost has a significant and negative impact on the financial performance of the sampled companies, with a coefficient value of -0.017 and a z-value of 0.001. This implies that an increase in community development costs leads to an increase in the profitability of the sampled companies. This finding is contrary to the findings of

Ezeji for Recheal & Chigbo (2016). So also, the results of GLS revealed a significant but negative impact between research and development cost and profitability of the sampled companies, with a coefficient value of -0.017 and z-value of 0.000. This implies that an increase in research and development costs leads to an increase in the profitability of the sampled companies. This result contradicts the findings of Akinlo & Iredele (2014).

## **5.0 Conclusions and Recommendations**

### **5.1 Conclusions**

Based on the findings of the study, the results indicated that research and development cost is the major variable that impacted the financial performance of quoted cement companies in Nigeria. This implies that an increase in research and development costs of the sampled companies leads to an increase in the profitability of the cement companies in Nigeria. The results also revealed that community development cost is another major variable that has a significant impact on the financial performance of quoted cement companies in Nigeria. This implies that an increase in community development cost of the sampled companies enhances the profitability of the industrial goods companies in Nigeria. The results indicated an insignificant and negative impact between employee health and safety cost and the financial performance of quoted cement companies in Nigeria. This implies that a change in employee health and safety cost does not lead to a change in the profitability of the cement companies in Nigeria. The results of this study also showed an insignificant and negative impact between waste management costs and the financial performance of quoted cement companies in Nigeria. This entails that a rise in waste management cost leads to a fall in the profitability of the cement companies in Nigeria.

### **5.2 Recommendations**

The study recommended that the management of cement companies in Nigeria should invest more in research and development, especially in those strategies that would curtail the negative impact of cement production on society. This will, in turn, increase the size of their businesses and this will in turn boost the companies' financial performance. The management of cement companies in Nigeria should strive and finance the community and other social welfare programmes of the environment in which they operate. The resultant impact is an increase in their profitability.

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## ASSESSMENT OF ANCHOR BORROWERS' PROGRAMME ON RICE VALUE CHAIN AND EMPLOYMENT GENERATION IN KEBBI STATE, NIGERIA

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### **Abstracts**

*This paper assessed the effects of CBN Anchor Borrowers' Programme (ABP) on the rice value chain and employment generation with respect to the pilot test project conducted in Kebbi state. The targeted population of this research were the 78,000 rice farmers who benefited from the programme. A Multistage sampling technique was employed to select respondents across the seven most productive local government areas in the state. A total of six hundred and seventy-eight (678) respondents were finally selected across different Rice Farmer's Cooperative Groups. Primary cross-sectional data were obtained with the aid of a structured questionnaire and interview. Data were analysed using descriptive statistics and linear multiple regression with the aid of the statistical tool STATA 15. The stochastic frontier model was also adopted to determine the effect of technical efficiency (value chain) on rice output in the study area. Post estimation diagnostic test was conducted on the models to detect the presence of multicollinearity, heteroskedasticity and omitted variables. The essence was to establish validity, reliability and consistency of the models in line with the statistical properties of OLS and classical linear assumptions of the Gauss Markov theorem. Results from findings revealed that Anchor Borrowers' Programmes (ABP), particularly in the study area, had positively impacted rice production (RP) and Employment Generation (EMPG) and it was statistically significant at a 1% level of significance. Based on the findings, it is recommended that government should encourage the programme by providing adequate funds and modern farming inputs to the farmers on timely bases in order to boost productivity, particularly in rural areas where a majority of the rice farmers are domiciled. It is also recommended that*

*the programme should be subjected to periodic review and encourage the participation of smallholder rice farmers from remote areas. A secured and enabling environment should be provided for investors in agri-business. The paper further recommends that a more robust strategy should be employed to address issues of corruption, political interference, inadequate professional extension workers, ineffective monitoring and supervision of beneficiaries as well as non-repayment of loan facilities by some beneficiaries.*

**Keywords:** Anchor Borrowers' Programme, Value chain, Rice output, Employment Generation and Central Bank of Nigeria.

JEL Classification: C1, G18

## 1. Introduction

Anchor Borrowers' Programme (ABP) is an agricultural financial programme designed by the Central Bank of Nigeria (CBN) to finance some key agricultural food products through a value chain across locally produce goods in Nigeria (CBN, 2015). The programme was also designed to complement the aims and objectives of Sustainable Development Goals (SDGs) in addressing issues of hunger, unemployment and poverty in the country (SDGs, 2017).

Many countries of the world had adopted this unique strategy in developing the agricultural sector which connotes an integral tool for economic development, provision of employment opportunities and revenue diversification. In Africa, different countries embraced this idea, particularly countries in sub-Saharan Africa such as Nigeria. The country has over 70% of its population earning their living from agriculture. Thus, the agricultural sector was regarded as a major contributor to employment opportunities and wealth creation in the region (IFAD, 2013). Before the discovery of crude oil in 1958, the agricultural sector was the backbone of Nigeria's economy accounting for an average of 57.0% of the country's GDP and generating 64.5% of export earnings (FMARD, 2015). By the year 1970 to the late 2000s, the contribution of the agricultural sector reduced drastically because Nigeria focuses more on exporting crude oil. However, due to the fall of crude oil prices in recent years from an average of \$113.5 per barrel in 2011 to less than \$50.00 in 2015 affected the contribution of the oil sector and natural gas to the country's GDP by a decline from 14.95% in 2011 to 9.61% in 2015, whereas agricultural sector contributed 23.35 and 23.11 per cents to GDP (CBN, 2015, 2016). These challenges triggered the need for a robust dimension by different government administrations to diversify the economy through massive investment in agriculture.

In recent times, many countries in sub-Saharan Africa engaged massively in developing the agricultural sector through financing agricultural outputs in an effort to reduce the unemployment rate, and poverty, create wealth and improve the living standard of the people (Food and Agricultural Organization (FAO), 2014). This is because the modern agricultural system is developing towards a more competitive and comparative system to promote broad-based economic growth which is promoted by consumer demand for higher value products, and improved packaging with consistent quality and safety standards. In this regard, improving local productivity and participation of smallholder farmers in the value chain is regarded as a priority for the agriculture-for-development system (World Bank, 2010). More importantly, the value chain provides an opportunity to maximize profits, and minimize cost and risk in financing agricultural production. Indeed, agriculture has been the most vital sector for economic development in sub-Saharan Africa, especially Nigeria.

However, concerted efforts have been made by successive government administrations in Nigeria to enhance agricultural development through the formulation of different agricultural financing programmes and policies, but yet agricultural sector contributions to the economy (GDP) seem to be grossly inadequate (FAO, 2015). Statistics revealed the weaknesses of previous programmes and policies by identifying a decline in agricultural sector contributions to the economy (GDP) from 60% in the 1970s to 4.2% in 2010 and 2013 (FMARD, 2016). For example, the importation of food products in the country increased from N1.8 billion in the 1980s which constituted 14.1% of total imports to N2, 885.40 billion in 2011 which represents an average proportion of 20.2% (CBN, 2015). It was recently gathered that Nigeria spends over N356 billion annually on rice importation, out of which an N1 billion is consumed on daily bases (Emefiele, 2019). Food and Agricultural Organization of the United Nation (FAO) described Nigeria's food importation (mostly rice) in 2015 as estimated at 7.5 million tons. These importation rates recorded Nigeria to be the largest rice importer in Africa (Akinwumi, 2013). In view of this, the desired goals and objectives of the previous programmes and policies were not adequately achieved. This prompted the need for a programme that will inculcate productivity through the value chain thereby creating more avenues for employment opportunities.

In view of the above challenge, the Central Bank of Nigeria (CBN) in accordance with its developmental role designed and introduced a programme called “Anchor Borrowers’ Programme” (ABP). The programme was launched by President Muhammadu Buhari on November 17<sup>th</sup> 2015 at Birnin Kebbi, Kebbi state with a view to diversify the economy through agricultural production by creating a value chain across locally produced goods. A pilot survey project on rice production was conducted to assess the impact of the programme thereby extending it to other states in the country. Kebbi state was selected for the first phase of the programme due to its track records and skilled labourers in terms of rice production in Nigeria (FMARD, 2015).

Several research works have been reviewed but there is little or no research work that adequately ascertains the impact of Anchor Borrowers' Programme particularly on rice output and employment generation, with respect to the pilot test project conducted on rice production in Kebbi State. Some research works were found with negative evidence which resulted in inconclusive research work. While in some research statistics were found with irregularities leading to spurious results and inconsistencies.

It is in view of the above limitations that this paper focuses its objectives on assessing the impact of the anchor Borrowers' Programme (ABP) on the rice value chain and employment generations in Kebbi state. The key research gap in this paper is a combination of Linear Multiple Regression (LMR) and Stochastic Frontier Model (SFM) to analyse the effect of the programme on rice output and employment opportunities across different local government areas in the State.

## **2. LITERATURE REVIEW**

Anchor Borrowers’ Programme (ABP) refers to the financial intervention programme designed by the Central Bank of Nigeria (CBN) in accordance with its developmental role to promote agricultural production and non-oil exports in order to diversify the revenue source of the economy and achieve food security in the face of rapid and unpredictable population growths (CBN, 2015). According to the policy thrust of the programme designed by the CBN, the programme was intended to boost agricultural production through the provision of affordable inputs in cash and kind to smallholder farmers. It was also designed to strengthen collaboration

between smallholder farmers and agro-output processors. Other specific objectives of the programme were to encourage commercial banks to engage in lending funds to agricultural production at a lower interest rate, restrict the importation of some major food products into the country, and nurture a new generation of entrepreneurs in agri-business. Others are to promote cashless policy and financial inclusion, eradicate poverty, unemployment and hunger in the country as well as improve farmers' income. The programme emerged after due consultations with various critical stakeholders such as state governments, mills factories, smallholder farmers, cooperatives groups and federal Ministry of Agriculture and rural Development.

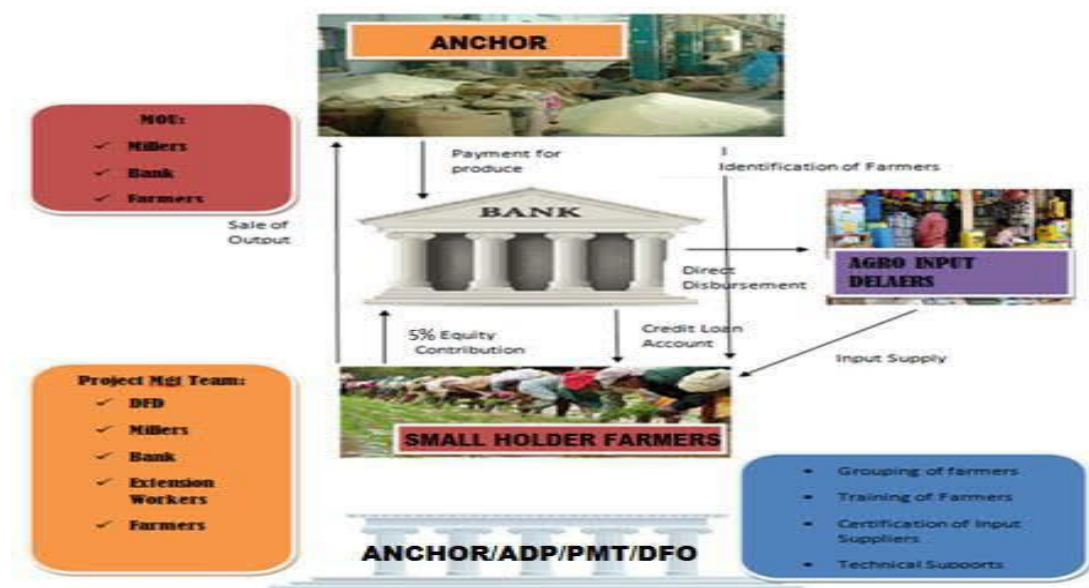


**FIGURE: 1:AN OVERVIEW OF ANCHOR BORROWERS PROGRAMME**

**Source:** Central Bank of Nigeria (CBN) 2015.

The above figure summarized the conceptual and theoretical framework of the Anchor Borrowers' Programme as contained in the policy thrust of the programme. The first stage is the presentation of a letter of interest to participate in the programme by anchor companies and other stakeholders to the CBN. Subsequently, execution of a memorandum of understanding and certification of stakeholders as ANCHOR in the programme. The establishment of a project management team (PMT) by anchors and invite agro-input dealers, banks, millers and smallholder farmers' cooperative group to sign a memorandum of understanding. Thereafter, the implementation stage includes identification of genuine farmers, certification, training and re-training of participants followed. Accounts opening, BVN registration, documentation and payments of 5% equity contribution by the smallholder farmers. Lastly, disbursements of funds to eligible participants and agro-input dealers to supply farm inputs to farmers. The last stage of the programme is the loan repayment with harvested produce by the farmers to the anchor.

The concept of the value chain is composed of two keywords: *“value”* and *“chain”*. The term value is characterized by an increase in value of a product, innovation or packaging of a product that enables local producers to supply more commodities to the markets, earn more profit and reduce costs of production. Similarly, the concept refers to as technical change or labour-saving procedure. While the term "chain" refers to the processes and actors involved in delivering a commodity from conception to disposal (Hawkes & Ruel, 2011). In summary, the concept of the value chain is synonymous with the term *technical efficiency or technological change in*

*economic theory*. It is also concerned with the creation of new techniques of production, marketing strategy, management and organization of products. It also refers to an increase in labour and capital thereby increasing output (Jhingan, 2012).

The Rice value chain simply refers to the integration of different actors such as inputs suppliers, smallholder rice farmers, paddy traders, millers, rice traders, retailers and consumers to improve stages of rice production (IFAD, 2012). The major value-adding process in the chain includes; production, harvesting, storage and paddy aggregation. Others are parboiling, milling, packaging, wholesaling and retailing. The Rice value chain begins with paddy rice production which is a channel to processors, marketers and lastly to domestic consumers (Millers & Jones, 2010). Similarly, rice value chains also existed in such a way that retailers or wholesalers purchase the paddy rice directly from local producers and sell it to commercial millers for processing (Chidiebere, 2017).

Empirically, several research works have been reviewed but the impact of the anchor Borrowers' Programme on the rice value chain and employment generation in Kebbi State has not been adequately established particularly with regard to the pilot test project conducted in the State. Saheed, Alexander, Isa and Adeneye (2018) investigated the impact of the Anchor Borrowers Programme on agricultural commodity price and employment generation in Kebbi State. Beneficiaries from only Argungu local government area were examined out of the beneficiaries of 21 local government areas that benefited from the programme in the state. In view of this, the research was biased, inadequate and inconsistent with statistical assumptions. Cross-sectional data was generated using primary and secondary sources. The researchers employed Ordinary Least Square (OLS) regression analysis for the study. Findings revealed that the programme had positively impacted key agricultural products, price and employment generation, particularly in the study area. The researchers recommended that the programme should be encouraged and subjected to a periodic review. Umar, Hali, and Bunza (2019) conducted a research study on factors influencing the adoption of improved rice production technology (IRPT) under the Anchor Borrower Programme (ABP) in Kebbi State. Some of the limitations observed in the study were that the impact of the programme on improving the value chain and employment generation was not assessed. A multistage sampling technique was employed to select (480) respondents for the study. A probit regression model was adopted to estimate the factors influencing the adoption of IRPT and the empirical results revealed that age, education, experience, access to credit, contact with extension workers and possession of modern farm equipment were positively significant in influencing the adoption of IRPT. Access to credit accessibility was found to improve positively on rice production technology while age was found to have a negative influence. Coker, Akogun, Adebayo and Mohammed (2018) assess the implementation modalities of the Anchor Borrowers' Programme in Nigeria. The limitations of the study were that the researchers relied on content and SWOT analysis which does not have the capacity to determine the impact of the programme on output and employment generation. The study only identified strengths, weaknesses, and achievements of the programme and expresses doubt with regard to the conduct of project appraisal as well as the strategic planning process for the programme implementation. Evbuomwan and Okoye (2017) conducted research on evaluating the prospect of the Anchor Borrowers' Programme for small-scale farmers in Nigeria. The researchers only review the CBN guideline on the programme and without assessing its impacts on beneficiaries. They observed that there is a need for the government to develop strategic agro-allied industrial zone and engage in more agribusiness systems through various forms of the value chain that is practised globally. According to them, this will boost economic activities, create more job opportunities, reduce poverty and attract higher domestic and foreign investors.

In view of the above accounts, this paper breaks a new gap in knowledge by combining multiple linear regression and stochastic frontier models to analyse contributions of Anchor Borrowers' Programme across beneficiaries of seven (7) LGAs, particularly on rice output and employment generation in Kebbi state.

### 3. METHODOLOGY

This paper adapts the Cobb-Douglas theory of production with little modification and Stochastic Frontier Model (SFM) to analyse the effects of technical efficiency (i.e. value chain) on rice production in the study area. Data obtained from the fieldwork were analysed using descriptive statistics and a multiple linear regression model. The pre-estimation test was conducted using *Cronbach's Alpha* procedure to examine the validity and reliability of instruments used for data collection. Post estimation (diagnostic tests) was carried out to detect the presence of multicollinearity, heteroskedasticity and omitted variables in order to ensure consistency and reliability of the models in line with the properties of the Classical Linear Regression Model (CLRM) and Gauss Markov theorem for cross-sectional data. Meanwhile, hypothesis testing was also conducted with respect to the conventional T-statistics, F-Statistics and P-value at 1%, 5% and 10% levels of significance. Results of the analysis were reported using tables and figures necessary. Statistical package **STATA 15** was used for data analysis and estimation.

#### 3.3 MODEL SPECIFICATION

##### MODEL ONE (OBJECTIVE ONE)

This model capture objective one of this paper which will examine the effect of the Anchor Borrowers' Programme (ABP) on rice production (output) in the Kebbi state and also determine if other control variables will influence the explanatory variable.

$$RP_i = \beta_0 + \beta_1 ABP_{1i} + \beta_2 FIB_{2i} + \beta_3 INP_{3i} + \dots + \beta_K EMPG_{Ki} + u_i$$

Where:

RP is the rice production (output) across the individual. ABP represent the credit facilities to a farmer in the Anchor Borrowers' Programme across individual beneficiary. While  $\beta_0$  is the intercept or constant,  $\beta_1, \beta_2$  and  $\beta_3$  are parameters of the population. FIB represent farmers' income (profit) before the advent of the Anchor Borrowers' Programme across the individual. INP refer to the farm inputs provided to the beneficiary rice farmers by the programme which include fertilizer, water pump machine, herbicide etc. EMPG is employment generation.  $u_i$  is the residual disturbance error term that captures some unobserved variables that may affect rice output such as the size of farmland, cost of farming tools, cost of labour, cost of agrochemicals, cost and availability of fertilizer, and timely access to the credit loan.

##### MODEL TWO (OBJECTIVE TWO)

This model capture objective two of this paper which is intended to assess the effect of the Anchor Borrowers' Programme (ABP) on employment generation particularly in Kebbi state. The model can be expressed as follows:

$$EMPG_i = \beta_0 + \beta_1 ABP_{1i} + \beta_2 RP_{2i} + \beta_3 EXP_{3i} + \dots + \beta_K EDU_{Ki} + u_i$$

Where:

EMPG is the employment generation, ABP is the Anchor Borrowers' Programme (financial intervention to farmers) across individual rice farmer. RP represent rice production (output) across the individual. EXP indicates farmers' experience in terms of rice production across the individual. EDU stand for the educational qualification of farmer. The error term  $u_i$  here will capture some unobservable variables include such as health, location, membership of the cooperative group, age and others across the individual.  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  are parameters of the population

#### 4. RESULTS AND DISCUSSION OF FINDINGS REGRESSION OUTPUT

##### Model one (Objective one) regression analysis

**Table 1:** Multiple linear regression outputs for Model one (objective one)

Linear regression output

Dependent Variable: Rice output (RP)

| Variables               | Coefficient                 | Std. Error            | T-Stat | [95% Conf. Interval] |
|-------------------------|-----------------------------|-----------------------|--------|----------------------|
|                         |                             |                       |        | P-Value              |
| ABP                     | .0902265                    | .1424575              | 0.63   | 0.527                |
| Income(profit)          | .1525555                    | .033986               | 4.49   | 0.000                |
| Inputs                  | .0683389                    | .0298435              | 2.29   | 0.022                |
| Constant                | 1.214659                    | .2463046              | 4.93   | 0.000                |
| R <sup>2</sup> = 0.0800 | Adj. R <sup>2</sup> =0.0690 | F-Stat (8,669) = 7.27 |        | Prob. > F = 0.0000   |
| No of obs = 678         |                             |                       |        |                      |

Source: *Computed by the researcher using Stata 15.*

Table 1 above present's results of the multiple linear regression analysis for model one (objective one) which assesses the effects of ABP on rice production (rp) in the study area. From the results above, the probability value of the entire model is (prob. = 0.0000) simply validating that the entire model is statistically significant at 1% level. The R-square (0.0800) indicates that about 8.0% of the sample variation of explanatory variables is explained by the dependent variable (rp). This implies that the data is well fitted to the model and we conclude that the model is a goodness-of-fit which explained all variation around its mean (Wooldridge, 2016). The results further revealed that the Anchor Borrowers loans (ABPL) coefficient is 0.0902265 but not statistically significant. This implies that a 1% increase in Anchor Borrowers' loan facility increases rice production by 9.0%. The variable farmer's income (FI) is 0.1525555 and statistically significant at 1% level. This indicates that a 1% increase in the farmers' income increases rice production by 15.3%. The results also show that the variable inputs is 0.0683389 and statistically significant at 5% level which implies that a 1% increase in inputs provision to farmers increases rice production by 6.8%. In other words, farming inputs provided to the rice farmers such as seeds, fertilizer, and herbicide as well as water pump machines for irrigation have impacted positively the farmer's yield.

##### Technical Efficiency (Value chain) Outputs

**Table 2:** Stochastic Frontier Regression Output on Technical Efficiency

Dependent Variable: ln<sub>rp</sub>

| Variables    | Coefficients | Std. Error | Z-Stat | [95% Conf. Interval] |
|--------------|--------------|------------|--------|----------------------|
|              |              |            |        | P-Value              |
| lnabp (loan) | .0248797     | .1123959   | 0.22   | 0.825                |
| lnIncome     | .1377238     | .0336611   | 4.09   | 0.000                |
| ln Inputs    | .1088948     | .0305856   | 3.56   | 0.000                |

Assessment of Anchor Borrowers' Programme on Rice Value Chain and Employment Generation  
In Kebbi State, Nigeria

|                          |          |          |      |                               |
|--------------------------|----------|----------|------|-------------------------------|
| market                   | .1870802 | .0401664 | 2.29 | 0.000                         |
| lnexperience             | .0924883 | .0403028 | 2.29 | 0.022                         |
| Constant                 | .3019352 | .205634  | 1.47 | 0.142                         |
| sigma_v                  | .415765  | .01136   |      |                               |
| sigma_u                  | .005856  | .2440383 |      |                               |
| <b>Waldchi2(8)=72.49</b> |          |          |      | <b>Prob&gt; chi2 = 0.0000</b> |

Stoc. Frontier normal/half-normal model Number of obs = 678

**Source:** Survey data computed by the researcher using Stata

To determine how technical efficiency (value chain) affect rice production (outputs) in the study area, we employed the use of a stochastic frontier model with reference to Cobb Douglas production function. From table 2 above, the probability value of the entire model is statistically significant at 1% level while the Wald chi square simply validated the adequacy of the model by 72%. The technical efficiency components which are proxies for the value chain were denoted by *sigma-u* with a coefficient of **0.005856** indicating that the variance in outputs that are attributed to technical efficiency is determined by 5.9% in the variables. While *sigma-v* is the disturbance component which captures all unobserved effects. This also implies that the programme impacted positively by way of improving farmers' and rice mills factories level of efficiency in terms of the rice value chain in the study area. However, the finding shows that farmer's technical efficiency (value chain) in respect of rice production has improved significantly. These have been reflected in the trend and all processes of production from pre-planting, harvesting, processing and marketing stages.

### Model Two (Objective Two) Output

**Table 3:** Multiple Linear Regression output for model two (objective two)

Dependent Variable: Employment Generation (EMPG)

Number of obs = 678

| Variable                      | Coefficient                        | Std. Error                | T-Stat | P-Value                     |
|-------------------------------|------------------------------------|---------------------------|--------|-----------------------------|
| ABPL                          | -.0986915                          | .0272644                  | -3.62  | 0.000                       |
| RP                            | .1316694                           | .0254245                  | 5.18   | 0.000                       |
| Experience                    | .2865135                           | .032622                   | 8.78   | 0.000                       |
| Edu. Qualification            | -.0339057                          | .017494                   | -1.94  | 0.053                       |
| Mill Factories                | .074118                            | .0293762                  | 2.52   | 0.012                       |
| Constant                      | 2.193464                           | .1674438                  | 13.10  | 0.000                       |
| <b>R<sup>2</sup> = 0.4861</b> | <b>Adj. R<sup>2</sup> = 0.4769</b> | <b>F(12, 665) = 52.43</b> |        | <b>Prob. &gt;F = 0.0000</b> |

Source: Survey data computed by the researcher using Stata 15.

Table 3: above shows regression outputs for model two (objective two) computed by the researcher to examine the effects of Anchor Borrowers programme (ABP) on employment generation (EMPG) in the Kebbi state. The results revealed a probability value (Prob.>F: 0.0000) which indicate that the entire model is statistically significant at 1% level of significance. R-square (0.4861) indicate that about 49% of the sample variation of explanatory variables is explained by the dependent variable (empg). This implies that the data were adequately fitted in the model and model is a good fit which explained all variation around its mean (Wooldridge, 2016). Furthermore, the variable (abpl) is 0.0986915 and statistically significant at 1% level of significance. This implies that a 1% increase in ABP loan facility reflects an increase in the employment generation by 9.9%. However, the coefficient value of rice millers 0.074118 which is statistically significant at 1% level of significance. This implies that ABP impacted positively in attracting the creation of different rice mill factories in the state by 7.4% as reflected in Table 4 below. By extension, these factories generated lots of employment opportunities and improve farmer's level of income as well as their standard of

living. Lastly, the variable (edu) which is -0.0339057 is statistically significant at 5% level of significance. This implies that educational qualification has no direct impact on farmer's yield.

TABLE 4: RICE MILLS FACTORIES IN KEBBI STATE AS RESULT OF ABP

| <u>S/N</u> | <u>Rice Mill Factories in Kebbi State</u> | <u>Location (LGA)</u> | <u>Processing Capacity</u> | <u>Employment Generation</u> |
|------------|-------------------------------------------|-----------------------|----------------------------|------------------------------|
| 1          | Labana Rice Mill                          | B/Kebbi               | 100,000 MT/Day             | 3,050 Jobs created           |
| 2          | WACOT Rice Mill                           | Argungu               | 120,000 MT/Day             | 3,500 Jobs created           |
| 3          | Lolo Gold Rice Mill                       | Dandi                 | 70,000 MT/Day              | 1,500 Jobs created           |
| 4          | Dangote Rice Mill                         | Shanga                | Not Yet Comm.              | Not yet commission           |
| 5          | Kimba Rice Mill                           | B/Kebbi               | 9,000 MT/Day               | 320 Jobs                     |
| 6          | Jada Rice Mill                            | Jega                  | 5,000 MT/Day               | 280 Jobs                     |
| 7          | MGJ Rice Mill                             | Jega                  | 8,000 MT/Day               | 300 Jobs                     |
| 8          | Ayya Rice Mill                            | Jega                  | 8,000 MT/Day               | 300 Jobs                     |
| 9          | KAMBASCO Rice Mill                        | Yauri                 | 3,000 MT/Day               | 200 Jobs                     |
| 10         | Laka Rice Mill                            | Yauri                 | 10,000 MT/Day              | 350 Jobs                     |
| 11         | Bindigawa Rice Mill                       | Yauri                 | 2,000 MT/Day               | 180 Jobs                     |
| 12         | SaniSajan Rice Mill                       | Yauri                 | 2,000 MT/Day               | 180 Jobs                     |
| 13         | Zuru Rice Mills                           | Zuru                  | 3,000 MT/Day               | 250 Jobs                     |
| 14         | Gaanau Farms and Rice Mills               | B/Kebbi               | 1,500 MT/Day               | 120 Jobs                     |
| 15.        | Olive Integrated Rice Mills               | B/Kebbi               | 1,200 MT/Day               | 100 Jobs                     |

Source: *FieldSurvey, (2020)*

## 5. POLICY RECOMMENDATIONS AND CONCLUSIONS

### Recommendations

Based on the findings of this paper, the following recommendations were made

- Government should provide adequate credit facilities on timely bases with a collateral-free and clear mandate to the smallholder rice farmers.
- The programme should encourage the participation of exporters of agricultural food products and other related agricultural value chain.
- The programme should be enhanced and subjected to periodic review so as to address irregularities.
- There should be extensive supervision and monitoring of beneficiaries to checkmate issues of corruption and diversion of funds and inputs/outputs.
- There should be well-organized sensitization approach and rural areas should be given more emphasis where a majority of the rice farmers are domiciled.
- Modern rice farming tools such as harvester, processing machines, ploughs, caterpillars etc. should be adequately provided to farmers at an affordable price in order to stimulate production in large quantity.
- Programme management staffs should be mandated to be apolitical and display professionalism in discharge of their responsibilities.
- The policy should be improve to compel rice milling factories to acquire large pieces of farmland and engage in mechanize farming system to boost productivity so as to provide a persistent supply of paddy rice to processors.
- Kebbi State Government should continue to provide secure and enabling environment for farmers, investors in agri-business and service providers, such as private agro-allied companies, agricultural inputs dealers and rice milling factories.

- j. Viable markets should be provided to encourage smallholder farmer's participation and avoid post-harvest loss.
- k. The paper also recommend that the rice value chain process should be encouraged with modern rice technology to complement government effort in achieving food security, and employment opportunities, eliminate hunger and poverty as well as import substitution.
- l. The Nigerian Government need to develop agro-allied industrial zones and staple food processing zones in rural areas. These zones should be supported with consolidated infrastructure such as roads, water and electricity to drive down the cost of doing business.

### **Conclusion**

About 78,000 smallholder rice farmers benefited from the Anchor Borrowers' programme initiated by the Central Bank of Nigeria (CBN). The specific objectives of this paper are to assess the effects of Anchor Borrowers programme on rice production and employment generation in Kebbi State. This paper will be of immense contribution to policymakers, researchers, government at all levels and investors in agri-business. Multi-stage sampling technique was employed to select a sample size of 700 respondents. Cross-sectional primary data was collected with the aid of a structured questionnaire administered to beneficiaries drawn from seven major rice-producing local government areas in Kebbi state but only 678 copies of questionnaires were retrieved successfully. Therefore, a sum of 678 observations was used to run ordinary least square (OLS) regression and stochastic frontier model analysis using the statistical tool Stata 15. Results from findings revealed that relative success was achieved by the programme because it impacted positively on the rice value chain and employment generation.

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## RESPONSE OF INFLATION TO COMPONENTS OF BROAD MONEY AGGREGATE(M3) SHOCKS IN NIGERIA

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### Abstract

*This study applies the impulse response function in estimating how inflation is responded to the shocks of components of broad money aggregate (M3) in Nigeria using a monthly dataset from January 2010 to December 2019. The dependent variable in the model is the inflation rate while the independent variables used which are the components of M3 include currency outside the bank, demand deposit, time and savings deposit, foreign currency deposit and open market operation bills. The results suggest that in Nigeria inflation rate responds positively to the shocks of currency outside the bank, demand deposit, time and savings deposit and open market operation bills and negatively responds to a shock of foreign currency deposit. To control the rate of inflation in Nigeria, this study recommends the need for the Central Bank to reduce the quantity of currency outside the bank, demand deposits, time and saving deposits and open market operation bills. Finally, foreign currency deposit needs to be increased to decrease the challenges of the inflation rate in Nigeria.*

**Keywords:** inflation, broad money aggregate, M3 components, the impulse response function  
JEL Classification: C1, P24

### Introduction

Inflation is one of the macroeconomic indicators that determine the stability of economic activity and vice versa. It affects all economic agents such as households, investors, governments, and policymakers. A persistent rate of inflation worsens economic growth, weakens real wages, and upsurges production costs. In the same way, low inflationary pressure is regarded as a negative economic indicator connected to a reduction in economic activity (Ülke, Sahin & Subasi, 2018). However, economic literature (Lewis & Mizen, 2000; Pindiriri, 2012) noted that persistent inflation is one of the major macroeconomic problems that erode consumers' purchasing power and adversely affect their living conditions.

Furthermore, Inflation is popularly known as a monetary phenomenon and money serves as the unit of account. Thus, monetary developments are essential to the determination of the price level and the rate of inflation in every economy be it developed or otherwise. Numerous studies (Benati, 2009; Dreger & Wolters, 2011) have confirmed the close linkage between money growth and inflation in both the medium and long run. In addition, it is argued that excess liquidity and growth of credit can lead to early signals for the rise of speculative bubbles in asset prices with probable risks to inflation and the real economy (Dreger & Wolters, 2011).

The link between money supply and prices originated from the quantity theory of money with some assumptions about the economic growth and the velocity of circulation of the broad monetary aggregate (i.e., M3). Thus, the nexus between the growth of broad money aggregate and prices is among the fundamentals used in forecasting inflation targets (Pateiro-Rodríguez, et al., 2016). It is further asserted that the growth of broad money aggregate (i.e., M3 components) influences changes in the inflation growth rate (Audu, Yaaba & Ibrahim, 2018).

However, M3 components consist of currency in circulation, different types of bank deposits and marketable instruments (Calza, Jung & Stracca, 2000). Furthermore, in Nigeria, the broad monetary aggregate (M3) consists of currency outside banks, demand deposits, time and saving deposits, money market funds, foreign currency deposits and open market operation (OMO) bills held by money-holding sectors such as other financial corporations, state and local government, nonfinancial corporations, households and non-profit institutions serving households (Audu, Yaaba & Ibrahim, 2018).

However, previous studies (Akinbobola, 2012; Sola & Peter, 2013; Audu, Yaaba & Ibrahim, 2018; Smauel, Udoh, Prince, Okoh & Ndu, 2019) conducted in Nigeria related to this study focuses their attention on the effect of broad money supply on inflation in Nigeria. They neglect to examine the responses of inflation to the components of broad money aggregate (M3). Thus, understanding how the shock of each component of broad money aggregate will help the monetary authority to pump or channel the money to the right component. Given the aforementioned gaps, this study is divided into five sections. Following the introduction, section two presents a theoretical framework and review of related empirical studies. section three consists of data and methodology. Section four consists of results and discussions while section five includes conclusions and recommendations.

### **Literature review**

The theory that supports this study is the quantity theory of money debuted by Fisher (1935). Assuming that the velocity of money is constant and that money has no impact on real GDP growth in the long run, the theory view that the growth in the quantity of money is the main cause of inflation. However, a rise in the quantity of money issued by the Central Banks will lead to rises in aggregate demand and push up the price level in the goods market. The foregoing is based on the popular statement of Milton Friedman that inflation is always and everywhere a monetary phenomenon (Drake & Mills, 2002; Neumann & Greiber 2004).

Related empirical studies were conducted both within and outside Nigeria. Beginning with the studies outside Nigeria, Neumann and Greiber (2004) used quarterly euro area data from 1980 to 2004 to estimate the link between inflation and core money growth. Their results show that there is a close link between inflation and the growth rate of money in the euro area. In addition, Kaufmann and Kugler (2008) analyze the relationship between M3 growth and inflation in the euro area using the vector error correction model (VECM) and impulse response function. The results show evidence of cointegration between money growth and inflation. In addition, the results recorded that a 1% shock in M3 growth led to about 30% shocking inflation forecast error variance. However, Kaufmann (2007) captured the link between M3 growth and inflation in the Euro Area zone from 1980 to 2006 using VECM and the impulse response function. From the results, it is accounted that there is evidence of the long-run relationship between M3 growth and inflation. The results further show that Money growth reacts positively to shocks in inflation over a time horizon.

Pindiriri, (2012) estimates the connection between monetary reforms and inflation dynamics in Zimbabwe using the monthly dataset from January 2009 to December 2011. The results suggest that the money supply has a significant positive influence on inflation. Furthermore, Kisu, Perks, Grant and Mtendere (2012) estimate the nexus between money supply and inflation in Malawi using a monthly dataset from January 1995 to March 2011. By applying the Johansen cointegration approach and VECM, their results suggest that money supply growth has a significant positive influence on inflation. Additionally, Mbongo, Mutasa and Msigwa (2014) used Ordinary Least Square regression and a monthly dataset from January 2000 to December 2011 to examine the link between money supply and inflation in Tanzania. Their results show that the money supply has a significant positive impact on inflation in both the short run and long run.

However, in Nigeria, the related studies were conducted by different researchers and come up with different results. For instance, Sola and Peter (2013) examine the linkages between money supply and inflation rate in Nigeria using an annual dataset from 1970 to 2008. By applying Vector Autoregressive (VAR) model and the Granger causality test, the results indicate evidence of unidirectional causality running from money supply to inflation. Also, Smauel, et al., (2019) investigate the relationship between money supply and Nigeria using a monthly dataset from January 2010 to December 2018. They applied Johansen co-integration, Vector Error Correction Model (VECM) and Granger causality test, and the findings evidence that the money supply does not cause inflation. In addition, Akinbobola (2012) modelled the nexus between money supply and inflation in Nigeria using a quarterly dataset from the first quarter of 1986 to the last quarter of 2008. He used Vector Error Correction Mechanism (VECM) and the results show that the money supply has a significant negative influence on inflation. Finally, Audu, Yaaba and Ibrahim (2018) used monthly data from December 2009 to June 2018 and the structural VAR model in assessing the influence of money supply on inflation dynamics in Nigeria. Their results revealed inflation responded positively to shock in broad money aggregate (M3).

### Data and methodology

The analysis was conducted using the annual data from 2010M01 to 2019M12 and the data was sourced from the Central Bank website available at [www.cbn.gov.ng](http://www.cbn.gov.ng). In itemizing the response of inflation to the shocks of components of broad money aggregate (M3), this study used the impulse response function (IRF) approach. The model contains five variables. These are the natural log of currency outside the bank (cob), a demand deposit (dd), time and savings deposit (tsd), foreign currency deposit ((fcd) and open market operation bills (cbnb) and inflation rate (inf) proxied by the changes in the consumer price index.

The first step in the conduct of this study is the descriptive statistic of the variables followed by a stationarity test using the Augmented Dickey-Fuller approach with a structural break. This is opted to determine the order of integration and break date of the variables. After finding the order of integration, the study goes further and conducted a cointegration test using the Johansen cointegration test to find the evidence of cointegration or otherwise of the variables. The Johansen cointegration model is specified as:

$$\Delta y_t = \delta x_t + \lambda y_{t-1} + \sum_{i=1}^p \alpha_i \Delta y_{t-i} + v_t \dots\dots\dots 1$$

Where  $y$  is a vector of random variables,  $x$  is a vector of deterministic and exogenous variables and  $v$  is a vector of random errors. Furthermore,  $\delta$ ,  $\lambda$  and  $\alpha$  are the coefficients of the estimated parameters. However, the hypothesis is tested based on the values of the trace test

statistic and maximum eigenvalue test statistic at a 5% level of statistic. Thus, the trace statistic is specified as:

$$-T \sum_{i=r_i+1}^r \ln(1-\lambda_i) \dots\dots\dots 2$$

Where  $\lambda_i$  there is a trace test statistic. In addition, the maximum eigenvalue is specified as:

$$-T \ln(1-\lambda_{\max}) \dots\dots\dots 3$$

Where,  $\lambda_{\max}$  is the large eigenvalue (Turner, 2021). This study used the impulse response function to identify the response of inflation to the shocks of M3 components. The advantages of applying impulse responses are: first, impulse responses trace the effects of structural shocks on endogenous variables. Second, each response includes the consequence of a specific shock on one of the variables of the system at impact t, then on t+1, and so on (IMF, 2020). The impulse response model is stated based on the first-order autoregressive model as:

$$Y_t = \nu + \sum_{i=1}^2 A_i Y_{t-1} + \mu_t \dots\dots\dots 4$$

Where  $\mu_t \sim N(0, \varepsilon)$ .

Subsequently, all the variables in the VAR model depend on one another, the estimated coefficient gives restricted evidence of the response of the system to a shock. The impulse response function was used to analyze a robust and reliable estimate of the model's dynamic elasticity. The deviation point of every impulse response function for a linear VAR model is its moving average (MA) and represents the forecast error impulse response (FEIR) function (Franz, 2021). Thus, the FEIR  $\chi_i$  for the *ith* period after the shock is obtained by:

$$\chi_i = \sum_{j=i}^i \chi_{i-j} A_j \quad i = 1, 2, \dots\dots\dots 5$$

Where and for  $j > p$ , where is the number of endogenous variables and the VAR's lag order.

## Results and discussions

The results of descriptive statistics, cointegration, unit root test and impulse response function are presented in this section. Beginning with the descriptive results which are summarized in Table 1.

Table 1: Summary statistics of the variables

| Statistics   | INF    | COB     | DD      | TSD     | FCD     | CBNB     |
|--------------|--------|---------|---------|---------|---------|----------|
| Mean         | 2.4226 | 14.1133 | 15.727  | 16.1769 | 15.0791 | 14.7154  |
| Maximum      | 2.9295 | 14.5194 | 16.1019 | 16.6768 | 15.6787 | 15.9425  |
| Minimum      | 2.0412 | 13.5866 | 15.1558 | 15.5743 | 14.1652 | 10.3748  |
| Std. Dev.    | 0.2561 | 0.1826  | 0.2635  | 0.2997  | 0.3608  | 1.1201   |
| Jarque-Bera  | 5.6433 | 0.9802  | 9.1218  | 5.9526  | 4.8298  | 169.1557 |
| Probability  | 0.0595 | 0.6125  | 0.0104  | 0.0509  | 0.0893  | 0.0000   |
| Observations | 107    | 107     | 107     | 107     | 107     | 107      |

**Source:** Authors' computation using Eviews version 10.

Table 1 showed that within the study period, all the variables recorded a positive growth rate. For instance, inflation is grown by 2.42 % while the currency outside the bank such as currency in circulation and cash at the vault grows by 14.11% demand deposits grow by 15.72% while time and savings deposits grow by 16.17%. The results also show that foreign currency deposits and central bank bills grew by 15.07% and 14.75% respectively. In addition, on the levels of

fluctuations of the variables, the central bank bill appeared to be the most volatile with a standard deviation of 1.12 and currency outside the bank has the lowest standard deviation of 0.18 which infers that the volatility of the variable is very low related to other variables in the estimation. Lastly, the Jarque-Bera test shows that all the variables are normally distributed except the Central Bank bill and currency outside the bank. This is due to the significant probability values of the coefficients at 1% and 5% levels respectively. Furthermore, the paper conducted unit root with structural break using an Augmented Dickey-Fuller (ADF) approach and the results are presented in Table 2.

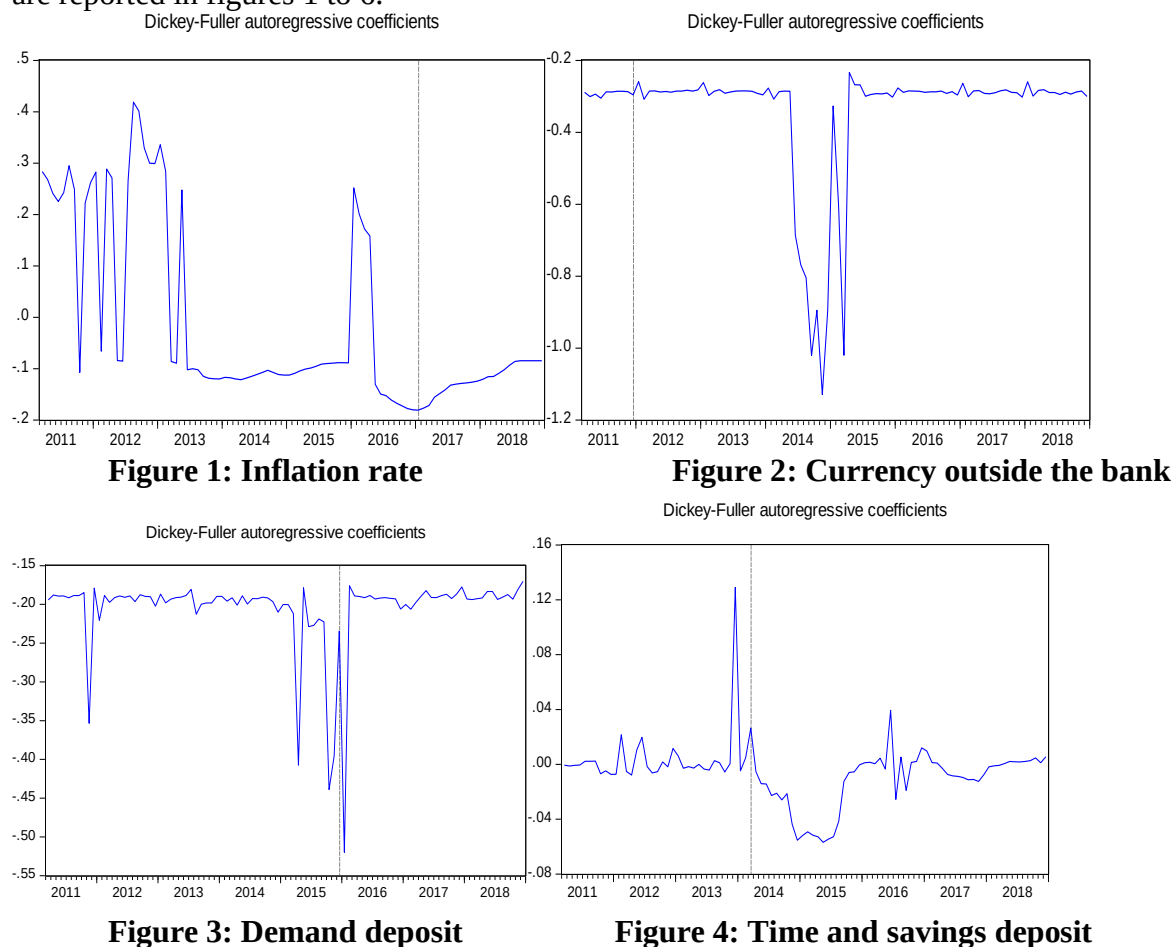
**Table 2: Unit Root Test with Structural Break (Augmented Dickey-Fuller)**

| Variables                   | Level   | First Diff. | Break Date |
|-----------------------------|---------|-------------|------------|
| Inflation rate              | -4.1106 | -13.1284*** | 2017M01    |
| Currency outside bank       | -5.4534 | -14.8030*** | 2011M12    |
| Demand deposit              | -5.8998 | -14.5278*** | 2015M12    |
| Time and savings deposit    | -3.4739 | -11.9180*** | 2014M03    |
| Foreign currency deposit    | -3.9719 | -11.6211*** | 2016M06    |
| Open market operation bills | -3.4880 | -15.2501*** | 2012M12    |

Note: \*\*\*, \*\* and \* indicate significant at 1%, 5% and 10% respectively.

Source: Authors' computation using Eviews version 10.

From Table 2, the results show that all the variables are stationary after the first difference with different break dates. The graphical properties of the foregoing with their different break dates are reported in figures 1 to 6.



Assessment of Anchor Borrowers' Programme on Rice Value Chain and Employment Generation  
In Kebbi State, Nigeria

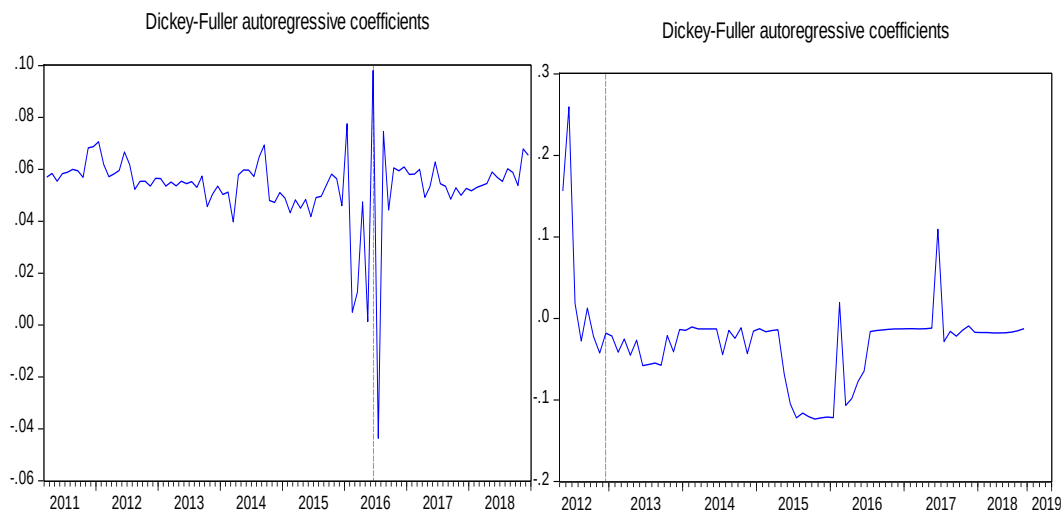


**Figure 5: Foreign currency deposit      Figure 6: Open market operation bills**

After knowing the stationary level of the variables, the next step is to determine the evidence of cointegration of the variables. Thus, this study used Johansen cointegration and the results are reported in Table 3.

**Table 3: Cointegration test**

| Cointegrating vectors | Eigenvalue | Trace statistic    |                   |        |
|-----------------------|------------|--------------------|-------------------|--------|
|                       |            | Trace statistic    | 5% critical value | Prob.  |
| None *                | 0.439003   | 144.7880           | 95.75366          | 0.0000 |
| At most 1 *           | 0.292169   | 88.71824           | 69.81889          | 0.0008 |
| At most 2 *           | 0.243153   | 55.19995           | 47.85613          | 0.0088 |
| At most 3             | 0.180524   | 28.17635           | 29.79707          | 0.0760 |
| At most 4             | 0.080344   | 8.864545           | 15.49471          | 0.3780 |
| At most 5             | 0.007603   | 0.740299           | 3.841466          | 0.3896 |
| Cointegrating vectors | Eigenvalue | Maximum Eigenvalue |                   |        |
|                       |            | Max-value          | 5% critical value | Prob.  |
| None *                | 0.439003   | 56.06979           | 40.07757          | 0.0004 |
| At most 1             | 0.292169   | 33.51830           | 33.87687          | 0.0551 |
| At most 2             | 0.243153   | 27.02360           | 27.58434          | 0.0589 |
| At most 3             | 0.180524   | 19.31180           | 21.13162          | 0.0882 |
| At most 4             | 0.080344   | 8.124245           | 14.26460          | 0.3662 |
| At most 5             | 0.007603   | 0.740299           | 3.841466          | 0.3896 |

Source: Authors' computation using Eviews version 10.

Table 3 shows the results of the cointegration test. According to the results, the trace statistic shows evidence of cointegration with three cointegrating vectors at a 5% (0.05) significance level. Correspondingly, the maximum eigenvalue shows the existence of cointegration with one cointegrating vector. Hence, the null hypothesis of no cointegration is rejected.

In an ideal situation, after knowing the evidence of cointegration, the next step is to determine the Vector Error Correction Model (VECM), but the main objective of this study is to estimate how inflation will respond to the shocks of components of broad money aggregate (M3) in

Nigeria. Thus, the dynamic response of inflation to the components of M3 shocks is summarized in Table 5.

Table 5: Response of inflation to components of broad money aggregate (M3)shocks

| Period | Inflation rate | Currency outside bank | Demand deposit | Time and savings deposit | Foreign currency deposit | Open market operation bills |
|--------|----------------|-----------------------|----------------|--------------------------|--------------------------|-----------------------------|
| t = 1  | 0.0466         | -0.0001               | 0.0026         | 0.0095                   | 0.0008                   | 0.0080                      |
| t = 4  | 0.2305         | 0.0219                | 0.0410         | 0.0324                   | -0.0335                  | 0.1067                      |
| t = 6  | 0.3804         | 0.0432                | 0.0791         | 0.0262                   | -0.0858                  | 0.1789                      |
| t = 8  | 0.5420         | 0.0569                | 0.1171         | -0.0026                  | -0.1592                  | 0.2709                      |
| t = 10 | 0.7025         | 0.0598                | 0.1587         | -0.0501                  | -0.2403                  | 0.3708                      |

Source: Authors' computation Using EViews Version 10.

The dynamic elasticities of inflation in Nigeria are presented in Table 4 and indicate the accumulated shock of inflation itself and shocks of M3 components to inflation at different time horizons. Additionally, the findings reveal the percentage change in inflation due to a one per cent change in each of the components of the broad money aggregate. According to the results, the pass-through of inflation itself is increasing from 0.05% in period one to 0.70% to period ten.

It is also acknowledged that in period one, currency outside the bank exerts a negative shock to inflation in Nigeria while in periods four, six eight and ten inflation rates respond positively to the shocks of currency outside the bank and are increasing over time.

However, the results attested that the inflation rate positively responds to the shocks in demand deposits and open market operation bills. This implies an increase in demand deposits and open market operation bills will lead to a hike inflation rate in Nigeria over the study period. A 1% shock in demand deposit and open market operation bills will lead to 0.04% and 0.10% respectively in period one and increase to 0.15% to 0.37% accordingly in period ten. The results also show that inflation responds positively to time and saving deposits in periods one, four and six while responding negatively to the shock of time and saving deposits in periods eight and ten. Finally, inflation responds positively to foreign currency deposit in period one and negatively respond to the shock of foreign currency deposit in period four, six, eight and ten. Hence, the majority of findings show that inflation in Nigeria is a monetary phenomenon during the study period (2010M01 to 2019M12). Thus, the foregoing results are graphically presented in Figure 7.

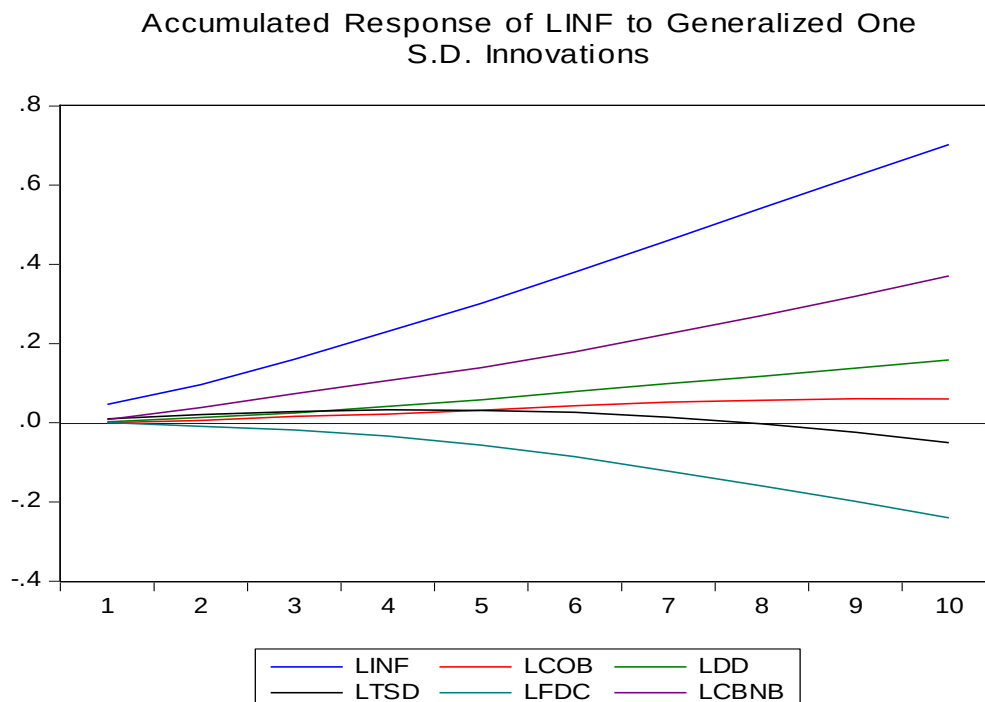


**Figure 7:** Respond of inflation to the shocks of components of broad money aggregate (M3).

However, the majority of the findings show that components of broad money aggregate are the drivers of inflation in Nigeria. The results are relatively in line with the findings of Neumann and Greiber (2004), Kaufmann and Kugler (2008), Mbongo, Mutasa and Msigwa (2014), Kisu, Perks, Grant and Mtendere (2012), Pindiriri, (2012), Sola and Peter (2013) and Audu, Yaabaand Ibrahim (2018) who reveals that money supply and its components are the main drivers of inflation in their respective study areas.

### Conclusions and Recommendations

Understanding the linkages between the components of broad money aggregate (M3) and inflation is very important to the conduct of monetary policy in Nigeria. This is reflected in the fact that; the knowledge will guide the Central Bank in the effective implementation of monetary policy instruments. To this end, this study estimates how the inflation rate will respond to the shock of M3 components in Nigeria. From the results, this study concludes that the inflation rate responds positively to the shocks of currency outside the bank, demand deposit, time and savings deposit and open market operation bills. The study also concludes that a shock to foreign currency deposits will impulse a negative shock to the inflation rate in Nigeria. To tackle the inflation rate in Nigeria, this study suggests the need for the Central Bank to reduce the quantity of currency outside the bank, demand deposits, time and saving deposits and open market operation bills. Finally, foreign currency deposit needs to be increased to reduce the episode of inflation in Nigeria.

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## **IMPACT OF FOREIGN DIRECT INVESTMENT INFLOWS AND PUBLIC EXPENDITURE ON RENEWABLE ENERGY CONSUMPTION IN NIGERIA: TESTING THE POLLUTION HAVENS HYPOTHESIS**

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### **Abstract**

*This article examines the impact of Foreign Direct Investment (FDI) inflows and public expenditure on renewable energy consumption in Nigeria from 1981 to 2021 using the Pollution Haven Hypothesis (PHH) framework. The study employs the co-integration and Autoregressive Distributed Lag (ARDL) bounds model for its analysis. The findings indicate that co-integration exists for all the variables in the model. It also revealed that whereas public expenditure increased renewable energy use insignificantly in the short term but significantly in the long term, FDI inflows dramatically enhanced renewable energy consumption both in the short term and the long term. The findings indicated that in Nigeria, both in the short and long terms, economic growth and trade openness dramatically reduced the utilization of renewable energy. Furthermore, the empirical findings from this study also invalidate the pollution haven hypothesis in the Nigerian context. This article recommends putting energy-efficient policies into place, notably those that encourage Nigerians to use renewable energy sources, encourage FDI inflows, and increase government spending on the energy sector, particularly on renewable energy technologies.*

**Keywords:** FDI Inflows, Public Expenditure, Renewable Energy Consumption, Pollution Haven Hypothesis.

JEL Classification: C1, P33, P24, P48, Q4

### **1.0 Introduction**

There is evidence that foreign direct investment (FDI) inflows boost the economies of many developing countries (Aliyu& Ismail, 2015; Al-Mulali&Che Sab, 2012; Adams, 2009). The FDI made it possible for African nations to become more accessible to the rest of the world, and allowed for greater foreign investment and possibly rising energy consumption

(Omri&Kahouli, 2014). Increased FDI inflows have further boosted economic growth in African nations by increasing demand for energy consumption (Ibrahiem, 2015).

The literature shows different energy sources ranging from the conventional energy (nonrenewable energy) like crude oil/fossil fuel, coal and gas, to renewables like hydro, solar, wind and geothermal. Several existing studies in energy economics asserted that nonrenewable energy consumption and economic growth may generate considerable pressure on the environment quality by increasing Carbon (CO<sub>2</sub>) emissions (Adu&Denkyirah, 2019; Lotz&Dogan, 2018; Boontomeet *et al.*, 2017; Liu *et al.*, 2017). Although Africa is considered the least emitter of CO<sub>2</sub> emissions globally (International Energy Agency (IEA); 2021; Patzet *et al.*, 2007), the lax environmental policies in the continent when compared to advanced countries create a tendency of turning the African continent into havens for polluting multinationals from advanced nations (Aliyu& Ismail, 2015).

There are a series of theories that embrace the need for government involvement in the economy, especially via public expenditure such as the Wagner, Peacock and Wiseman, and Keynesian theories (Mathew *et al.*, 2019; Enofeet *et al.*, 2014). Public expenditure is one of the public financial instruments often used by the government to regulate and stabilize the economy and can be a vital tool for economic development. Lam and Law (2018) emphasized the relevance of the government in providing financial support for the development of renewable energy sources. Similarly, Przychodzen and Przychodzen (2020) posited that government expenditure is one of the factors that have led to the development of the renewable energy sector of transitional economies in Europe and Asia.

Despite the continuous fall in global FDI inflows, the African region recorded a positive increase in 2018 where FDI inflow to the region increased by 6% (UNCTAD, 2018). Most importantly, the African continental free trade agreement would enhance FDI inflows in Africa and Nigeria which would lead to intensive energy use and subsequently increase CO<sub>2</sub> emissions. There is therefore a need to explore technologically efficient production methods aimed at reducing CO<sub>2</sub> emissions and mitigating climate change. The relevance of this cannot be farfetched from the inclusion of reducing global warming in the SDGs of the 2030 Agenda. There are arguments that FDI inflows can promote energy efficiency which is coined the "pollution halo effect" (Doytcha& Narayan, 2016) whereby superior technologies from developed countries can be transferred to developing countries and will encourage the use of renewable energy technologies. On the other hand, increasing government expenditure contributes to economic growth (Chude&Chude, 2013) and can enhance sustainable economic development, especially in the development of renewable energy technologies which will aid its consumption.

The objective of this study is to examine *the impact of Foreign Direct Investment (FDI) inflows and public expenditure on renewable energy consumption in Nigeria*. The study would provide recommendations on trade and public finance policies for the growth of Nigeria's renewable energy sector. It will also focus on the nexus between FDI inflows and public expenditures in Nigeria between the years 1981 and 2021 among all potential factors influencing the consumption of renewable energy.

## 2.0 Literature Review

The Pollution Haven Hypothesis (PHH) has been used by scholars in the field of energy economics to explain the impacts of macroeconomics on environmental quality and the adoption of renewable energy technologies. This theory was used by Aliyu (2005), Riti and

Kamah (2015) and Lundh (2017). The PHH argues that firms will seek to avoid the cost of stringent environmental regulations (and high energy prices) by locating production in countries where environmental norms are flexible. Higher energy prices are indeed associated with higher outward FDI stock at the firm level. However, the effects are small for other drivers of FDI. The pollution haven hypothesis posits those jurisdictions with weak environmental regulations – 'pollution havens' – will attract polluting industries relocating from more stringent locales (Eskeland & Harrison, 2003). The premise is intuitive: environmental regulations raise the cost of key inputs to goods with pollution-intensive production and reduce jurisdictions' comparative advantage in those goods.

The PHH has been investigated extensively in the existing literature due to global environmental issues such as global warming and climate change (Okumus & Guzel, 2020). The pollution haven hypothesis is the hypothesis that shows that industries with polluting technologies tend to relocate to countries with lax or less stringent environmental regulations. The reason for this is clear; environmental regulations or protections come with some costs as it increases major inputs' costs of goods with pollution-intensive technology thereby reducing the relative comparative advantage of those goods.

Some studies on the relationship between FDI and renewable energy consumption include work by Aliyu and Ismail (2015) which examined the relationship between FDI, energy consumption and environmental pollution in 19 African countries over the period 1990-2010. The result from their pooled mean group (PMG) estimation technique revealed that energy consumption does not have a positive elasticity effect on CO<sub>2</sub> emissions and that FDI inflows increase greenhouse gas emissions across the sample countries. Their findings validate the presence of the pollution haven hypothesis for CO<sub>2</sub> emissions. They suggest the promotion of FDI inflows from multinational firms that can facilitate domestic energy efficiency which would reduce CO<sub>2</sub> emissions. Ibrahim (2015) investigates the impact of renewable energy consumption and FDI on economic growth in Egypt and discovered that both explanatory variables increase economic growth. The study did not identify the link between renewable energy consumption and FDI. Mert and Boluk (2016) evaluated the impact of FDI and renewable energy consumption on CO<sub>2</sub> emissions in 21 Kyoto countries using the panel ARDL method. Their findings reveal that FDI reduces environmental quality and supports the pollution haven hypothesis. More recently, Bulus and Koc (2021) examined the effects of FDI and government expenditure on environmental quality in Korea using the PPH. Their results from conducting ARDL bounds testing for the period 1970-2018 show that increased FDI, per capita GDP, energy use and imports increased per capita CO<sub>2</sub> emissions, while government expenditures, renewable energy, and exports reduces per capita CO<sub>2</sub> emissions. Their findings also revealed an N-shaped relationship between per capita GDP per capita CO<sub>2</sub> emissions, which indicates that the detrimental effect of FDI on environmental quality is relatively limited in Korea. Similarly, Qamruzzaman (2022) investigated the relationship between renewable energy consumption, FDI and agro-productivity. His findings ignore the link between renewable energy consumption and FDI but found that FDI and renewable energy consumption positively impacts the level of economic development in a country.

Studies on the relationship between FDI inflows and renewable energy consumption in Nigeria are scanty. Most studies within the Nigeria context have focused on the relationship between FDI and energy consumption with results showing FDI inflows promote energy consumption (Ozughalu & Ogbuefi, 2022) while some showed FDI inflows reduce energy consumption (Olaoye *et al.*, 2020). There have not been recent studies on the relationship between FDI

inflows and renewable energy consumption in Nigeria (Okwoshaet *al.*, 2018). Okwoshaet *al.* (2018) used data from 1981 to 2014 and discovered that FDI inflows reduce renewable energy consumption in the short run but have no impact on it in the long run. Their study used data on electricity consumption to proxy renewable energy consumption while the current study uses percentage share of renewable energy in total energy consumption to proxy renewable energy consumption.

The relationship between public expenditure and renewable energy consumption has also been researched by various scholars. More recently, Floreat *al.* (2021) investigated this relationship in emerging economies of the European Union (EU) using the FMOLS method and discovered unidirectional causality running from public debt and budget deficit to renewable energy consumption. Just like the relationship between FDI inflows and renewable energy consumption, there are few studies on the relationship between public expenditure and renewable energy consumption in Nigeria. Researchers in this regard as focused more on the relationship between public expenditure and energy consumption; public expenditure on electricity and economic growth; and other macroeconomic variables. Enofeet *al.* (2014) investigated the relationship between public expenditure on electricity and socio-economic development in Nigeria and discovered that public expenditure on electricity consumption promoted socio-economic development in the country. Similarly, Mathew *et al.* (2019) evaluated the relationship between electricity consumption, government expenditure and sustainable development in Nigeria, and discovered that electricity consumption, government expenditure and total labour force have a negative impact on economic growth.

The current study looks at the connections between government spending and renewable energy use in Nigeria as well as the connections between FDI inflows and renewable energy usage. In light of the pollution haven theory, this study was conducted in part to examine the impact of FDI inflows on renewable energy. This study also looked at the impact of public spending on the use of renewable energy in Nigeria by taking into account the Keynesian hypothesis, which promotes public spending as a cure-all for sustainable development.

### **3.0 Methodology**

The Pollution haven hypothesis framework was adopted to examine the impact of FDI inflows and public expenditure on renewable energy consumption in Nigeria for the period 1981 – 2021. The regression analysis was conducted using the autoregressive distributed lag (ARDL) bounds test approach co-integration. The data used in the model is presented in Table 3.1 below.

#### Variables and Sources:

The data used in this study is sourced from the world development indicator (WDI) and Central Bank of Nigeria (CBN) annual bulletin. Renewable energy consumption is the percentage share of renewable energy in total energy consumption; FDI inflows are the percentage of FDI inflows of GDP, Government expenditure on the energy sector is the percentage of government expenditure on the energy sector from total government expenditure, GDP is the gross domestic product per capita; while Trade Openness is the percentage of the trade in GDP.

**Table 1: Variables and Sources**

| Variable Name                           | Notation | Estimations                                                                        | Data Source |
|-----------------------------------------|----------|------------------------------------------------------------------------------------|-------------|
| Renewable Energy Consumption            | REC      | % share of renewable energy in total energy consumption                            | WDI         |
| Foreign Direct Investment               | FDI      | Foreign direct investment net inflows (% of GDP)                                   | WDI         |
| Government Expenditure on Energy Sector | PE       | % of government expenditure on the energy sector from total government expenditure | CBN, WDI    |
| Economic Growth                         | GDP      | Gross Domestic Product Per Capita (2015 constant US\$)                             | WDI         |
| Trade Openness                          | TO       | % of Trade in GDP                                                                  | WDI         |

*Source: Authors' Compilation, 2022.*

#### Econometric Model:

The nexus between FDI inflows, public expenditure and the renewable energy consumption is examined based on the notion that renewable energy consumption depends on FDI inflows, public expenditure, GDP and trade openness. This relationship is expressed in the equation below:

$$REC = F(FDI, PE, GDP, TO) \dots \dots \dots (1)$$

Where F is a functional relationship, REC, FDI, PE, GDP and TO represent renewable energy consumption, foreign direct investment inflows, public expenditure, gross domestic product per capita and trade openness respectively.

Gross domestic product (GDP) was included as the control variable because it was discovered as a significant determinant of renewable energy consumption in Nigeria (Gershon and Emekalam, 2021), while trade openness was used to control for FDI impact on the dependent variable.

The model is specified in its explicit form as below:

$$REC = \alpha_0 + \alpha_1 FDI + \alpha_2 PE + \alpha_3 GDP + \alpha_4 TO + \varepsilon \dots \dots \dots (2)$$

$\alpha_0$  is constant;

$\alpha_1, \alpha_2, \alpha_3$  and  $\alpha_4$  are coefficients associated with variables in the model;

$\varepsilon$  is the error term.

In this model, all variables are converted into logarithms for a log-log form of the equation.

$$\ln REC = \alpha_0 + \alpha_1 \ln GDP + \alpha_2 \ln FDI + \alpha_3 \ln PE + \alpha_4 \ln TO + \varepsilon \dots \dots \dots (3)$$

where

REC= Renewable Energy Consumption

GDP= Gross Domestic Product

FDI= Foreign Direct Investment Inflows

PE= Government Public Expenditure

TO= Trade Openness

The first step was to conduct the unit root test to test for the stationarity of all the variables using the Augmented Dickey-Fuller (ADF) test. The second step was to test for co-integration among the variables of interest.

## 4.0 Results and Discussion

The findings of the study are presented and discussed in this section. The main findings of our empirical analysis were presented in the following sub-sections.

### 4.1 Descriptive statistics

Table 2 depicts the descriptive statistics as well as the summary for all variables in the model. It shows the mean, median, maximum, minimum, and standard deviation among others of all the variables in the study.

**Table 2: Summary Statistics**

|              | REC       | FDI       | PE        | GDP      | TO        |
|--------------|-----------|-----------|-----------|----------|-----------|
| Mean         | 4.445093  | 0.080815  | 5.121561  | 7.513641 | 3.383119  |
| Median       | 4.456786  | 0.089438  | 5.772618  | 7.429640 | 3.519569  |
| Maximum      | 4.485034  | 1.756279  | 7.832993  | 7.896652 | 3.975523  |
| Std. Dev.    | 0.025958  | 0.813790  | 2.047642  | 0.243264 | 0.482146  |
| Skewness     | -0.557618 | -0.068561 | -0.593846 | 0.323114 | -1.167682 |
| Kurtosis     | 2.116374  | 2.425013  | 1.899357  | 1.437801 | 3.423839  |
| Jarque-Bera  | 3.458597  | 0.596914  | 4.479296  | 4.882545 | 9.624002  |
| Probability  | 0.177409  | 0.741962  | 0.106496  | 0.087050 | 0.008132  |
| Sum          | 182.2488  | 3.313398  | 209.9840  | 308.0593 | 138.7079  |
| Sum Sq. Dev. | 0.026952  | 26.49015  | 167.7135  | 2.367099 | 9.298588  |
| Observations | 41        | 41        | 41        | 41       | 41        |

Source: Authors' computation (2022)

#### 4.2 Test of unit root analysis

Augmented Dickey-Fuller (ADF) test is employed to examine the stationary of all of the variables used in the model. The unit root test was conducted to determine if there is a trend in the variables used in the model. The ADF test is necessary because analyzing time series data that is non-stationary will provide inaccurate findings (Gujarati, 2003). The result of the ADF tests is presented in Table 3 and Table 4. It was only FDI that was stationary at levels  $I(0)$  at a 5 percent level of significance, while REC, PE, GDP and TO are stationary at the first difference  $I(1)$  and all at 1 percent levels of significance. The result reveals that all of the series are integrated of order 1 or lower from the two tables. This demonstrates that the ARDL is an appropriate estimating approach for determining whether the variables have a long-run connection.

**Table 3: Augmented Dickey-Fuller Unit Root Test at Level**

| Variable | ADF test at Level | Critical value at 5% | Critical value at 10% | probability | Remarks        | order of integration |
|----------|-------------------|----------------------|-----------------------|-------------|----------------|----------------------|
| REC      | -1.500373         | -2.936942            | -2.606857             | 0.5232      | Non-stationary | Nil                  |
| FDI      | -3.075359         | -2.936942            | -2.606857             | 0.0366      | Stationary     | I (0)                |
| PE       | -0.891523         | -2.936942            | -2.606857             | 0.7807      | Non-stationary | Nil                  |
| GDP      | -1.202537         | -2.941145            | -2.609066             | 0.6634      | Non-stationary | Nil                  |
| TO       | -1.946838         | -2.936942            | -2.606857             | 0.3083      | Non-stationary | Nil                  |

Source: Authors' computation (2022)

**Table 4: Augmented Dickey Fuller Unit Root Test at First difference**

| Variable | ADF test at Level | Critical value at 5% | Critical value at 10% | probability | Remarks    | order of integration |
|----------|-------------------|----------------------|-----------------------|-------------|------------|----------------------|
| REC      | -6.458792         | -2.938987            | -2.607932             | 0.0000      | Stationary | I (1)                |
| PE       | -6.781602         | -2.938987            | -2.607932             | 0.0000      | Stationary | I (1)                |
| GDP      | -4.003425         | -2.938987            | -2.607932             | 0.0000      | Stationary | I (1)                |
| TO       | -7.596074         | -2.938987            | -2.607932             | 0.0000      | Stationary | I (1)                |

Source: Authors' computation (2022)

#### 4.3 Estimation of ARDL Model

The results of the ARDL bound test for the cointegration confirmed the long- and short-run linkages among all variables in the model. The estimated results shown in Table 5 show that when foreign direct investment, government expenditure on the energy sector, economic growth, and trade openness are the dependent variables, the value of F-statistics is greater than the lower and upper bound at the 1 percent significance level. As a result, the ARDL bound test affirms the existence of a long-run link among the variables and the alternative hypothesis of cointegration is accepted.

**Table 5: ARDL Model**

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob. *   |
|--------------------|-------------|-----------------------|-------------|-----------|
| REC(-1)            | 0.642121    | 0.119126              | 5.390275    | 0.0000    |
| FDI                | 0.005152    | 0.003463              | 1.487656    | 0.1463    |
| FDI(-1)            | 0.007336    | 0.003417              | 2.146727    | 0.0393    |
| PE                 | 0.003549    | 0.002576              | 1.377518    | 0.1776    |
| GDP                | -0.040442   | 0.015773              | -2.564023   | 0.0151    |
| TO                 | -0.023181   | 0.008465              | -2.738315   | 0.0099    |
| C                  | 1.952508    | 0.577437              | 3.381333    | 0.0019    |
| R-squared          | 0.811513    | Mean dependent var    |             | 4.444669  |
| Adjusted R-squared | 0.777243    | S.D. dependent var    |             | 0.026144  |
| S.E. of regression | 0.012339    | Akaike info criterion |             | -5.794418 |
| Sum squared resid  | 0.005025    | Schwarz criterion     |             | -5.498864 |
| Log-likelihood     | 122.8884    | Hannan-Quinn criter.  |             | -5.687555 |
| F-statistic        | 23.67974    | Durban-Watson stat    |             | 2.015411  |
| Prob(F-statistic)  | 0.000000    |                       |             |           |

*Source: Authors' computation (2022)*

#### Bounds Test

The bounds test is presented in Table 6. The results show that the value of the F-statistic is 4.575458 which is greater than both the lower bounds value of 2.86 and upper bound values of 4.01 at a 5% significance level. Therefore, the result from our bounds test revealed that there is a long-run relationship among the variables, that is, FDI inflows, public expenditure on the energy sector, economic growth and trade openness have a long-run relationship with renewable energy consumption in Nigeria.

**Table 6: Bounds Test**

| F-Bounds Test       | Value    | Significance | 1(0)  | 1(1)  |
|---------------------|----------|--------------|-------|-------|
| Asymptotic: n=1000  |          |              |       |       |
| F-statistic         | 4.575458 | 10%          | 2.45  | 3.52  |
| K                   |          | 5%           | 2.86  | 4.01  |
|                     |          | 2.5%         | 3.25  | 4.49  |
|                     |          | 1%           | 3.74  | 5.06  |
| Finite Sample: n=40 |          |              |       |       |
| Actual Sample Size  | 40       | 10%          | 2.66  | 3.838 |
|                     |          | 5%           | 3.202 | 4.544 |
|                     |          | 1%           | 4.428 | 6.25  |

*Source: Authors' computation (2022)*

The study determines the short- and long-run parameters of the variables after confirming the presence of a long- and short-run association between variables using the ARDL bound test.

Based on the conclusions from the bounds test, the study carried out co-integration and long-run form test which is presented in Table 7 and 8 below.

### ARDL Short Run Results

The R-square is 0.921420 while the adjusted R-squared is 0.877006, which shows that the model is the best fit to explain the relationships among the variables and that the explanatory variables account for 87.7% of REC in Nigeria. In addition, the probability value is 0% which indicates that the overall model is significant. More so, the Durbin Watson statistic value of 2.345770 submits that the model is free from autocorrelation. As depicted in Table 7, the short-run result shows that REC (-1), FDI, FDI (-1), FDI (-4), PE (-1) have a positive and significant impact on REC. While FDI (-2), PE, TO (-1) have a positive but insignificant impact on REC. Table 7 also revealed that in the short run, FDI (-3), PE (-2), GDP, TO, TO (-2) affect REC negatively and are significant.

**Table 7: ARDL short-run results**

| Variable                     | Coefficient | Std. Error            | t-Statistic | Prob. *   |
|------------------------------|-------------|-----------------------|-------------|-----------|
| REC(-1)                      | 0.610871    | 0.106869              | 5.716088    | 0.0000    |
| FDI                          | 0.012084    | 0.003200              | 3.775978    | 0.0010    |
| FDI(-1)                      | 0.009603    | 0.002917              | 3.291545    | 0.0032    |
| FDI(-2)                      | 0.001303    | 0.003429              | 0.380044    | 0.7074    |
| FDI(-3)                      | -0.008332   | 0.003126              | -2.665654   | 0.0138    |
| FDI(-4)                      | 0.009365    | 0.003119              | 3.002242    | 0.0064    |
| PE                           | 0.006971    | 0.005676              | 1.228270    | 0.2318    |
| PE(-1)                       | 0.019926    | 0.007258              | 2.745570    | 0.0115    |
| PE(-2)                       | -0.018439   | 0.005410              | -3.408083   | 0.0024    |
| GDP                          | -0.048558   | 0.015740              | -3.085043   | 0.0052    |
| TO                           | -0.028694   | 0.007921              | -3.622572   | 0.0014    |
| TO(-1)                       | 0.017128    | 0.008371              | 2.046026    | 0.0524    |
| TO(-2)                       | -0.033711   | 0.008785              | -3.837468   | 0.0008    |
| C                            | 2.195276    | 0.550393              | 3.988560    | 0.0006    |
| R-squared                    | 0.921420    | Mean dependent var    |             | 4.443256  |
| Adjusted R-squared           | 0.877006    | S.D. dependent var    |             | 0.026703  |
| S.E. of regression           | 0.009365    | Akaike info criterion |             | -6.222343 |
| Sum squared resid            | 0.002017    | Schwarz criterion     |             | -5.612807 |
| Log-likelihoodLog-likelihood | 129.1133    | Hannan-Quinn criter.  |             | -6.007453 |
| F-statistic                  | 20.74589    | Durban-Watson stat    |             | 2.345770  |
| Prob(F-statistic)            | 0.000000    |                       |             |           |

**Source: Authors' computation (2022)**

### ARDL Long Run Results

From the computation of the ARDL long-run relationship among the variables, the result of the estimated coefficients is expressed as

$$REC = 5.6415 + 0.0617FDI + 0.0217PE - 0.1248GDP - 0.1164TO.$$

As shown in Table 8, FDI inflows and public expenditure on the energy sector have a positive and significant effect on renewable energy consumption in the long run, while economic growth and trade openness have a negative and significant impact on renewable energy consumption in Nigeria in the long run. More specifically, the result as shown in Table 8 implies that a 1% increase in FDI inflows will lead to a 6.17% increase in renewable energy consumption which confirms the *a-priori* expectation. This implies that the pollution haven

hypothesis does not hold in Nigeria in the sense that, FDI inflows have promoted the use of renewable energy in the country. Also, a 1% increase in public expenditure on the energy sector will increase renewable energy consumption by 2.17%, which is also in conformity with the *a-priori* expectation. The long-run result also shows that a 1% increase in economic growth will reduce renewable energy consumption by 12.48%. This can be explained by the adoption of renewable energy in Nigeria which is still at the preliminary stage in which renewable energy consumption still accounts for a little percent of the total energy consumption in the country. Lastly, the long-run relationship shows that an increase in trade openness by 1% will reduce renewable energy consumption in Nigeria by 11.64%. This is in line with the short-run result analysis.

**Table 8: ARDL long-run results**

| Variable                                                             | Coefficient | Std. Error | t-Statistic | Prob. * |
|----------------------------------------------------------------------|-------------|------------|-------------|---------|
| REC(-1)                                                              | 0.642121    | 0.119126   | 5.390275    | 0.0000  |
| FDI                                                                  | 0.005152    | 0.003463   | 1.487656    | 0.1463  |
| FDI(-1)                                                              | 0.007336    | 0.003417   | 2.146727    | 0.0393  |
| PE                                                                   | 0.003549    | 0.002576   | 1.377518    | 0.1776  |
| GDP                                                                  | -0.040442   | 0.015773   | -2.564023   | 0.0151  |
| TO                                                                   | -0.023181   | 0.008465   | -2.738315   | 0.0099  |
| C                                                                    | 1.952508    | 0.577437   | 3.381333    | 0.0019  |
| EC = REC – (0.0617*FDI + 0.217*PE – 0.1248*GDP – 0.1164*TO + 5.6415) |             |            |             |         |

**Source: Authors' computation (2022)**

### Conclusion and Policy Recommendations

In this study, the relationship between FDI inflows, public expenditures, and renewable energy consumption in Nigeria from 1981 to 2021 was examined to test the Pollution Haven Hypothesis (PHH) framework. The results of the unit root test indicate that one of the variables was stationary at levels while the others became stationary at the first difference. The outcome of the unit root stationary test met the requirements for performing ARDL bounds testing (autoregressive distributed lag). The empirical findings from the ARDL bounds tests demonstrate that the explanatory and dependent variables are related over the long term. The results of the bounds tests were used to inform the co-integration and long-run form testing.

The short-run ARDL co-integration results demonstrated that FDI inflows, trade openness, and economic growth significantly influenced the use of renewable energy in Nigeria, with FDI inflows showing a positive effect and economic growth and trade openness having a negative effect. The short-term outcome also demonstrates that public spending has a negligible beneficial effect on the use of renewable energy.

The long-run ARDL results revealed that FDI inflows, public expenditure and trade openness have a significant long-run relationship with renewable energy consumption in Nigeria. It was discovered that FDI inflows and public expenditure significantly increase renewable energy consumption in the long run, while economic growth and trade openness significantly reduces renewable energy consumption in the long run in Nigeria. The empirical findings from this study also invalidate the pollution haven hypothesis in the Nigerian context.

The short-run and long-run analyses resonate with happenings in Nigeria. FDI inflows are expected to enhance the importation of more technologically advanced production processes and means of doing business, which promotes the use of renewable energy technologies in the country. Public expenditures on the energy sector are mostly capital projects with the impact

felt in the long run. The result of economic growth impact on renewable energy consumption is not in line with the findings of Gershon and Emekalam (2021), which is due to differences in units of measurements used in the models and variation in control variables used in the study.

It is therefore recommended that the Nigerian government increase public expenditure especially on renewable energy technologies and promote energy-efficient policies to stimulate renewable energy use in the country. In addition, the government can provide suitable infrastructure needs and incentives to attract private and public investment in renewable energy generation in Nigeria. Based on the benefits of FDI inflows revealed in this study, it is also recommended that the government should champion flexible international policies and a conducive business environment that would encourage FDI inflows into the country.

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## **SOCIOLOGICAL EXPLANATIONS OF MEDICAL TRIPS AND HOW IT AFFECTS THE FUTURE OF THE HEALTHCARE DELIVERY SYSTEM IN NIGERIA**

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### **Abstract**

*Nigeria, the world's most populous black nation, faces numerous challenges, including poverty, corruption, insecurity, and other development issues. Poor healthcare service delivery is part of such challenges. This is a result of years of neglect in the health sector by governments which warrants those with the means to travel abroad for better service delivery. This has a significant setback to the sector due lack of policies, administration, and lack of facilities and professionals at all levels of health care services. The goal of this paper is to examine the sociological impact of medical trips and how it affects the healthcare service delivery in Nigeria. The concludes that health institution is a very important sector of any country which needs to handle with care and citizens of a country should have access to service deliveries regardless of social status. It is recommended among others, that there should be improved access to healthcare service delivery at both primary, secondary and tertiary levels of health care and increased funds to manage the health sector.*

**Keywords:** Healthcare, Health Service Delivery, Medical Tourism, Political Economy, Sociological

JEL Classification: C1, Z13, I11

### **Introduction**

The issue of medical tourism in Nigeria is said to be on the downside, whether domestic or foreign, people who wish to care for their lives or enhance physical appearance, are seeking health service deliveries elsewhere if they cannot get it in their home country. Good health is one of the fundamental human rights everybody is entitled to enjoy (Oyibocha, et; al, 2014). And the responsibility rests on the government (of every country) to provide health services at the three tiers of the government (federal, state and local). But this responsibility by the various governments have turned into a different issue and led many people who have the means to leave the country to seek medical trip. This movement of people or patients from their environment of residence in pursuit of medical and health care services lead to the coinage of the phenomenon “Medical Tourism” (Oyibocha, et; al, 2014). The reason for the trip is that the health care services in a foreign country are in better condition. Such betterment is what attracts those with the means to travel especially government officials. What is lacking most is proper

policies, planning and administration in the health sector. According to Frenk, (2010), health system planning should be distributed among market participants, governments, trade unions, charities, religious, or other coordinated bodies to deliver planned health care services targeted to the populations. The objective of this paper is to provide sociological explanations of medical trips and how it affects the healthcare delivery system in Nigeria. Following this introduction is the conceptual clarification, theoretical explanations, a review of medical trips in Nigeria from a sociological perspective, findings, conclusion and recommendations.

### **Conceptual Issues**

This section is to make clear concepts related to the paper such as medical trips and the healthcare system. It is, however, to note that medical trips here stand for medical tourism.

### **Medical Tourism /Trip**

According to Hanefeld, Horsfall, Lunt, and Smith (2013), medical Tourism defines medical tourism as "when consumers select to travel across international borders with the intention of receiving some form of medical treatment. Similarly, Musa, Doshi, Wong, and Thirumoorthy (2012), defined medical tourism precisely the phenomenon as "all the activities related to travel and hosting a tourist who stays at least one night at the destination region, to maintain, improve or restore health through medical intervention". Moreover, Munro (2012), medical tourism describes the act of people making healthy choices and accessing health treatments across borders. From the foregone definitions, it is clear, that a medical trip or tourism is when someone who has the means to travel across the border to another country to seek medical attention and treatment most often government (elected) officials. The question is, why medical tourism? The simple answer is due to many reasons; level of healthcare system delivery, poor infrastructure, and poor policy and planning, among others.

### **Healthcare System Delivery**

A health system can be said to be an organization of people, institutions, and resources that deliver health care services to meet the health needs of target populations (Oyibocha, et; al 2014). This simply means how services can be reached and affordable to the population of a county which is one of the primary responsibilities of the government (institutions) to deliver such services. The World Health Organization (2000), identified three basic goals of a healthcare system which include:

1. Good health (improvement and protection of the health of the populace)
2. Fair financial contribution (receiving the services paid for)
3. Responsiveness of the healthcare providers (living up to the people's expectations)

Achievement of these goals is dependent on how the healthcare systems carry out the following functions:

1. Rendering of efficient health services
2. Resources generation such as healthcare financing (raising, pooling and allocating)
3. Health investments such as material resources
4. Stewardship such as human resources.

Other dimensions for the evaluation of health systems include quality, efficiency, acceptability, and equity. They have also been described in the United States as "the five C's": Cost, Coverage, Consistency, Complexity, and Chronic Illness (Brody, 2007). By and large, all these are the responsibilities of the government to ensure good health care services at all levels but

these are been affected by so many factors and constraints. Obansa and Orimisan (2013), identified some factors affecting the overall performance of the Nigerian healthcare system:

1. Inadequate health facilities/structure
2. Shortage of essential drugs and supplies
3. Inadequate supervision of the healthcare system
4. Poor human resources, management, remuneration and motivation
5. Lack of fair and sustainable health care financing with very low per capita health spending
- 6 Unequal economic and political relations
7. The neo-liberal economic policies of the Nigerian state and corruption
8. High out-of-pocket expenditure on health by citizens
9. Absence of community-based integrated system for disease prevention, surveillance and treatment

To this end, any country that is faced with these constraints is subjected to the downside of its healthcare system delivery and will warrant an upright movement of persons from one home country to another in search of good and better health service delivery.

### **A REVIEW OF MEDICAL TRIP IN NIGERIA**

Years of under-investment in health systems in Nigeria have resulted in poor infrastructure, inadequate modern equipment, technology, and an inadequate number of healthcare workers. These have resulted in absence of key specialist services, poor quality of care and loss of confidence in general health services in Nigeria. The result of this led to medical tourism, especially among government officials. The medical trip is fast becoming a culture among many Nigerians due to the deplorable state of the health care system in Nigeria in which it is becoming a habit to leave the country. Globally, medical tourism has contributed immensely to the growth and development of the health care system and the countries that engage in it because it attracts people from various parts of the world thereby adding value to the countries involved. Nigerians who can afford it have resorted to medical tourism, especially for surgeries (mostly orthopaedic and cancer), cardiology, neurology and management of cancers. Nigerians spent an estimated USD260 million on medical bills in India alone in 2012 and 40% of all visas to India were for medical reasons.

The Nigerian Medical Association (NMA) estimates that Nigerians spend USD500 million to USD1 billion on medical tourism per year. Besides India, other major medical tourism destinations for Nigerians are Turkey, South Africa, Saudi Arabia, the USA, UK and Germany. Key services sought are oncology, orthopaedic surgeries and cardiology. This is a challenge that needs to be addressed. For Somoye (2015), if the government at all levels can have a to-do will and improve the services delivery of the country, and also provide the required infrastructures for private health, the Nigerian citizen will feel the impact of a well-nourished health care system.

### **Challenges of Healthcare Service Delivery in Nigeria**

The Nigerian healthcare system faced a notable challenge. These challenges contribute to the failure in the health care system and provision of adequate delivery of health care services in the country which results in seeking better treatment in other countries. These challenges include;

1. **Shortage of manpower:** research by Adewale (2017) has shown that; the number of health professionals working in the hospital is very low in such a way that it cannot

accommodate the number of Patients on the ground; Doctors in Nigeria do attend to an unlimited number of patients.

2. **Migration of health workers or medical brain drain:** the workers themselves because they realized their shortages, used the opportunity to move from one place to another searching for their favourite one as pointed out by Adewale (2017). This phenomenon became a growing concern due to its negative impact on the health sector and the development of the country.
3. **Lack of adequate infrastructures and materials:** facilities are lacking, not enough equipment to do a good job; it's unfortunate to say the whole Kebbi, Sokoto and Zamfara has one (1) MRI Machine, five (5) CT Scanning Machine out of more than 50 surrounding hospitals.
4. The problem of corruption is one of the Nigerian factors affecting the effectiveness of hospital services; some healthcare providers tend to take hospitals as commercial centres, where they engaged in all sorts of manipulation to deceive patients.
5. The negligence of duties among the professionals and the affected victims does not take any affirmative actions against the offenders which no doubt affects the system as argued by Adeluyi (2017).
6. The problem among the professionals is to cover up, especially when something bad happens so as to prevent their colleagues from expulsion from service.
7. The training itself is not a right but a privilege as such the government mostly sponsored those that have interest rather than competency.
8. The problem of management and accountability which include the nature of the working condition, the salary system and the discipline are some of the challenges.
9. **Health Care Quality Distribution:** The problem of health care quality remains a huge source of concern, as most of the primary health facilities that are supposed to meet the health needs of the poor and rural dwellers are in a poor state due to poor budgetary allocation (Abdulkareem, 2012). In addition, the geographic distribution of health care institutions is also a great challenge as general hospitals are established in urban areas, yet rural communities constitute the larger percentage of the country's population.
10. **Political Influence:** Hospital in Nigeria unlike the developed countries has been on the downward slope for decades due to failure on the part of the government. Lack of political will has rendered the system in shambles thereby leading to the migration of health care professionals to developed countries where they are appreciated (Abimbola et al, 2014).
11. **Lack of Funding:** In Nigeria, financing health care is through revenue from taxes, out-of-pocket payments, health insurance and funding by the donor. Financing health care in Nigeria has constantly faced so many challenges, forcing pockets to increase while the poor who don't have the money to pay for proper health care suffer due to low income (Somoye, 2015). Hospital financing is an important part of the building blocks of the economy because, without finance, nothing can be achieved. As the country increases in population, an increase in health care funding will have to be allocated in the annual budget to cater for the increased demand for services (Somoye, 2015).

### **Theoretical Framework**

This section explains various theories that are related to the topic to explain and understand how and why reasons for medical trips in Nigeria. One theory and a model were used to explain the reasons for medical tourism, namely; the political economy and the Anderson Model of Health Care Utilization.

### **Political Economy of the Health System**

The economy of Nigeria is based on the capitalist system established by the British colonial government in the early 20th century. Today, the Nigerian economy is sustained by the neo-colonial forces of Europe and America through International agencies and multinational companies such as Lever Brothers, Coca-Cola, World Bank, Barclays Bank International, etc. (Abubakar et, al; 2018). It is from these organizations and corporations that the domestic capitalist relations of production derive their operative force and support. The institutions and values of the capitalist system now shape the productive process and consequently determine the class structure, nature of the state and policy-making and implementation in Nigeria, especially in the health care service delivery. This has generated problems in the social, political and economy as a whole. As rightly observed, the main health care problems considered here are closely related to the structure of Nigeria's socio-political economy (Akinsete, 2016). The structure of the Nigerian health care delivery system provides more and better health care facilities in the cities where the more privileged social class lives than in the rural areas which are predominantly inhabited by the peasants. Even within the cities, there are hospitals and clinics which are built and reserved for the bourgeois class. It is important to note some key actors as argued by Ihekweazu (2016), that influence the healthcare system, these actors are; state and non-state actors.

#### **The state actors include;**

1. Presidency and Federal Executive Council
2. National Assembly
3. Health Sector- FMOH, NPHCDA, NHIS, NAFDAC
- 4 Non-Health Sector – Ministries of Budget and Planning, Finance, CBN, Auditor General, Accountant General, Bank of Industry, OSSAP-SDGs

#### **The non-state actors**

1. Private Sector for Health- Service providers, Pharma, Banks, Partnerships (PHAN, HCF, Health Professional Groups, etc.)
2. Development Partners
3. Academia
4. Labour Unions
5. Citizens and Citizen Groups/Civil Society
- 6 Traditional and Religious Leaders

Each of these actors has a significant role in the impact of the health service delivery being it social, political and economy of the country's health institution.

### **Anderson Model of Health Care Utilization**

The Anderson Model of Health Care Utilization, a theory postulated by Anderson in 1968. The model identified three basic factors that may determine the utilization of health facilities by people whether local or international. Firstly, he identified what he called "the pre-disposing factor", suggesting that an individual will likely utilize a health facility if he/she believes that such health facility will be useful for his/her treatment. He termed the second factor "enabling

factor" which includes access to health insurance, family and community support, as well as the location of the individual, while the third factor, called the basic need factor, entails the perception of the need for health services, and is socially evaluated.

Following this argument, this model serves as a platform on which this paper can be explained on the following premise:

(1) an individual's social status would determine if a such individual would be able to afford medical treatment abroad. It is assumed that people of the higher social status in Nigeria like politicians, government officials and those in power would be able to afford medical treatment abroad while people in the lower stratum in Nigeria may not be able to afford such treatment.

(2) The fact that many health care facilities in Nigeria especially government-owned hospitals are in a deplorable state (Akinsete, 2016) is enough to push patients abroad where they can get better health care for their treatment if they must get well.

(3) The place of personal belief would also determine the choice of health care utilization and whether people should seek medical help abroad. Owing to a loss of confidence in the system by Nigerians (Ihekweazu, 2016), as a result of the negative attitude of health professionals, possibilities are that fear may set in, thus influencing the personal belief of many that the system would not be able to handle their health issue, thereby seeking health care abroad. The theory has been criticized for overemphasizing health needs at the expense of health beliefs and social structure (Wolinsky & Johnson, 1991) in Abubakar et, al; (2018) and also for not paying enough attention to culture and social interaction (Guendelman, 1991; Portes, Kyle & Eaton, 1992) in Abubakar et, al; (2018).

### **Sociological Explanations of Medical Tourism in Nigeria**

This section is to explain the sociological concern of medical trips looking at why the medical trips and the effect it has on the healthcare service delivery. According to Epundu et al (2017) medical tourism has far-reaching economic and health system implications, in both home and destination countries. When high-income patients leave a country, it leads to a reduction in revenue for sustaining the country's local health services, leading to losses of such clients also reducing the pressure to invest in certain beneficial health technologies, as well as reduce political support for developing the health system of the country.

### **The Nature of Healthcare System Delivery**

Healthcare services operated in three types of healthcare systems; in other words, a hospital was designed based on its level of structure or depends upon related problem (whether it requires normal care or extra special care) and based on the condition; this implies that hospital was distinct into three categories, namely: primary, secondary and tertiary (WHO, 2017).

**Primary healthcare** is the first contact hospital, it provided local care services to the patient and mostly carries out the prevention of diseases and basic curative services. These services include immunization, prevention of diseases like polio, family planning, health education, guidance and counselling related to nutrition and hygienic portable water to drink (Natekar, 2016); in some instances, they operate based on the severity of the sickness. Primary healthcare focuses on health equity, which is beyond the setting of traditional healing because of the existence of professionals; though deals with a broad range, of generalists against the specialist. Consequently, WHO (2017) identifies five elements to achieve the ultimate goal of primary healthcare, thus: increase in stakeholder participation; integration of health into all sectors;

organisation of the health sector based on need and in accordance with expectation; and pursuing a collaborative model of policy dialogue.

Primary healthcare provides basic health services, conduct monthly sanitation and also monitors the health hygiene of the communities (Abimbola, et al 2014).

**Secondary healthcare** institutions provide specialist services and cases referred from the primary setting for further management; this implies the healthcare in this category is provided by a specialist in related professions like orthopaedics, and urologists among others. It normally operated 24 hours per day (WHO, 2017); it is headed by Medical Director.

Secondary hospitals are under the state government, the state ministries of health and state hospital management board are responsible for managing health care facilities and programs. The state operates general hospitals and also provides technical support for primary health facilities (Abdulraheem et al., 2012). The state health authorities are also responsible for the training and development of technicians, midwives, and nurses. They also provide technical support to local government health facilities (Abimbola et al., 2014).

**Tertiary healthcare** institutions are the referral hospitals for consultative services usually from primary and secondary settings, which according to WHO (2017) is commonly known as "specialized consultative healthcare". It deals with complex, advanced medical and surgical cases like cancer treatment, burn treatment, cardiac surgery, Neurosurgery (WHO, 2017); traumatic cases, and dialysis cases; it poses advanced structures and equipment to tackle advanced cases. Tertiary hospitals generally deal with curative services; it is the highest referral healthcare system which provides additional care and is headed by the Chief Medical Director.

Tertiary hospitals are under the federal level and are most responsible for making health policies, and providing strategic planning and technical support to the general health system in Nigeria. They also monitor and coordinate the level at which state governments implement national health policies (Somoye, 2015).

### **Implications and Future of Healthcare service delivery**

These implications can be classified into two; positive and negative implications.

#### **Positive implications**

1. Patients can have access to treatments not locally provided in their home country
2. Easy access to a variety of medical centres and the will to choose a plan suitable for you.
3. Assurance of 100% success rate as most countries are focusing resources on training expertise in particular fields.

#### **Negative implications**

1. Medical tourism competes for local healthcare resources
2. Raises concern, about health equity, quality of care, continuity of care, legislation problems, professional codes, and institutional policies with legal and ethical issues.
3. Misusing government funds in sending patients out for expensive non-elective treatments.
4. Overseas medical treatment is a huge economic burden.
5. Medical tourism encourages illegal transnational medical practices such as illegal organ transplants.
6. Discourages the government in improving local healthcare sectors.

### **Conclusion and Recommendations**

Health institution is a very important sector of any country which needs to handle with care in which citizens of a country should have access to service deliveries regardless of social status. As such, service delivery is the primary responsibility of the government. From the review of literature, the paper found out that health as an institution of the society is faced with various problems and challenges regardless of region. The changes and challenges which evolved in Nigeria over the years have had a significant impact on healthcare system delivery. On this note, the paper recommends that there should be improved access to healthcare service delivery at both primary, secondary and tertiary levels of health care and increased funds to manage the health sector. Efforts to ensure an adequate budget line for health at all levels of government and to provide the potential of the private health sector and overseas development assistance for health financing are being explored.

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