

**CRAWFORD
UNIVERSITY**
IGBESA, OGUN STATE



**DEPARTMENT
OF ECONOMICS**



2ND INTERNATIONAL ECONOMIC CONFERENCE (HYBRID)

Theme

**Nigeria's Economic Recovery Amidst "Tripod" Policies:
Issues and Way Forward.**

Book of Proceedings

Wed. 15th - Fri. 17th May, 2024



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FORWARD

OPENING REMARK OF THE VICE CHANCELLOR, CRAWFORD UNIVERSITY PROF. REUBEN JIYA KOLO AT THE 2ND INTERNATIONAL ECONOMIC CONFERENCE OF THE DEPARTMENT OF ECONOMICS OF THE UNIVERSITY.



Ladies and gentlemen, respected guests, and eminent delegates, I extend a warm welcome to each one of you as we assemble here today for this imperative international Economic conference. Our gathering is not just a convergence of minds, but an evidence of our collective commitment to steering the intricacies of economic recuperation within the dynamic framework of tripod policies.

At the dawn of unprecedented global challenges, our nations have stood resilient, wrestling with the multifaceted impact of economic recessions, geopolitical shifts, and societal transformations. Nonetheless, amidst this convolution, lies the prospect for insightful change. Today, we are here together not only to scrutinise the issues at hand but to illuminate the way forward: a path that must be paved with prescience, teamwork, perseverance and daring policy initiatives.

As we engage in this discourse, centered on 'Nigeria's economic recovery amidst tripod policies: issues and way forward', let us not shy away from tackling the complications that lie ahead. We must address the disparities that have widened, the vulnerabilities that have been exposed, and the ambitions that remain unfulfilled. Yet, in doing so, let us also identify the boundless opportunities that await us; the prospect to reconstruct, innovate, and emerge stronger than ever before.

Collectively, we stand at a crucial instant in history, such that requires courageous leadership, futuristic policymaking, and dogged determination. As we embark on this journey of discovery and deliberation, let us harness the collaborative perception in this room to steer a course towards a more resilient, inclusive, and sustainable economic future.

I am persuaded that our discussions over the coming days will yield fruitful insights, forge significant collaboration, and catalyse transformative change. So, let us approach this engagement with open minds, empathetic hearts, and an unwavering commitment to building a brighter economic future all, and for generations to come.

Once again, I convey my earnest welcome to each one of you. May our deliberations be fruitful, our exchanges enlightening, and our shared resolve highly rewarding.

Thank you.



INTRODUCTORY SPEECH BY DEAN OF COLLEGE OF BUSINESS AND SOCIAL SCIENCES (CBSS) PROF. AMOS O. ABISOYE AT THE 2ND INTERNATIONAL ECONOMIC CONFERENCE OF THE DEPARTMENT OF ECONOMICS, CRAWFORD UNIVERSITY, IGBESA.



It is with a sense of euphoria that I join the Chief Host of this conference in the person of the Vice Chancellor: Professor Reuben Jiya Kolo, the Head of Department of Economics - Prof Comfort M. Amire and members of the Conference Local Organizing committee to most heartily welcome the distinguished guests and erudite participants to this epoch making conference. The initiative of the department of Economics to organize the conference focusing on the elucidating theme is not only timely but also very thoughtful.

On behalf of all of us in this College (CBSS), I warmly congratulate the HOD and members of the Economics department on this laudable achievement which is one of such several achievements. This programme is another evidence of the sterling leadership prowess of the HOD and the staff of the Economics department. There is no gainsaying the department is known for breaking new grounds as it is on record that the first set of PhD holders produced by this University are from the department.

While welcoming our Esteemed Guests and Participants to this very special conference, please be reminded that the Nigerians and the global world are waiting for the values that this conference would add to them by evolving workable and attainable solutions to some of the myriad of problems facing our society.

Finally, I urge all of the visitors to please feel at home and enjoy your stay in this highly conducive serene environment of ours. I wish you a successful conference and a memorable stay for our visitors.

Thank you.



WELCOME ADDRESS BY HEAD OF DEPARTMENT PROF. COMFORT M. AMIRE AT THE 2ND INTERNATIONAL ECONOMIC CONFERENCE OF THE DEPARTMENT OF ECONOMICS, CRAWFORD UNIVERSITY, IGBESA.



The Vice-Chancellor, Management Team, Deans, Distinguished Guests, Esteemed Colleagues, Respected Alumni, Ladies and Gentlemen, On behalf of the Department of Economics at Crawford University, it is my honour and privilege to extend a warm welcome to every one of you to the second International Economics Conference, themed "Nigeria's Economic Recovery amidst 'Tripod' Policies: Issues and Way Forward". As we gather here today, we are not only convening to discuss pertinent economic matters but also to foster a collaborative environment where ideas are shared, and debated, and solutions are sought for the betterment of our beloved nation, Nigeria.

We are deeply honoured to have amongst us personalities and experts in the field of economics who have graciously accepted our invitation to share their invaluable insights. Our esteemed keynote speaker, Prof. Adenikinju, the President of the Nigerian Economic Society, brings a wealth of knowledge and experience that will undoubtedly enrich our discussions.

Furthermore, we are privileged to have Prof. Omobintan, the Deputy Vice-Chancellor of Lagos State University, and Prof. Shaibu, the Director of Servicom at the University of Lagos, as our lead paper presenters. Their expertise and scholarly contributions will undoubtedly steer our conversations towards innovative solutions and constructive pathways. I would also like to extend our heartfelt gratitude to Mr. Dele Akinjo, an esteemed Economics alumnus, who has graciously accepted the role of Chairman of the occasion. It is noteworthy to mention that his commitment to his alma mater and the Department of Economics has been incredible. Additionally, I extend a warm welcome to the Economics Alumni of Crawford University, who will join us for an alumni dinner during the course of this conference.

As we embark on this journey of intellectual exploration and discourse through over thirty (30) papers that will be presented, let us embrace diversity of thought, engage in respectful dialogue, and strive toward actionable solutions that will contribute to the economic recovery and prosperity of our nation.

Once again, welcome to the second International Economics Conference at Crawford University. May our deliberations be fruitful, our interactions meaningful, and our collective efforts pave the way for a brighter economic future for Nigeria. Thank you.



WELCOME ADDRESS BY CHAIRMAN OF THE CONFERENCE MR. OLADELE AKINJO AT THE 2ND INTERNATIONAL ECONOMIC CONFERENCE OF THE DEPARTMENT OF ECONOMICS, CRAWFORD UNIVERSITY, IGBESA.



Esteemed Vice Chancellor, Dean of Business and Social Sciences, Head of Department of Economics, Ladies and Gentlemen, I'm honoured to convene today for the inauguration of the Crawford University Second International Economic Conference, themed 'Nigeria's Economic Recovery amidst "Tripod" Policies: the Issues and Way Forward'. I commend the Economics Department for its astute choice of topic, especially considering the prevailing economic challenges facing Nigeria, from inflation to currency

devaluation. In turbulent times such as this, universities stand as beacons of knowledge, offering solutions to societal dilemmas. I thank Crawford University for fostering this gathering of intellectuals to dissect these issues and propose actionable remedies for policymakers. You will agree with me that one keyword that has continued to resonate in consumer business, and policy circles in the last four years is "inflation". Market reforms pursued since the inauguration of the new administration and pre-2023 issues such as the border closure, have impacted Nigeria's economic landscape. Particularly, the simultaneous removal of fuel subsidies and exchange rate unification has triggered a notable depreciation of the naira, exacerbated inflationary pressures, and created a more constrictive interest rate environment.

The elimination of fuel subsidies resulted in a staggering 220% year-on-year increase in petrol prices, coupled with a depreciation of the Naira by over 70% since transitioning to a floating FX regime, albeit a managed float. In March 2024, headline and food inflation soared to 33.4% and 40% respectively, reaching a 28-year peak. In response, the CBN tightened monetary policies by progressively raising the MPR from 16.5% in 2022 to 24.75% by February 2024. Despite these efforts, inflation persists at elevated levels, underscoring the hypothesis that Nigeria's inflation is predominantly influenced by supply-side factors, thus remaining largely unresponsive to monetary policy instruments.

However, cautious optimism has emerged. The reforms have mitigated distortions in monetary and exchange rate policies, leading to increased FX inflows. Yet, challenges like clarity on net FX reserves persist. There is also an optimistic outlook for the oil sector, especially the downstream sub-sector due to anticipated growth in local oil refining capacity which could reduce transportation costs and foreign exchange demand. It is my earnest expectation that as we inaugurate this conference, we will all partake in comprehensive discussions regarding the prevailing condition of our economy and the potential avenues for progress. Furthermore, it is my sincere aspiration that policymakers will be granted access to select research papers and recommendations generated during this conference with the hope that they will integrate pertinent suggestions into future policy decisions.

With this in mind, I hereby declare open the Crawford University Second International Economic Conference, under the theme 'Nigeria's Economic Recovery amidst "Tripod" Policies; the Issues and Way Forward'. I look forward to fruitful deliberations.

Thank you.



KEYNOTE SPEAKERS



Professor Adenikinju holds a PhD Degree in Economics from the University of Ibadan, Nigeria. He is a Professor of Economics and the immediate past Head of **Department of Economics, University of Ibadan (2021-2023)**. He is also a **Research Professor** at the Centre for Econometrics and Allied Research, as well as a Senior **Research Fellow**, Macroeconomic Study Group, University of Ibadan, and the Pioneer **Director**, Centre for Petroleum, Energy Economics and Law, University of Ibadan.

Adeola has consulted for several local and international development organizations, including the European Union, United Nations, the Nigeria Liquefied Natural Gas Company, NLNG, The African Economic Research Consortium, OECD, UNIDO, ECOWAS, UNECA, the World Bank, the National Data Bank, Adam Smith International, among others. He was one of the consultants who **prepared the First Perspective Plan for Nigeria**. He is also involved in the United Nations Project Link that makes economic projection for the Nigerian Economy. Adeola was a **Visiting Scholar** to the International Monetary Fund (IMF) in 1996 and 2005. He also chaired **the committee** that prepared the Macroeconomic Framework for the current **Medium Term National Development Plan, 2021-2025**.

His research interests include **Petroleum and Energy Economics, Macroeconomic modeling, and Economic Development Issues**. He has published extensively in reputable Local and International Journals, including the **OPEC Review, Energy Policy, Pacific and Asian Journal of Energy, Economic Development and Cultural Change, Nigerian Journal of Economic and Social Studies, and African Journal of Economic Policy**.

Adeola is a **Life Member, and the current President** of the Nigerian Economics Society. **Former President**, Nigerian Association for Energy Economics, 2011 -2015, **President**, Nigerian Association for Macroeconomic Modeling, and Member, the International Association for Energy Economics. He is a **Member, Editorial Team** of the Energy Journal. Adeola served as a **Special Assistant to the Presidential Adviser on Energy Matters**, between 2005 and 2007, and a **Senior Special Assistant to the President**, Office of the Chief Economic Adviser to the President between 2010 and 2011. He was a **Technical Adviser** to the Presidential Committee on the Deregulation of the Downstream Petroleum Sector, 2008-2009. He was appointed by President Muhammadu Buhari as a member of **CBN Monetary Policy Committee, 2018-2023**.

At Pan African Level, Professor Adenikinju has served as the **Course Director, Macroeconomic Modelling for Development Planners, UNIDEP, Dakar, Senegal**. Member, **Joint Technical Advisory Panel for the NEPAD Medium to Long Term Strategic Framework and the African Infrastructure Country Diagnostic Study**. A World Bank and AfDB initiative. **Lead Author**, Global Energy Knowledge, a network of International Energy Specialists, and **Visiting Scholar**, IMF, 2005, 2007. He was the coordinator

Professor Adenikinju is a **Fellow, Nigerian Association for Energy Economics**, and **Fellow, Energy Institute, Fellow, Nigerian Association for Macroeconomic Modeller**. He is the **current President of the Nigerian Economic Society (NES)**.



PROFESSOR OLUFUNSO OLUBITAN
DVC, ACADEMIC, LAGOS STATE UNIVERSITY



LEAD PAPER PRESENTER



Olufemi Muibi SAIBU is a Professor of Economics at the University of Lagos since 2016. He has several years of professional experience encompassing University teaching, research, inclusive of Postdoctoral Research Fellowship at the University of Johannesburg, South Africa from 2012 to 2013. He is the Director of Institute of Nigeria-China Development Studies since 2019 and the Director of Quality Assurance and Servicom, both of the University of Lagos since 2023. He is the coordinator of China-Africa Research Network (CARENet), Development and Allied Policy Studies (DAPS) and Africa Trade, Investment and Policy (Africa-Trip)

Studies, he is also a Co-Lead Investigator & Member Pro-Poor Policy and Urban Development Research, Cluster and Urban Development & Urban Regeneration.

Specifically, Olufemi Saibu teaches development economics and is a trade and investment policy analyst. His special focus is encouraging local economic stakeholders to penetrate and compete competitively in the global market and integrate successfully into global value chains. He just concluded two different national research grants aimed at strengthening the capacity of small businesses to address the twin development challenges of unemployment and poverty, as well as increasing their global value chain penetration and export intensity. He is also the project coordinator for a three-year EU Erasmus-Jean Monnet programme to improve EU-Africa connectivity, with a focus on trade relation and economic integration of Africa with EU. He has over 80 publications of which more than 30 relate to international economics and development issues.

More so in term of academic curriculum development, he was the head of Curriculum development for my faculty of social science and department of economics where he developed and facilitated two new undergraduate programme (B.Sc. Taxation and B.Sc. Economics and Development studies. he also pioneered the introduction of four other courses (Urban and Regional economics, Transport economics, public sector economics and Creative economics into the existing B.Sc. Economic degree programme at University of Lagos and Obafemi Awolowo university. he also coordinated the establishment of B.Sc ,PGD and M.Sc procurement Management degree through a World bank sponsored project in University of Lagos.

He is a member of the Nigeria Economic Society, Economic Society South Africa (ESSA), African Econometric Society, Chinese Economic Society, African Development Study Group (ADSG), Development Studies Association (DSA) UK, African Property (APT) Tax Initiative, Chartered Institute of Stockbrokers, Chartered Institute of Taxation of Nigeria, and Association of Capital Market Analysts of Nigeria (ACMAN). He is also a Fellow of the Institute of Capital Market Analysis. He is also a Fellow of the International Society for Development and Sustainability (ISDS) and a Full Member of the Society for International Development (SID) in the USA. He is also a Research Fellow of the Initiative for Public Policy Analysis (IPPA). He also holds positions as a Fellow, Capital Market Analyst, Associate, and Member of the Chartered Institute of Stockbrokers and the Chartered Institute of Taxation of Nigeria. I am a member of the academic boards at UNILAG Business School, GTI Academy, Nungu Business School, and Abeokuta Business School. I served as a Faculty Member and Senior Research Fellow for the Nigeria Economic Summit Group (NESG NRF) from 2021 to 2023. He was just admitted as an Honorary member of Chartered institute of Bankers.

In term of collaboration., through the Institute of Nigeria China Development studies where he was the pioneer Director he initiated and established MOUs and partnerships with the Nigerian Association of Chambers of Commerce, Industry, Mines, and Agriculture (NACCIMA), Manufacturing Association of Nigeria, Lagos Chamber of Commerce and Industry (LCCI), Nigeria Institute of International Affairs, University of Pavia, University of Verna Bulgaria and more than five Universities in China.



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WALKING A TIGHTROPE TO ECONOMIC RECOVERY AND SUSTAINABLE ECONOMIC DEVELOPMENT

Being Keynote Address by the President of the Nigeria Economic Society (NES), Prof. Adeola F. Adenikinju, at the 2nd International Conference (Hybrid) Organised by the Department of Economics, Crawford University, Igbesa, Ogun State, between 15th – 17th May, 2024.

"If the US Government was a family—they would be making \$58,000 a year, spending \$75,000 a year, and are \$327,000 in credit card debt." - Dave Ramsey

Protocols

1. Good morning, ladies and gentlemen. I am delighted to welcome everyone to this annual conference on the theme: "Nigeria's Economic Recovery Amidst 'Tripod' Policies: Issues and Way Forward". Let me first thank our hosts Prof. Rueben J. Kolo, Vice Chancellor, Crawford University, and Prof. Comfort M. Amire, Head of Department of Economics, and their conference organizing team for the timeliness of the conference theme, and for the privilege of my invitation to serve as a keynote speaker. I also wish to appreciate all participants and the impressive lineup of speakers and panelists who will address a range of important issues around the conference sub-themes, enabling us to learn and enrich our conversations with their expertise.

2. Before diving into a review of the recent macroeconomic reforms signposted by the three reform pillars at the heart of the conference theme, let me briefly periscope the current state of the Nigerian economy as a backdrop against which we can analyze and better understand the imperatives that necessitated the implementation of the recent bold macroeconomic reforms. We may recall that between 2000 and 2014, the Nigerian economy experienced an average broad-based and sustained GDP growth rate of over 7% annually, driven by prevailing favorable global economic conditions and the successful implementation of first-stage structural and market-based macroeconomic reforms during the period. However, the recession of 2016 caused by the international oil price shock, and that of 2020 caused by COVID-19 pandemic, coupled with cumulative ineffective economic management, reversed the growth gains to an average of 3% annually thereafter.

3. As a consequence, the Nigerian economy has been undergoing recurring macroeconomic instability, marked by five major downside macroeconomic risks: *declining GDP; rising double digit inflation; declining forex reserves, forex scarcity and persistent depreciation in the Naira exchange rate; rising interest rates; and a looming debt crisis that has absorbed an average 100% of annual fiscal revenues in debt service repayments since 2022, leaving very little financial resources to support growth-enhancing domestic investment.* Real GDP declined from 3.40% in 2021 to 3.10% in 2022, and 2.74% 2023, as most real sector segments such as the oil, manufacturing, and agriculture were either shrinking or growing at a declining rate due to foreign exchange scarcity and lack of new investments and/or harsh business operating environment.

4. Inflation rate soared to a 24-year peak at 33.20% in March 2024, driven initially by geoeconomic risks triggered by the ongoing Russia-Ukraine and Middle East wars, that have spiked food and energy prices, and disrupted global supply chains. Aggressive monetary tightening by global central banks to combat inflation raised global interest rates to historic



levels, which in turn led to higher financing and borrowing costs. The removal of oil price subsidy, significant Naira depreciation, and growing ways and means financing (helicopter money) drove the death nail to domestic food prices, with the IMF warning that almost one in 10 Nigerians are facing food insecurity.

5. The naira exchange rate depreciated by about 48.8% year-on-year in 2023, from N461.61/US\$ quoted at the end of December 2022 to close at N907.11/US\$1 on 29 December 2023, ranking it among the worst-performing currencies in the world in 2023. In 2024, the naira depreciated further to close at N1,390.96/US\$1 on 30th April 2024 at the official NAFEM market, and N1,350/US\$1 at the parallel market. Interest rates as signaled by the benchmark Monetary Policy Rate (MPR) were raised from 11.5% in January 2021 to 24.75% in March 2024.

6. Fiscal space remains tight as a result of an undiversified production and exports base, and declining oil production and oil exports revenue. These factors have led to rising budget deficits and accelerating national debt. Public debt rose from N39.56 trillion (US\$95.78bn) in 2021 to N87.38 trillion (US\$113.42bn) by 2023, a 121% rise in public debt in three years. The debt service to revenue ratio averaged 100% during the review period, raising serious concerns about debt sustainability and overall fiscal sustainability. There are high prospects of an impending debt crisis, which could lead to a repayment default in the medium term, unless there is debt relief from a negotiated workout agreement. The reality is that today, Nigeria borrows to repay its maturing debt obligations, a classic signal of a debt crisis.

5. This gloomy scenario was compounded by structural challenges such as infrastructure stock gap of 40% of annual GDP, requiring annual expenditure of US\$14.2 billion or 12% of annual GDP consistently for the next 10 years (2024 budget of N27.5 trillion is US\$21.15 billion). Nigeria has also experienced persistent domestic insecurity, which has disrupted food supply chains and further pushed food prices to historic highs.

6. All these macroeconomic shocks fed on themselves to worsen inflation, completely erode consumer purchasing power, while aggravating poverty, income inequalities, and unemployment, resulting in one of the worst cost of living crises witnessed in Nigeria's history. Except for the growth in international trade volumes and the resulting positive trade balance, all other macroeconomic performance indicators of the Nigerian economy could metaphorically be said to be on life support in the macroeconomic intensive care unit.

7. When compared with her BRICS peers such as China, India, and Brazil Nigeria's peer economies have already attained a GDP size of above \$1 trillion by 2022. Nigeria achieved a \$477 billion GDP in 2022, and it is only targeting a \$1 trillion GDP size in the next 10 years. Similarly, Nigeria has the lowest contribution of industry to GDP, the lowest per capita income, the highest contribution of the agricultural sector to employment (only lower than India's 44%) and the highest poverty rate among its peers. China's 24% share of agricultural GDP is largely dominated by secondary processed and tertiary manufacturing industries, with a well-developed agricultural production value chain.

8. The implication of the peer comparison is that the Nigerian economy is driven primarily by primary production in the agricultural sector, which employs 45% of the labour force, with a low industrial base and a service sector far higher than its stage of development. The implication is that the productive sector of the Nigerian economy is shallow and incapable of generating adequate income and employment opportunities, despite the misnomer masked by its large service sector. As a result, the economy is subject to frequent business cycle instabilities induced by global and domestic macroeconomic shocks.



9. Given this precarious economic landscape, the Tinubu administration implemented bold monetary and fiscal reforms aimed at liberalizing the Nigerian economy and further removal of artificial monetary and fiscal controls. The primary objectives of the economic reforms were to enhance Nigeria's fiscal space, achieving price and exchange rate stability, with consequent macroeconomic stability that will deliver sustainable economic growth and development. The reforms also targeted at enhanced job creation, improved access to capital for small and large businesses, greater inclusiveness, the rule of law, and the fight against hunger, poverty, and corruption.

10. Some of the pivotal reform pillars include the tripod: land border closure; petroleum products subsidy removal; and exchange rate unification. These reforms were supported by monetary policy tightening to control inflation and fiscal policy reforms to grow tax revenues and improve the business operating environment. The administration has projected the achievement of a US\$1 trillion Nigerian economy by 2030. At last year's GDP growth rate, the Nigerian economy needs to sustain a minimum of 6.5% annual growth rate to meet this target. Could this target be considered realistic or is it déjà vu of failed plans all over again?

10. Generically, land borders are a major driver and facilitator of inter-regional trade, and so borders may have a sizable negative impact on trade flows (Border Effect), in view of the diversity of industrial goods potentially traded. This effect could be explained in two possible dimensions: the flow dimension and the availability dimension. The former implies that less international than domestic trade in the goods are actually traded between countries, while the latter indicates differences between the sets of goods traded internationally and domestically—that is, fewer goods are available as exports than are sold in the home market. The argument for land border closure is therefore anchored primarily on the protection of domestic industries to enhance domestic output, income, and employment growth. However, such a policy limits the import and inflows of neighbouring goods without close domestic substitutes, or those that are cheaper but available locally at higher prices, thus making local goods less competitive.

11. Historically, the Nigerian land borders have remained largely porous, largely driven by corruption, thus creating opportunities for smuggling through hundreds of unpoliced illegal routes. During the President Buhari era, the borders were therefore closed to contain the influx of illegal and cheaper foreign goods and services from neighbouring countries such as textiles, tomato pastes, frozen chicken, and primary agricultural products such as rice. Unregulated goods inflows create room for dumping, resulting in the closure of local industries and thus worsening unemployment, loss of income, and fiscal revenue. Similarly, there was a booming business of petroleum products smuggling outside Nigeria which defied existing control measures by the customs service. Land border closure was also aimed at checking the illegal supply of weapons into Nigeria that fuel terrorism. Benin Republic had become an *entrepot* state that imports goods (especially rice and used cars) and re-exports them or they are smuggled into Nigeria through its land borders, thus threatening local production. These re-exports constitute 50% of Benin's GDP. The border closure was targeted at curtailing these abuses to support domestic industries, preserve income and employment, sustain fiscal revenue, and ensure adequate domestic availability of imported refined petroleum products.

11. However, during the Tinubu era, the land borders with Niger were closed on 30th July 2023 in compliance with ECOWAS decision to sanction the Niger junta for the illegal takeover of power from the duly elected president. Key sanction measures included the suspension of financial transactions and freezing of Niger's assets in external banks, and a halt to the supply of electricity by Nigeria to Niger. ECOWAS gave an ultimatum to the Niger junta to restore constitutional order and reinstate the ousted president, Mohamed Bazoum, within one week or face other measures, notably including military intervention.



12. The resulting sanctions and land and air border closure hurt Nigeria in many ways. Firstly, Niger is important to Nigeria's security as the two countries often collaborated to tackle illicit economic activities and cross-border crime, including trafficking in drugs, arms, and people. Hence, the diplomatic tension the closure generated undermined collective efforts to address security concerns and combat corruption, as it triggered security disruptions on both sides in the Lake Chad Basin pact for combating terrorism in Nigeria, Niger, Chad, and Cameroon through cooperation and shared intelligence in the fight against insurgent groups in the Sahel region. This resulted in a rise in insecurity from Boko Haram, farmer-herder clashes, and banditry. The land border closure also caused an unprecedented increase in the cost of essential food items and other basic necessities for border communities of both nations as millions of people in Nigeria's seven northernmost states who work in agriculture or the informal sector, or who rely on cross-border trade could not engage in cross-border trade. As a consequence of the border closure, the price of rice and other food items imported through the land borders increased sharply, with spillovers to other domestically produced food items, thus further fueling inflation. This induced a rise in unemployment and loss of income by border communities.

13. Further, the border closure posed major risks to the realization of major infrastructural projects such as the 284km rail project from Kano to Niger's second-largest city, Maradi as well as Nigeria's ambitious Trans-Saharan Gas Pipeline project. In addition, airlines operating within the region experienced suspension of their operations, leading to revenue losses. Even after the junta reopened Niger's airspace, it maintained the restrictions against Nigeria by banning flights to or from Nigeria. Nigerian manufacturers/ exporters that conduct business in the Niger Republic or use Niger as a transit route to other ECOWAS countries were prevented from doing business, resulting in disruptions to their exports trade. The land border closure disrupted trade with Nigeria's neighbours (Benin, Cameroon, Chad, and Niger) and strained diplomatic relations between Nigeria and its neighbouring countries, especially Benin and Niger who rely heavily on trade with Nigeria. For instance, Nigeria used to be one of Niger's main trading partners. Nigeria exported goods worth \$193m to Niger in 2022, in addition to the large value of undocumented smuggled goods.

14. The closure of land borders disrupted investment and trade flows between Nigeria and its neighbouring countries. Nigeria has traditionally engaged in cross-border trade with its neighbours, particularly in the West African region. The border closure policy also had a negative impact on entrepreneurial activities in the informal sector, particularly in the selected main markets in the Southwestern Nigerian cities of Lagos and Ibadan. Apart from disruptions to trade, the land border closure reduced revenue to the government (customs duties and other levies collected at border points); reduced informal economy growth; put strain on the agricultural sector – increased demand for rice and poultry puts pressure on local farmers with limited infrastructure and supply chain weaknesses; impacted consumers – prices of goods (rice, poultry) have significantly increased food inflation. It also revealed the inefficiencies in the customs and border control agencies that require a more sustainable solution for curbing illegal trade and promoting legitimate trade. Finally, the sanctions and border closure pushed the Niger, Bukina Faso and Mali juntas to pull out of ECOWAS.

15. The sanctions and land border closure cut Niger off from many of its traditional trading partners, worsened domestic insecurity and chronic food insecurity among its vulnerable groups, and caused major damage to the Nigerien economy, creating more complex challenges for Nigeria and other ECOWAS countries. However, they failed to achieve their primary objective of compelling the junta to restore ex-President Bazoom to power and constitutional rule. Sanctions were therefore lifted after seven months of unsuccessful enforcement on February 26, 2024 in acknowledgement of the significance of cross-border trade in fostering economic development, regional cooperation, and food security.



16. In general, past land border closures have always experienced moderate success in achieving their objectives because of internal structural weaknesses in the Nigerian economy and institutions. The productive base of the Nigerian economy could not meet the surge in domestic demand with domestically produced goods due to the restrictions on inbound trade posed by the closure, hence the inflation pass-through effect on other domestic goods prices. The resulting fiscal revenue losses also further undermined Nigeria's fiscal space.

17. The inevitable diplomatic tensions were unhealthy and against the spirit of ECOWAS and AfCTA free trade agreements and treaties aimed at a borderless Africa with free flow of goods and services leading to a boost in growth of inter-African trade, especially in agriculture and manufacturing, which will speed up structural changes and inter-regional trade across Africa. It is recommended that the government should tighten border controls by implementing strict regulations on trading, importation, and exportation of commodities across borders. A much more workable approach is the digitization of all customs operations and equipping them with adequate aerial surveillance technological resources to support expanded surveillance across the large expanse of Nigeria's land borders.

18. Three key imperatives dictated the petroleum products subsidy removal policy on 29th May 2023: The first was the lack of transparency and accountability in the administration of the subsidy payment policy. The subsidy payment was characterized by opaqueness, as the landing cost and daily petroleum consumption volumes on which the subsidy was applied were not precisely known. The NNPC provided varying estimates of daily petroleum consumption, ranging from 52 million to 68 million. No one could understand the specific method used to calculate the landing cost of imported petroleum products.

19. The petroleum subsidy regime was therefore riddled with stupendous corruption and was largely perceived to be an organized scam capable of producing a few overnight rentier billionaires who put in little hard work but reaped staggering earnings for their private consumption. One of the subsidy program's beneficiaries even complained that they were tired of making money from the so-called subsidy. This indicated that the overall subsidy program was a scam that benefited a few privileged, corrupt Nigerians to the detriment of the majority of the poor and vulnerable, who were the intended beneficiaries of the subsidy payment.

20. The second factor was the high cost of the subsidy payments in an environment in which Nigeria was experiencing very tight fiscal space as a result of declining oil revenue, poor tax administration, and high debt service obligations. The subsidy payments were costing Nigeria an average of N300 billion per month, or approximately N3.6 trillion annually. Removing the subsidy could free up financial resources for investment in priority public sectors such as healthcare, education, and infrastructure.

21. A third rationale was the drive to attract foreign investment into the petroleum sector and incentivize domestic refineries to produce more petroleum products for exports in order to reduce Nigeria's dependence on imported fuel, reduce the budget deficit and generate a budget surplus in the near future, reduce government borrowing, curb corruption associated with fuel subsidy payments, increase competition, reinvigorate domestic refineries, boost employment in the sector and reduce pressure on the exchange rate. Nigeria was spending \$26 billion annually to import refined petroleum products.

22. Fuel subsidy removal had wide-ranging short-run negative impacts on the Nigerian economy. It caused major spikes in transportation and manufacturing costs, which were then transferred to retail products, thus increasing inflation and poverty. The dramatic increase in food inflation heightened food insecurity, increased crime, and led to job losses in the informal sector, resulting in a contraction in output and income. It is recommended that the government should



carefully evaluate the impact of fuel subsidy removal on individuals and businesses and provide economic relief programs to cushion the adverse effect on individuals and firms.

23. Exchange rate unification policy commenced on June 14, 2023, involved the scrapping of the various existing different exchange rate windows, and the floating of the Naira exchange rate to enable it to find its true market value based on supply and demand. A key objective of the reforms by the CBN is to promote a market-based price discovery system. Therefore, the CBN removed the cap on the spread on interbank foreign exchange transactions and restrictions on the sale of interbank proceeds. This allowed authorised dealers to conduct their foreign exchange transactions on a “Willing Buyer and Willing Seller” basis.

24. The unification of the Naira exchange rate is expected to yield potential benefits such as fewer government interventions in the foreign exchange market, improved price discovery, greater foreign exchange supply, higher capital importation, reduction in budget deficit, increased investor confidence, improved sovereign credit rating, increased transparency in the foreign exchange market, improved business environment, and greater competition.

25. Prior to the exchange rate unification, the different forex windows with different rates created price distortions that made it difficult to discover the true value of the Naira exchange rate. The forex premium offered by the difference between the official and black-market foreign exchange rates created opportunities and even incentivized corruption, hoarding, speculation, arbitrage, and other forms of abuse in the forex market. This official exchange rate stood at N474/US\$1 on the eve (June 13, 2023) of the exchange rate unification policy. The parallel market rate was N765/US\$1 on the same day, a premium of N291/US\$ or 61.40% of the official rate.

26. The Nigerian forex market was riddled with massive corruption and abuses by authorized dealers such as banks and bureau de changes as well as other players who engaged in brazen hoarding, speculation, arbitrage, over-invoicing, round-tripping, and price fixing to drive up the premium between the official and parallel market rate, and cash in on the resulting high differential to rake in huge forex sale margins thereafter. These abuses further worsened dollar scarcity with significant downward pressure on reserves and the Naira exchange rate, setting the Naira on a course of persistent exchange rate volatility and depreciation.

27. The Naira depreciated from N474/US\$1 to N610.2/US\$1 on the day of the unification, a value loss of N136.2 or 28.73% of its value in one day, and 7.55% the day after. In the post-unification year, the exchange rate depreciated from N474/US\$1 on the eve of the unification to N897/US\$ on 29 December 2023. The parallel market rate for the day stood at N1,215/US\$1, giving a premium of N318/US\$1 or 35.45% of the official rate. The unification succeeded in reducing the premium from 61.40% on the eve to 35.45% on 29th December 2023 – a 25.95% reduction in the premium within 6 months. However, foreign exchange reserves dipped to a six-year low of \$32.87 billion at the end of December, as the CBN intervened in the forex market through the sale of large amounts of dollars to prop up the weak Naira.

28. Given Nigeria’s significant dependence on imported goods and services, including capital goods, raw material inputs, and essential goods like food, fuel, and medicines, the negative spillover effects of the policy intensified the inflationary crisis, pushing inflation to almost 30% and the major driver being food inflation, which stood at 34.4% in March 2024. This intensified Nigeria’s cost of living crisis as imports became more expensive, and consumer purchasing power was eroded, as wages were fixed and not inflation-indexed. The resulting major exchange rate depreciation led to huge corporate losses due to exchange revaluation losses. Despite these



negative fallouts, it is expected that the adverse effects will only manifest in the short term, but not in the medium to long term.

29. While the resulting high costs of imported goods created opportunities for Nigerian producers to raise their output, the dollar scarcity forced companies to scale down their operations far below their installed capacities as they could not import critical inputs such as raw materials and equipment. The net effect was major job losses, while many multinational companies (P & G, Beecham etc.) were forced to close down their Nigerian operations and many SMEs simply folded up their operations. Private sector business conditions continued to deteriorate after a short spell of improvement in December 2023 as Stanbic IBTC Bank PMI (purchasing managers' index) data showed that it dropped to 51.0 from 54.5 in January, indicating a slowdown in the momentum of private sector business activity in February 2024.

30. The Central Bank of Nigeria has responded to the currency and inflation crisis by implementing a host of demand and inflation management measures to reduce Naira scarcity and counter the spike in the inflation rate which rose to 28% by December 2023. While the exchange rate gradually stabilized in March 2024, the inflation rate continued to soar in spite of major spikes in the benchmark interest rate (MPR) to 24.75% in March 2024. The trade-off from the monetary tightening anti-inflation strategies include higher interest rates which could stoke more inflationary pressures and trigger further slowdown in the weak economic growth and recovery, while currency interventions might deplete already strained reserves of foreign currency. The intensifying cost of living crisis sparked off historical public protests in various major Nigerian cities accompanied by looting of food products and other essentials across Nigeria never experienced in Nigeria's history. In addition, the fiscal authorities have been implementing temporary cash transfers to reach 15 million households.

3. Lessons Learnt and Policy Implications

- i. The reform policies were not bad in themselves, but their effectiveness was marred by poor implementation and execution.
- ii. With a narrow and undiversified productive base, the land border closure hurt the Nigerian economy more than it helped its fiscal position. Nigerian land borders are porous by design, driven by festering corruption. In the absence of new and more effective anti-corruption measures, the old wines in new bottles simply carried on their illicit bazaar. Similarly, no new surveillance infrastructure was installed to support and drive greater cross-border surveillance effectiveness. Hence, all measures that led to the land border closure evidenced the path of cart-before-the-horse economics.
- iii. Appropriate policy sequencing and timing are critical ingredients in policy implementation success. The removal of the petroleum subsidy in May was followed by the unification of the exchange rate. There was no clear consideration of the impacts of policy lags on each other and on the economy.
- iv. Additionally, the lack of policy harmonization undermines policy effectiveness. Fiscal policies have hindered the progress of monetary reforms, as the two have been heading in opposite directions. The growth in ways and means advances, the monetization of foreign exchange earnings from crude exports, and large deficits have resulted in sharp increases in system liquidity, which counteract the effectiveness of inflation and exchange rate policies.
- v. The potential adverse economic and social impacts of implementing the two policies were hardly investigated and understood; there was no stakeholder consultation to achieve policy buy-in, nor was the effect of mutually-enforcing shocks of the two



policies thoroughly investigated and understood. The gap in stakeholder consultations led to the divestment of many multinationals as a result of the negative impacts of the reforms. Implementation of exchange rate stabilization with little or no foreign exchange reserve buffers to stabilize the exchange rate of the Naira was an exercise in futility.

- vi. Similarly, fuel subsidy withdrawal without contingency measures or sources to meet domestic demand shortfalls was a case of policy error. Removal of the subsidy while depending on imports of the rising-priced fuel cannot ensure policy success. The subsidy removal could have been preceded by the commencement of operation of the domestic public and private refineries. This is evidenced by the reduction of the domestic diesel price by the Dangote refinery.

In general, it is trite to restate that the implementation of good economic reforms is far from engaging in a popularity contest, just as a patient is subjected to major pains from surgery. However, Nigerian policymakers should also remember Peter Blair Henry's contention that good economic reform policies are not so much about implementing drastic, poorly thought-through reforms, but more about underpinning the strength and wisdom of making reasonable trade-offs over the many years it takes to transform the economic conditions to enhance welfare.

4. Innovative Pathways for Sustainable Economic Recovery

- i. Unlock huge fiscal finance resources from moribund and non-performing national assets in collaboration with the Ministry of Finance Incorporated (MOFI).
- ii. Focus on policies to transition the economy away from a one-resource-based economy to economic diversification, reducing dependence on crude oil revenue, and meeting domestic demand for goods and services while reducing imported equivalents or substitutes. Specifically, diversify exports to grow export revenue, boost reserve volumes, and strengthen the forex supply side to strengthen the value of the naira. This will require leveraging exports of potential strategic minerals. This will insulate the economy from the frequent negative business cycles due to crude oil price shocks. Leverage a development model that aligns with the economic, social, and political conditions of Nigeria.
- iii. Embrace the digital economy and invest in the youth to drive innovation and boost the digital economy.
- iv. Policing our national land borders requires a multifaceted approach, including the deployment of modern technology, intelligence sharing among countries, and strengthening border patrols. Rather than border closure, deploy digital technology solutions for customs operations with a particular focus on achieving a 100% digital revenue collection architecture supported by technological modern surveillance technology, e.g., the use of drones, to bridge and strengthen physical in-person surveillance gaps. In this particular case, aiming for a quick democratic transition, refining the sanctions, relying on diplomatic engagement, stepping up humanitarian and livelihood support services, and keeping bilateral communication lines open rather than closing land and air borders could have yielded more effective results.
- v. Implement policies to halt de-industrialisation, enthrone private sector economic leadership, and promote real sector dominance against the prevailing financial sector dominance of the economy. This will require aggressively implementing globally competitive ease of doing business policies to boost foreign investment inflows. The first step is to bridge the infrastructure gap by prioritizing electricity and transport infrastructure through inter-



- state rail and bus connectivity, electricity adequacy, and affordable transportation using PPPs. A minimum of 25 MGW is required for achieving the US\$1 trillion economy. Deepen the infrastructure stock by prioritizing effective and well-targeted transfer programs that leverage technology to reach the beneficiaries directly.
- vi. Policy implementation should recognize the importance of adopting well-thought-out policy sequencing to minimize the bunching of multiple negative effects of major reforms on the economy within the same period. Policy implementation should be based on a thorough analysis of the likely economic and social impacts of reform policies and the appropriate mitigating factors. This should be backed by a robust policy monitoring and coordination framework to guide policy roll-out and minimize conflicting policies.
 - vii. To check Nigeria's potential debt crisis, pursue fiscal sustainability to reduce deficits, debts, and the volume of debt service. Engage creditors in debt restructuring negotiations.
 - viii. Policy reforms for exchange rate stability with a transparent market-based price discovery mechanism should emphasize deepening the forex derivative market to boost liquidity, reduce demand pressures, and build investor confidence.
 - ix. As the agricultural sector is a major contributor to GDP, employment (about 70%) and poverty reduction, develop and modernize agricultural production to transition it from primary production to processing and manufacturing for exports. Deploy value chain development strategies to achieve this transition and reduce post-harvest losses. Make small-holder agricultural enterprises profitable and improve their access to markets and finance. Provide improved yields with new seed varieties as well as rural infrastructure – electricity and rural access roads. Learn from economic transformation and convergence success stories of peers – China, India etc.
 - x. Implement effective social transfer programmes leveraging technology for targeting beneficiaries and index salaries to inflation to cushion the cost of living crisis.
 - xi. Manage diversity and political succession to achieve national cohesion, a shared national identity, and political stability. Strengthen political oversight and legal institutions.
 - xii. Improve governance by reducing costs and strengthen the anti-corruption fight to achieve efficient, competent, effective, transparent, and accountable public finance management and administration, based on the effective rule of law.

Thank you for your attention and patience.



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TRADE OPENNESS, INDUSTRIAL DEVELOPMENT AND UNEMPLOYMENT IN NIGERIA

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Abstract

There have been divergent views on the impact of trade openness on the industrial development and unemployment rate in Nigeria. Most literatures opined that, ideally trade openness supposedly should enhance positively on the industrial development and employment rate in Nigeria. This study tends to establish a reverse linkage between trade openness, industrial development, and unemployment. With the use of Auto Regression Distributed Lag (ARDL) statistical analysis after the pre-estimated test (stationary test), on secondary data sourced from the World Development Indicator covering 1996 to 2022, it was discovered that trade openness was inversely related to unemployment but not statistically significant. Industrial development was inversely related to unemployment and significant. Also, the institutional quality was positively related to unemployment but not significant. These imply that trade openness in Nigeria's economy worsens industrial development and employment but could have been advantageous with adequate institutional quality in place. The recommendation was on institutional quality and trade policy reform that will enhance foreign direct investment into the industrial sector of the economy, which in turn will boost domestic production and employment opportunities.

Keywords: Trade Openness, Industrial development, institutional quality, unemployment

1. INTRODUCTION

Trade Openness is the sum of imports and exports normalised by gross domestic product (GDP). Economists generally ascribed various benefits in the literature, which include the promotion of the efficient allocation of resources through specialization and comparative advantage, the promotion of competition in national and international markets, and facilitating easier diffusion of knowledge and technology across borders worldwide (Ohwofasa & Ekawure, 2023). Scholars opined that in the past higher degree of trade openness would enhance local industrial development which may in turn boost the employment generation in participating countries. According to Ohwofasa and Ekawure (2023) trade openness enhances tremendous increase in world output through efficient allocation of resources, capital accumulation and healthy



competition between trading nations, and increase in flows of technological advancement, Trade has been considered as the core instrument of development strategies by Nigeria's government, because of the inherent belief that trade can create jobs, expand markets, increase income, as well as facilitating competition and disseminating knowledge (WTO 2005 as cited in Asaleye et.al., 2017). Also, Briggs, Nteegaha, and Ohalea, (2022) affirm that boundary trade is very crucial in the performance of the economy because it facilitates the expansion of markets, reduces poverty with job creation, and destroys monopolies by few industries or countries with an abundance of economic factor input.

Notwithstanding the above works of literature, there seems to be a reverse linkage between trade openness on the one hand and economic development and employment on the other hand, especially in developing nations. The real experiences of many countries, particularly developing countries, run contrary to these theoretical assertions as many countries in the world face daunting challenges of rising unemployment despite impressive records of economic growth over the years (Rad, 2011 as cited in Raifu, 2017). Such is the case in Nigeria with statistics of rising international trade but a sharp decline in the number of industries and alarming figures for unemployment rates making it a chronic socioeconomic malaise. According to Raifu (2017), the unemployment rate has soared at an alarming rate as many young graduates from higher institutions are joining the labor market without the capacity to absorb them." This necessitates the question asked by Onifade, Asongu and Bekun, (2019) that "can trade ameliorate unemployment challenges in the Nigerian economy or can we say the dynamics of the international trade have contributed as a panacea to the unemployment crisis that is ravaging the Nigerian economy?" It is fallacious to answer such questions in isolation as Nigeria's case about trade engagements is a peculiar one, as the internal economic policies of the country in the past did not take advantage of its trade openness to other nations of the world. According to Nchom and Udeorah (2021), the statistical result reveals the Dutch disease phenomenon as the cause of the negative relationship between international trade and employment, where a nation focuses on a particular source of revenue at the expense of others. Also, the issue of policy summersault whereby the incoming government tends to upturn most or all trade policies of the previous government, hence making the Nigerian trade policies inconsistent.

Most studies often focus on the positive impact of trade openness on industrial development, unemployment, and economic growth. However, since there are experiences by most developing nations to the contrary, therefore the objective of this study is to examine the adverse linkage of trade openness with industrial development and unemployment in Nigeria, with observation of the interaction between trade openness and quality institutions spanning from 1996 to 2022. Section one is about the background of the study, section two highlights the theoretical and



empirical literature, and section three presents the data and methodology with the underpinning theories and statistical analysis. Section four emphasizes the result findings while section five presents the conclusion and recommendations.

2. LITERATURE REVIEW

2.1.Theoretical Review

Almost all the theories of international trade are rooted in the theory of absolute advantage postulated by Adam Smith and the theory of comparative advantage postulated by David Ricardo. For adequacy and capturing of modern trends in international trade, this study will emphasize recently postulated theory.

Heckscher–Ohlin model

The **Heckscher–Ohlin model** postulated that the pattern of international trade is determined by differences in factor endowments. It predicts that countries will export those goods that make intensive use of locally abundant factors and will import goods that make intensive use of locally scarce factors. The H–O was based on the following core assumptions:

- Labor and capital flow freely between sectors equalizing factor prices across sectors within a country.
- The amount of labor and capital in the two countries differ (difference in endowments)
- Technology is the same among countries (a long-term assumption)
- Tastes are the same in countries

From the foregoing, relative endowments of the factors of production (land, labor, and capital) determine a country's comparative advantage. Countries have comparative advantages in those goods for which the required factors of production are relatively abundant locally. This is because the profitability of goods is determined by input costs. Goods that require locally abundant inputs are cheaper to produce than those goods that require locally scarce inputs. Therefore, for most developing nations of sub-Saharan Africa that are massively land and labor-endowed, it is expected there would be the existence of massive production and export of land and labor-intensive goods and services which will necessitate industrial development and employment generation; while they can import capital intensive goods and services.

2.2.Empirical review

Diverse empirical pieces of evidence in the works of literature on the positive impact of trade openness on economic growth cannot be overemphasized. In a recent study, Ohwofasa and Ekawure (2023) explored the relationship existing between trade openness and economic growth in Nigeria by disaggregating trade openness into solid mineral export earnings, manufacturing export earnings, agricultural export earnings, and oil export earnings; by employing the Autoregressive Distributed Lag (ARDL) model covering data period from 1986 to 2020. The



study found that economic growth is significant and positively responsive to changes in agriculture and crude oil exports. At the same time, it's significant and negatively responsive to changes in solid mineral exports. Still, manufacturing exports were found to be statistically insignificant in exerting an impact on economic growth in the short run. However, in the long run, the study also found that agriculture and manufacturing exports had a significant positive impact on growth, while the effect of solid minerals and oil exports is negative and statistically significant. The study suggested that the federal government may consider formulating a strategy of making all exports go through export processing zones thereby adding more value to the exportable and creating demand for the products to generate more revenue for the government, as regards improving manufacturing exports, the government may consider a strategy of exporting only raw materials and semi-manufactured products which must also pass through the export zone.

In another study, Fredrick, Olusegun, and Olamitunji (2019) make investment as a function of trade openness, import and export as a ratio of GDP respectively to assess the impact of trade openness on growth in Sub-Saharan Africa. By employing a panel-corrected standard error (PCSE) on data covering 35 African countries, the study established that growth is positively and significantly responsive to changes in trade openness and import contrary to its negative response to changes in export growth. Likewise, in the research study of Ojeyinka and Adegboye (2017), the authors scrutinized the extent to which the manufacturing and agriculture sectors are affected by changes in trade openness in Nigeria. Using the Generalized Method of Moment (GMM) to explore the contemporaneous dynamics existing among the variables, the study found a positive significant relationship between trade liberalization and agricultural output contrary to a significantly negative relationship with manufacturing output in Nigeria.

In a study conducted by Nwosa, Adegboyo and Fasina, (2020), identified relationship between trade openness and the unemployment rate in Nigeria from 1980 to 2018. The study utilized the auto-regressive distributed lag (ARDL) technique and the result of the study shows that trade openness had a negative and significant impact on the unemployment rate in Nigeria. This implied that trade openness provides employment opportunities, which in turn reduces the unemployment rate in Nigeria. The research work concluded that the government should put in place a trade policy that should enhance the provision of employment opportunities and that would contribute significantly to reducing the unemployment rate in Nigeria. Also, conscious economic policies that would increase government expenditure in the real sector which is expected to promote the aggregate volume of investment in the country and contribute to employment generation; should be structured by the government. Mba, Orji, Chukwumaeze and Anthony-Orji (2019) also examined the relationship between trade openness and industrial



output growth in Nigeria using time series data, endogenous growth framework, and an export-led growth model. The result of the study showed that trade openness contributes positively to industrial output growth and supports general economic diversification. In the short-run, the dynamic impact of trade openness on industrial output growth is insignificant while its long-run impact is significant.

The study of Otapo and Ushie (2022) made use of the Solow growth model and included the unemployment rate as a moderating variable along with the segregation of the export component of trade openness into oil and non-oil exports. Using the Autoregressive Distributed Lag (ARDL) as the method of analysis it was discovered that non-oil export had a positive and significant effect on economic growth while oil export had a positive but insignificant relationship with economic growth. The unemployment rate was found to have an insignificant and negative effect on economic growth in Nigeria. However, foreign direct investment was found to be positive and insignificant. The study also discovered that there is no long-run co-integrating equilibrium relationship between trade openness, FDI, unemployment rate, and economic growth. It was suggested that there is a need for more funds to be allocated to the non-oil productive sector of the economy to boost productivity from the sector and as well as to reduce the unemployment rate. Also, in the study of Oppong-Baah, Twi-Brempong, Amoah, Prempeh and Addai. (2022) on the impact of trade openness on economic growth: the case of Ghana and Nigeria, using the pooled ordinary least squares (OLS), fixed effects, random effects, and a Hausman test with panel data to arrive at the results; it was found that trade openness and real exchange rate positively and significantly impact economic growth using the random effect. In contrast, inflation and investment have an insignificant impact on economic growth using Random effect estimated models.

Conversely, some studies suggested that trade openness may be a contributing factor to the endemic unemployment rate in Nigeria. In the study of Raifu (2017) on the role of trade openness and current account balance on the unemployment rate in Nigeria using data from 1981 – 2014 and by employing the Autoregressive Distribution Lag estimation technique; the study found that trade openness worsens the unemployment rate in Nigeria both in the short-run and long run. Also, it was observed that in the short run, the current account balance increases the unemployment rate but reduces it in the long run. The author suggested that the government should establish and implement sound trade and macroeconomic policies to aid domestic firms' production to ensure the international competitiveness of these firms to guarantee employment generation. In the same vein, according to Asaleye, Okodua, Oloni and Ogunjobi. (2017) accessed the relationship that subsists between trade openness and employment with evidence from Nigeria using the Vector Error Correction model and Granger Non-Causality in their



analyses; they found the short-run negative significance of trade openness on employment and also a negative long-run relationship between trade openness and output. The implication of this is that trade openness has been harmful to employment generation in Nigeria. They advised that the government should increase its competitiveness in the international market and make use of interest and exchange rates for trade competitiveness. Likewise, Nwaka, Uma and Tuna (2015) observed in a study using the vector error correction technique (VECM) in analyzing time series data from Nigeria between 1970 and 2010 found that trade openness is associated with rising unemployment in Nigeria. Ishola et al. (2013), investigated trade openness and economic growth in Nigeria (1981-2009) and used the Ordinary Least Square to measure the impact of trade openness on GDP in Nigeria. The study employed FDI, total trade, non-oil exports, exchange rate, openness (total trade as a ratio of GDP), and the balance of payment as variables for the study, their study found that trade openness and FDI and other intervening external sector variables do not determine economic growth in Nigeria.

In another study by Isere (2020), opined that the effect of economic growth, inflation, trade openness, exchange, unemployment, and interest rates on FDI in Nigeria over the period 1980 and 2019. With the use of Auto Regression Distributed Lag (ARDL) statistical analysis, the author found that GDP and unemployment had a negative but non-significant relationship with FDI individually. Hence, it was suggested that the government should increase Nigeria's domestic investment as this will help in reducing the increase in unemployment as FDI inflow increases. Also, FDI will increase economic growth in Nigeria if government policies are properly implemented in the area of employment generation and reduction of inflation rates. Also, Onifade, Asongu and Bekun, (2019) in revisiting the trade and unemployment nexus, used the Auto Regression Distributed Lag (ARDL) and found that the nation's terms of trade were insignificant to the unemployment rate while trade openness and domestic investment have significant opposing impacts on unemployment in Nigeria. According to another recent study by Nchom and Udeorah (2021) on international trade and employment in Nigeria, the author used dynamic ordinary least square (DOLS) regression analysis on data spanning 1999-2019 and found that international trade and employment rate have a negative relationship in Nigeria during the period of study. In the study by Abinabo and Abubakar (2023), using the Augmented Dickey Fuller (ADF) unit root test for stationarity, Johansen Cointegration test for long run relationship, and Error Correction Mechanism (ECM) model as the methods of estimation; it was found that trade openness has positive and statistically significant impact on economic growth in Nigeria; and that import has a negative significant impact on economic growth in Nigeria.

Other schools of thought opined that the quality institutional framework may have a role to play in determining the impact of trade openness on the economic growth of a country. Omoke and

Opuala-Charles (2020) in the study on trade openness and economic growth nexus using data that covers the period from 1984 to 2017 and employing Auto Regression Distributed Lag (ARDL) in their analysis; found that the negative long-run effects of import trade on economic growth in Nigeria decrease as institutional quality (quality of governance) improves. Likewise in the work of Stensnes (2006), examined an interaction variable between openness and institutions, integrated in a growth regression for a sample of 94 countries. The study found that for countries with the least developed institutions of conflict management, greater openness is *ceteris paribus* found to reduce growth rates.

From the above, it can be implied that shreds of literature on the link between trade openness, industrial development, and unemployment in Nigeria have been mixed and inconclusive. But worthy of note is the empirical assertions of the importance of institutional quality as an impetus for the efficacy of trade openness in enhancing industrial development and employment generation. Hence, the basis of this study is to explore the reverse linkage between trade openness, industrial development, and unemployment in Nigeria.

3. Methodology

3.1.Data Sources and Measurement

The study used secondary data sourced from the World Development Indicators (WDI) of the World Bank. The data from the source are reliable in answering the research questions and testing the study's hypotheses. The data is spanning from 1996 to 2022. Auto Regression Distributed Lag (ARDL) statistical analysis after the pre-estimated test (stationary test) to look into the short- and long-term correlations between the dependent (endogenous) variables and independent (exogenous) variables.

3.2.Model Specification and Estimation Procedures

Model specification is a conceptual term that describes a mathematical statement of the relationship between variables. The following is the model specification for the analysis of the data collected.

$$UM = F(IND, GDPGR, FDI, QN, TOQN, TO) \dots\dots\dots 1$$

$$UM = \alpha_0 + \beta_1 IND + \beta_2 GDPGR + \beta_3 FDI + \beta_4 QN + \beta_5 TOQN + \beta_6 TO + \mu_t \dots\dots\dots 2$$

$$UM = \alpha_0 + \alpha_1 UM_{-1} + \beta_1 IND + \beta_2 GDPGR + \beta_3 FDI + \beta_4 QN + \beta_5 TOQN + \beta_6 TO + \mu_t \dots\dots 3$$

$$\Delta UM_t = \alpha_0 + \Sigma \alpha_1 \Delta UM_{-1} + \Sigma \beta_1 \Delta IND + \Sigma \beta_2 \Delta GDPGR + \Sigma \beta_3 \Delta FDI + \Sigma \beta_4 \Delta QN + \Sigma \beta_5 \Delta TOQN + \Sigma \beta_6 \Delta TO + \mu_t \dots\dots\dots 4$$

Um is the unemployment percentage of the total labor force. **IND** is the Industrial performance, proxy with value added value by the industrial sector. **GDPGR** is the Gross domestic product Growth rate. **FDI** is the foreign inflow into the economy. **QN** is the quality of institutions (Voice

and accountability, regulatory efficiency, and government effectiveness) as used by Kaufman, Kray, and Matruzzini. **TO** is the trade openness ((import + export) / GDP). Openness. **TOQN** is the interaction of trade openness and the quality of institutions.

4. Data Analysis and Interpretation

Table 4.1. Descriptive Statistic

VAR	UM	IND	GDPGR	FDI	QN	TOQN	TO
MEAN	57.65800	27.02338	4.870110	1.350086	-1.900676	-0.723113	0.376348
MEDIAN	56.90000	27.07302	5.307924	1.523782	-1.770675	-0.722767	0.392786
MAX	69.93000	37.44548	15.32916	2.900249	-1.334739	-0.301003	0.532780
MIN	52.00000	18.17313	-1.794253	0.137154	-2.699282	-1.389078	0.207225
STD. D	5.715192	4.340935	3.671617	0.838484	0.457647	0.267562	0.091383
SKEWN	1.322818	0.297332	0.466956	0.135937	-0.574555	-0.543005	-0.090291
KURT	3.495092	3.306017	4.098470	1.918258	1.973945	2.980799	2.216494
JARQ B	7.546359	0.465908	2.165447	1.295918	2.472128	1.228942	0.673428
PROB	0.022979	0.792190	0.338672	0.523112	0.290525	0.540927	0.714113
OBS	25	25	25	25	25	25	25

Authors' computation, 2024

Table 4.1 shows the descriptive statistics, revealing the mean and median variables in between the maximum and minimum values. With regards to a normal distribution, unemployment, industrial development, and gross domestic growth rate are positively skewed while quality institutions, the interaction of trade openness, and quality institutions together with trade openness are very low with negative skewness. the coefficient of the kurtosis for foreign direct investment (FDI), quality institutions (QN), and interaction of trade openness and quality institutions (TOQN) and trade openness are Platykurtic (less than 3) while unemployment, industrial development, and gross domestic growth rate are Leptokurtic (greater than 3). Only the probability of Jarqua Bera for unemployment is below a 5% level of significance (in absolute terms).

Table 4.2. Correlation matrix

VAR	UM	IND	GDPGR	FDI	QN	TOQN	TO

UM	1.0000						
IND	-0.6981	1.0000					
GDPGR	-0.2977	-0.1105	1.0000				
FDI	-0.1866	-0.2236	0.5772	1.0000			
QN	0.4927	-0.3536	-0.2343	0.0863	1.0000		
TOQN	0.6155	-0.5149	-0.3722	-0.0881	0.6031	1.0000	
TO	-0.5332	0.4861	0.4024	0.3228	-0.1942	-0.7244	1.0000

Authors' computation, 2024

Table 4.2 indicates that there is no threat of multicollinearity among variables as depicted in the correlation matrix. There exists positive and negative correlation among the variables. The coefficient of correlation among the variables in the correlation box has moderate and low correlation with few having weak correlation but does not too significant to constitute any serious threat of multicollinearity among the variables.

Table 4.3. Unit Root Test

Variables	@ Level		@ 1 st Different		OOI
	ADF stat	PP stat	ADF stat	PP stat	
UM	1.2636	-2.0625	-5.9602***	-4.5556***	1
IND	-3.1872**	-2.9566**	-3.1998**	-4.1306**	0
GDPGR	-2.0398	-2.0585	-3.8638**	-6.2898***	1
FDI	-1.5434	-2.0017	-6.8105***	-6.8105***	1
QN	-1.1328	-2.8745*	-6.1900***	-7.1718***	1
TO	-2.3425	-2.2458	-5.7669***	-8.3321***	1
TOQN	-2.0489	-1.7807	-4.5460***	-5.7078***	1

Authors' computation, 2024

Table 4.3 shows the time series unit root test with individual effect, the statistical analysis reveals that only the industrial value added is significant at level, but after taking the first different, all the variables became significant, as a result of the stationary test, panel autoregressive distributed lag was used to analyze the short and bounds test for long run statistical analysis.

Table 4.4 Long run Co-integration test

Null Hypothesis: No levels

F-Bounds Test

relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-Statistic	2.772052		finte sample(35)	finte sample(35)
		10%	2.254	3.388
		5%	2.685	3.96
		1%	3.713	5.326

Authors' computation, 2024

In Table 4.4, the co-integration test showed that the null hypothesis of no co-integration between the variables is rejected, which implies that there is co-integration between variables, irrespective of the significant level. Given the existence of co-integration with the value of F- statistic (2.7721), which is greater than the value of lower bound I (0) at 5% but lower than the upper bound I (1). It revealed that there exists a long-run relationship between the variables in the model at a 5% significant level.

Table 4.5 Short Run Analysis

VARIABLES	COEFF	STD. ERR	T- STAT	PROBABILITY
UM(-1)	0.262607	0.222228	1.181699	0.2557
IND	-0.874801	0.335268	-2.609261	0.0197
GDPGR	-0.244682	0.291069	-0.840634	0.4138
FDI	-0.967047	1.377671	-0.701943	0.4935
QN	8.192470	9.763991	0.839049	0.4146
TOQN	-14.52244	22.73345	-0.638814	0.5326
TO	-22.88292	46.41113	-0.493048	0.6291
ECT(-1)	-0.054680	0.197394	-0.277010	0.7856
C	82.13307	24.30087	3.379841	0.0041
R Square	0.753914			
Adj R square	0.622668			



F- Statistic	5.744280
Probability(F-stat)	0.001844
Durbin-Watson stat	2.163437

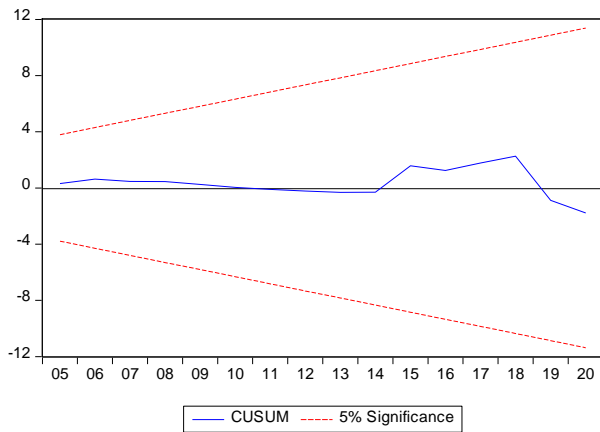
Authors' computation, 2024.

Table 4.5 shows the short-run relationship among the variables. The lag of unemployment in the economy is positively related to the present unemployment but it is not statistically significant. The industrial development is inversely related to the unemployment rate, this implies that for every one-unit increase in the industrial development of Nigeria's economy, unemployment reduces by -0.874801, it is statistically significant at 5% ($P < 0.05$), conforms with (Nchom & Udeorah, 2021; Briggs et al, 2022). The growth rate of the economy is also inversely related to unemployment, revealing that for every one-unit increase in the growth rate, unemployment reduces by -0.244682, but it is not statistically significant. It conforms with (Raifi, 2017). Foreign direct investment and trade openness were inversely related to unemployment while the quality of institutions is positively related indicating that the institutions are not having an impact on unemployment. Also, the interaction between trade openness and the quality of the institutions has an inverse relationship but is not statistically significant. The error correction term (-0.054680) shows the speed of adjustment that if there is any disequilibrium from the model, it takes 5.5% to return to equilibrium.

The R square value (0.7539) revealed that the combination of the independent variables could explain 75.4% of the dependent variable - unemployment (UM) - from the model. The adjusted R square (0.62267) shows that if other variables outside the model that affect the dependent variables are factored into the model, 62.3% of the dependent variables will be explained. The Durbin-Watson statistic of 2.16 (less than 2.6) shows that there is no presence of serial correlation among the variables in the model. The probability of the F-statistic (0.0018) shows the robustness of the model at 1%.

Table 4.6. Cusum Stability Test

In Table 4.6 the Cusum test is the plot of the stability test for the model. Having the blue line in between the red lines indicates that it is within the 5% critical bounds because of the two lines that bounded the trend curve. It implies that the parameters of the model do not experience structural instability during the period of study.



Authors' computation, 2024

Table 5.1 Conclusion and Recommendation

This study examined the effects of trade openness on industrial development and unemployment in Nigeria and the findings of the study showed that, to a considerable extent, trade openness and industrial development have a great impact on unemployment while industrial development has a statistical significance on unemployment. The foreign direct investment plays a vital role in unemployment but it is also not significant. The existing institutions do not affect unemployment, indicating that irrespective of government expenditure on institutions unemployment is still very high. Also, the interaction of trade openness and the quality of institutions has an effect but also not significant.

Based on the findings, the research work therefore suggests that the development of quality institutions with policy adjustments that will encourage more investors into the industrial sector will stimulate output growth, which will invariably have a multiplier effect on the unemployment rate. These guidelines and supervision would prevent the diversion of economic resources to unproductive sectors. Also, policy should be implemented to diversify the economy further and expand the extractive industry in Nigeria to facilitate corresponding export earnings in Nigeria, as this will ensure that trade openness benefits the nation's economy.

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EVALUATING PENSION FUND MANAGEMENT IN NIGERIA

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Abstract

The study review the current status of the pension fund regulations and management in Nigeria. It describes the six elements of the multi-fund pension structure as well as the rules guiding fund investment and transfer of retirement savings account. This study adopts a descriptive research method using primary data from four different PFAs on a typical Fund II customer that has made monthly contributions for 10 years as at March 2024. The results indicates that the four PFAs earned their Fund II client a return of 22.42%, 44.99%, 48.60% and 55.67% respectively. The study concludes that client can earn extra returns by conducting background research on the management performance of the potential pension fund administrators. The study recommends that stakeholders should increase awareness among potential contributors on how to assess the performance of PFAs.

Keywords: multi-fund pension structure, pension fund management, investment guidelines, retirement savings accounts, return on investment.

1. Introduction

In order to allow different stakeholders to assess the exposure draft of proposed revisions to the regulation on investment of pension fund assets (the 2012 Regulations), the National Pension Commission (PenCom) released it in February 2015. This was the first move toward updating the existing pension fund asset investment regime in Nigeria. The main goal of the modifications was to broaden the asset classes and investment thresholds and restrictions for pension fund assets managed by Pension Fund Administrators (PFAs). The regulation on investment of pension fund assets, 2017 (Amended Regulations) has now been released by PenCom as a result of the reviewed process. It is important to remember that the 2012 Regulations were released in accordance with the now-revoked Pension Reform Act of 2004 (Demaki, 2006; Abdulkadir, 2006; Nyong and Duze, 2011; Nwite and Perpetua, 2014; Dada, 2014; Anyim, Olusanya and Okere, 2014; Nwekeaku and Abimuku, 2019). As a result, the Amended Regulations, which go into effect in April 2017, are the first set of investing guidelines created under the current Pension Reform Act, 2014. Frequent amendment in pension law has also been witnessed in other countries due to the economic significance of pension to the macroeconomic performance and retirees welfare across



the world (Seibold, 2021; OECD, 2023; Lalive, Magesan and Staubli, 2023; Kuhlmann and Starke, 2024; Oral, Rabate and Seibold, 2024; Kolsrud, Landais, Reck and Spinnewijn, 2024).

In general, the Amended Regulations maintain certain important elements from the 2012 Regulations, while making minor adjustments to certain crucial locations, conditions, and requirements for PFA investments. These clauses deal with the following topics: voting rights; closed pension funds and approved existing schemes; authorized markets; authorized instruments; allowable instruments; quality of instruments; conflict of interest issues; investment limits; performance benchmark; and violation of investment limits. To provide for several categories into which RSA Funds would be separated (the Retiree Fund representing a category in the new structure) for investment reasons, new provisions on "Multi-Fund Structure" have been enacted. The 2012 Regulations had separate provisions for the "RSA Retiree Fund," which have been removed. This study review the current structure of the Nigeria pension fund management using selected anonymous data from the industry to illustrate the current practices among the PRAs.

2. Structure of the Nigeria Pension Funds Management

2.1 Multi-Fund Pension Fund Structure

The Nigeria pension system follows a multi-fund structure that comprises of six funds, namely I, II, III, IV, V, and VI that are separated from the Retirement Savings Account (RSA) and Retiree fund (Ohioma, 2018; Nwaiwu and Anurume, 2019; Adekunle, 2023). The Funds acknowledge that registered contributors have varying risk tolerances and demographic (age) characteristics. By matching donors' funds to their return profile, you may give them more control over how their funds are managed. Fund I and II are for contributors aged 49 years and below. To transfer to Fund I, contributors must apply. Variable instruments may account for 20% to 75% of the fund's investments. Investments in fixed income instruments will be made with the fund's remaining balance. This fund is especially appropriate for contributors who have worked for a longer period of time (StanbicIBTC Pension, 2021). For Fund II, contributors may choose to move from this default fund to another fund, or they may move automatically after 50 years. Contributors may transfer to Fund I in accordance with their investing strategy. A contributor cannot transfer to Fund I after moving from Fund III to Fund II. Ten percent to fifty-five percent of the fund may be invested in variable products. Investments in fixed income instruments will be made with the fund's remaining balance (TrustFund Pensions, 2024).

Fund III are for participants between the ages of 50 and 59. Contributors in this Funds have the option to switch to Fund II. A fund's allocation to variable instruments may range from 5% to 20%. Investments in fixed income instruments will be made with the fund's remaining balance. Fund IV is for retirees. Those who applied for retirement and selected the programmed



withdrawal option are the beneficiaries of this fund. Investments in products with variable income are limited to 10% of the fund. Investments in fixed income instruments will be made with the fund's remaining balance (VG Pensions, 2024).

Fund V is called micro pensions. It is intended for independent contractors working in the unorganized sector. Contributions can be made whenever it's convenient for you, on a daily, weekly, or monthly basis. 60% of the withdrawal amount must be allocated to retirement savings, with a maximum of 40% allowed for contingent uses. Investments in products with variable income are limited to 5% of the total fund. Investments in fixed income instruments will be made with the fund's remaining balance (FCMB Pensions, 2024). Fund I, Fund II, and Fund III are open to contributors from this fund. Participants in one fund cannot transfer to another. Finally Fund VI is a non-interest bearing fund. This fund is for contributors who want their pension funds invested in non-interest bearing, Sharia-compliant capital markets. A maximum of 55% of the value of the portfolio may be invested in compliant variable income products, including infrastructure funds, private equity funds, open/close hybrid funds, and ordinary shares that comply with Sharia law. The remaining amount will be put into instruments that do not pay interest (PenCom, 2018a).

Following the Multi-Fund Structure's implementation, contributors are permitted to select the type of fund to which they would like to be assigned, provided that they meet the following requirements. First, a request to be assigned to Fund I must be made formally to the PFA by an active contributor in Fund II; Second, if a current Fund III contributor would like to be moved to Fund II, they must formally request this from the PFA. And finally, a 50-year-old or older RSA retiree or active contributor is not eligible to select a fund. The amended regulations additionally provide an active donor, upon submitting a formal application to the PFA, to switch, once within a 12-month period, without incurring any expenses, from one fund type to another within a given PFA (PenOp, 2023).

Some of the factors that affect RSAs with PFAs include: First is the fund value. This includes asset and liability, current value of assets as well as current value of the projected cash flows from investments. Another factor is the assets; asset allocation, categories of assets, and investment policy investment valuation. The third factor is age of the contributors: At what age does the contributor join the fund, period of contribution and amount by members.

2.2 Regulations on the Fund Investment

This section describe some specific investment guidelines for the pension fund management in Nigeria. The list of allowable instruments in which PFAs may invest the assets of the pension



fund under management now includes Sukuk Instruments (Islamic Bonds), which are issued by qualified state and local governments, state government agencies, or fully owned companies of a state government. It should be noted that the 2012 Regulations made no reference of Sukuk as a kind of bond.

In line with the 2012 Regulations, a PFA that intended to invest pension fund assets in either an infrastructure fund or a Private Equity (PE) fund had to ensure that all annual financial statements of the Infrastructure Fund or PE shall be audited by reputable firms of chartered accountants". However, in addition to being reputable firms of chartered accountants, the accounting firms required to audit the annual financial statements of the Funds in which the PFA seeks to invest are also required by sections 5.2.3(iii)(c) and 5.2.11(i) of the Amended Regulations to be registered with the Financial Reporting Council of Nigeria (FRC) (PenCom, 2022).

Another provision in the 2012 Regulations is that at least 75% of the pension fund assets could be allocated to businesses or projects in Nigeria through investments in infrastructure funds, PE funds, or bond/sukuk issued by qualified Multilateral Development Finance Organizations (MDFOs). However, the Amended Regulations have lowered this requirement to 60% (see sections 5.2.3(iii)(f), 5.2.11(ix), and 5.2.12(iii)). According to the 2012 Regulations, infrastructure funds that were to be used to invest pension fund assets only needed to have satisfactory predefined liquidity/exit routes. On the other hand, as stated in section 5.2.3(iii)(d) of the Amended Regulations, the exit methods are defined as IPO, sale to other infrastructure funds, trade sale, and sale to a strategic investor (PenCom, 2022).

Pension fund assets may be invested in ordinary shares of public limited firms under section 5.2.4(i) of the Amended Regulations if the issuing companies' shares are listed/quoted on a securities exchange registered by the Securities and Exchange Commission (SEC) or proposed to be listed/quoted through an Initial Public Offer (IPO) (PenCom, 2022). The position under the 2012 Regulations, which stated that pension fund assets could be invested in common shares of public limited companies as long as the issuing companies' shares are listed or quoted on a securities exchange that is registered by SEC, among other requirements, is materially different from this.

Pension fund investments may be made in a recently founded quoted business that developed as a result of a merger, acquisition, or other combination arrangement of existing corporate entities, as per section 5.2.4(iii) of the Amended Regulations. However, this is contingent upon the fulfillment of the minimum quality standards for investment in ordinary shares, as outlined in section 5.2.4 (i) & (ii) of the Amended Regulations, by at least one of the former firms. The 2012 Regulations did not provide for this flexibility (PenCom, 2022).



Commercial papers of corporate entities and non-interest (Islamic) money market instruments of banks are another asset class that PenCom introduced under the Amended Regulations for investment by PFAs. Where the investment is in a non-interest compliant money market instrument, it shall be in compliance with the Central Bank of Nigeria (CBN)'s guidelines for the regulation & supervision of institutions offering non-interest financial services, according to section 5.2.5(iii) of the provision, among other requirements (PenCom, 2022).

Different qualifying requirements are introduced by the Amended Regulations for Naira-denominated Global Depository Notes (GDNs) and Global Depository Receipts (GDRs) issued in other countries. Under the Amended Regulations, eligible and federal government-guaranteed Eurobonds, GDRs, and GDNs are still permitted instruments, but there are fewer restrictions on foreign issuances. According to the 2012 Regulations, in addition to the necessary regulatory approvals that would be obtained in the nation where the instruments were to be issued, GDRs or GDNs and Eurobond issuances had to be registered and approved for issuance to Nigerian investors by the SEC in order to qualify as an eligible instrument for investment by PFAs. Section 5.2.13(iii & iv) of the Amended Regulations states that only GDNs and GDRs denominated in Naira are now subject to SEC approval and compliance with other SEC rules (PenCom, 2022).

The 2012 Regulations mandated that the PFAs and PenCom publicly disclose the quarterly and annual rates of return on all RSA funds, without defining the manner in which this disclosure must be made. However, only PFAs are now obligated to publish the public disclosure on their websites in accordance with section 9.1 of the Amended Regulations. Furthermore, the audited financial statements of the Funds and the Fund's performance over a rolling three-year period were to serve as the foundation for the yearly rates of return under the 2012 Regulations. According to the new system outlined in section 9.2 of the Amended Regulations, the annual rates of return were to be calculated using the Funds' audited financial statements as well as a three-year Compound Annual Growth Rate (CAGR) (PenCom, 2018b).

2.3 Rules Guiding Transfer of Retirement Savings Accounts (RSA)

RSA transfers must take place on a quarterly schedule, starting on January 1 and ending on March 31; the first transfer quarter is from April 1 to June 30; the second transfer quarter is from July 1 to September 30; and the fourth transfer quarter is from October 1 to December 31. Transfer requests will be handled in accordance with their Effective Transfer Dates (ETDs), which are March 31, June 30, September 30, and December 31. These are the final days of the final month of each transfer quarter. RSA Transfer requests will be assigned the ETD of the current Transfer Quarter if they are received within the first two months of the Transfer Quarter; requests submitted within the third month of the Transfer Quarter will be awarded the ETD of the



subsequent Transfer Quarter. Whether or not it is a leap year, an RSA Holder may only be eligible for another RSA transfer 365 days from the date of the last one that was authorized. The RSA holder shall not be charged for RSA transfers between PFAs. Only transfer requests from RSA holders who have been uniquely identified will be approved by the Commission. Such RSA holders' unique identification (such as their fingerprint, iris, or VNIN image) must correspond with the information about them that is stored in the NIMC database. RPFAs are responsible for paying the costs associated with identity verifications completed at the National Identity Management Commission (NIMC) for RSA transfer requests that they have filed (PenCom, 2018b; PenCom, 2019; PenCom, 2022).

After an RSA transfer request is made on RTS and receives provisional approval from the Commission, it becomes irreversible. In the event that the Commission suspects fraud or illegal activity, it may reverse a provisional approval or revoke an RSA transfer, as applicable; however, in doing so, it may only do so if: i) the Commission determines that the transfer instruction is not one that is systemically important; and ii) in the event that the Commission revokes an RSA transfer, it may issue a directive directing the appropriate party to return or refund any funds involved. For anything done in accordance with the RTS, including: i) when RTS notifies a transfer request approved that was not started by an authorized RSA holder; and ii) when RTS accepts an incorrect RSA balance from a TPFA and issues a Global Net Transfer Position (GNTP) based on the incorrect RSA balance, the Commission shall not be liable to any claim or action by any person. In the event that the RTS notifies a third party of the approval of a transfer request that was not started by an authorized RSA Holder, the RPFA will be held accountable for any claims or actions made by such third party. A TPFA will be held accountable for any claim or action brought by any party in the event that the RTS accepts an incorrect RSA balance and issues a GNTP on the basis of the incorrect RSA balance that the TPFA provided (PenCom, 2018b; PenCom, 2019; PenCom, 2022).

RSA holders who commence transfer requests with RPFAs will receive written confirmations and pre-transfer consent forms from them. The RSA holder must sign the pre-transfer consent slip prior to initiating a transfer request, and the printed confirmation slip (a pre-designed printout from the RTS Client/RTS portal) must be signed by the RSA holder both after the transfer request has been submitted and to attest to the fact that the RSA holder initiated the transfer request. The pre-transfer consent slip and the signed confirmation will remain in the RPFA's file under the RSA Holder's mandate, and the other copies will be sent to the RSA Holder for their records. PFAs must implement the IT infrastructure required by the Commission for the RSA transfer procedures. Such IT infrastructure needs to be large enough to support the



retention, retrieval, and storing of data related to RSA transfers for at least ten (10) years. PFAs will use the RTS Client/RTS site that the Commission has adapted for them in order to submit RSA transfer requests (PenCom, 2018b; PenCom, 2019; PenCom, 2022).

PFAs are required to use the RTS Portal, which has been specially designed for them by the Commission, in order to handle requests for RSA transfers. PFAs are required to give the Commission information about the staff members who will be given Administrator Rights on RTS. The following will be included in the details: first name, PFA name, user ID, first name, middle name (if applicable), email address, mobile phone number, surname, staff id and assigned role. PFAs are in charge of designating and maintaining their workers' role profiles on RTS. PFAs are responsible for making sure that appropriate internal controls are implemented when allocating such role profiles. The Commission may, from time to time, specify that PFAs obtain Futronic 'Live' single fingerprint scanners, furnished with Neurotechnology fingerprint client licenses or any other scanner. This will not be necessary after the updated RTS launches. At the time that RSA transfer requests are initiated, the device mentioned above will make it easier to take live fingerprint photos of RSA holders. PFAs' staff members and assignees are required to follow the Commission's code of ethics and business practices and to protect the privacy of any information pertaining to the RSA transfer procedure (PenCom, 2018b; PenCom, 2019; PenCom, 2022).

Only RSA holders who are registered on the Enhanced Contributor Registration System (E CRS) and whose recovered data has been successfully uploaded to the E CRS may have their requests processed by PFAs. PFAs are required to reclaim their current RSA holders who were registered on the previous Contributor Registration System (CRS) in accordance with the aforementioned. This includes those who wish to transfer their RSAs. Refusing to recapture an RSA Holder who wishes to transfer to a different PFA is against this regulation and will result in administrative action according to Section 6.0 of this regulation. Regardless of whether it is a leap year or not, PFAs will only handle requests for RSA transfers from qualified RSA Holders who haven't moved their RSAs via the RTS in the previous 365 days. RSA holders may only transfer their RSAs to PFAs if they are staff members or employees of organizations or groups that have been awarded PFA licenses solely for those organizations or groups (such as NPF Pensions Limited and NUPEMCO). Holders of RSAs who work for groups or organizations that have been awarded exclusive PFA licenses are free to transfer their RSAs to any other PFA of their choosing, should they so choose. RSA holders may transfer their RSAs from one PFA to another if they are affiliated with Ministries, Departments, and Agencies (MDAs) of States that have



logged into the Contributory Pension Scheme (CPS) (PenCom, 2018b; PenCom, 2019; PenCom, 2022).

To start an RSA transfer, a retiree on Programmed Withdrawal (PW) or retiree on an annuity who is also making voluntary contributions under the CPS may go to any RPFA of their choosing. A Retiree on PW who has started the transfer of his or her RSA will continue to receive all monthly pension benefits from a TPFA, up to ETD. Following the successful transfer of the Retiree's RSA, the Programmed Withdrawal Agreement between a Retiree and a TPFA will come to an end on ETD. The RPFA will get a copy of the Retiree's most recent PPWA from the TPFA and will work with the Retiree to execute a new PPWA. The current pension benefit payment schedule that the Commission has approved for the Retiree will serve as the foundation for the new PW Agreement.

As soon as the RSA is transferred and a new Programmed Withdrawal Agreement is signed, the RPFA will continue to pay the retiree's pension. Pension payments cannot be made later than the following due date following ETD. A retiree on PW who wishes to convert to an annuity may only do so a year from the date of their last RSA transfer, notwithstanding the restrictions of the revised regulation on retiree life annuity. A retiree who has started the process of transferring their RSA from one PFA to another by filing an RSA transfer request is not permitted to move to an annuity while the request is being processed (PenCom, 2018b; PenCom, 2019; PenCom, 2022).

3. Methodology

This study adopt a descriptive research method. It involves getting primary data on a typical Fund II customers from four different PFAs in Nigeria that has made the contribution for 10 years as at March 2024. However, in line with the data protection law and to maintain anonymity of respondents, dummy names have been created for the client, contributors and the PFAs. The objective is to demonstrate possible pattern of PFA performances across different managers after 10 years of contribution. The adopted labels are as listed in Table 1. The Table indicate that Mr. Ogunbola is an employee of Station Nig who has contributed in Eagle Nig. Mrs. Adebayo is an employee of Anthem Nig who has contributed to Tiger Plc. Mr. Bayegun is an employee from Netherlands Nig who has contributed to Elephant Plc. The last row shows that Mrs. Adebowale is an employee of Yoruba Inc who has contributed to Chimpanzee Plc.

Table 1: Four Hypothetical RSA's Contributors with different PFAs

Serial No	RSA's Contributors	Client/Employees	PFA's
1	Station Nig	Mr. Ogunbola	Eagle Plc
2	Anthem Nig	Mrs. Adebayo	Tiger Plc



3	Netherlands Nig	Mr. Bayegun	Elephant Plc
4	Yoruba Inc	Mrs. Adebowale	Chimpanzee Plc

Source: Authors' Formulation

4. Results of Empirical Analysis

Table 2 contains the total net contribution, total net interest and net closing balance after 10 years. The study collected data to examine the respective balances of the four clients with their different PFAs. The results indicate that Mr. Ogunbola, who registered with Eagle Plc has a total contribution of ₦5,628,540 over the 10 years which implies an average contribution of ₦46,904.50 per month over the period. This amount earned a total interest of 2,735,220.96 and increase the closing balance to 8,363,760.96. Thus, Eagle Plc has been able to growth Mr Ogunbola's investment by 48.60% over the 10 year period.

Table 2: Balances with PFAs after 10years of Continuous Contributions.

Client Name	PFA Name	Total Net Contribution	Total Net Interest	Net Closing Balance at 10years	ROI %
<i>Mr. Ogunbola</i>	<i>Eagle Plc</i>	5,628,540.00	2,735,220.96	8,363,760.96	48.60%
<i>Mrs. Adebayo</i>	<i>Tiger Plc</i>	3,603,948.00	1,621,500.44	5,225,448.44	44.99%
<i>Mr. Bayegun</i>	<i>Elephant Plc</i>	38,928,024.00	21,670,104.74	60,598,128.74	55.67%
<i>Mrs. Adebowale</i>	<i>Chimpanzee Plc</i>	89,183,064.00	19,996,189.44	109,179,253.44	22.42%
<i>Total</i>		137,343,576.00	46,023,015.58		

Source: Authors' computation

Mrs. Adebayo who registered with Tiger Plc has a total contribution of ₦3,603,948 which corresponds to an average of ₦30,032.90 contribution per month. Her investment increased to ₦5,225,448.44 after 10 years, earning a total interest of ₦1,621,500.44 which implies a Return on Investment (ROI) of 44.99% over the periods.

Mr. Bayegun who registered with Elephant Plc has a total balance of ₦38,928,024 which suggests an average of ₦324,400.20 contribution per month for the 10 years period. He earned a total interest of ₦21,670,104.74 (55.67%) to grow the investment to ₦60,598,128.74 over the period.

Finally, Mrs. Adebowale who registered with Chimpanzee Plc has a total contribution of ₦89,183,064 which corresponds to an average monthly contribution of ₦743,192.20 over the



periods. She earned just 22.42% interest (₦19,996,189.44) to growth the closing balance to ₦109,179,253.44. This suggest that if Mrs. Adebowale has a way of performing a comparative analysis among the PFAs and chose Elephant Plc instead of Chimpanzee Plc, she could earn an additional ₦29,649,442.15 which corresponds to an additional 33.25% ROI over the period.

5. Conclusion and Recommendation

From the research findings, the paper comes to the conclusion that pension fund management is an essential system that guarantees the right kind of organization, coordination, rules, and general administration of pensioners' money. Nigerian pension investments, in particular, greatly support the development of the financial industry in terms of the depth of financial development. This study has demonstrated that the contributory pension plan's sustainability depends on financial openness. The study concludes that client can earn extra returns by conducting background research on the management performance of the potential pension fund administrators. The study recommends that stakeholders should increase awareness among potential contributors on how to assess the performance of PFAs.

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A CORRELATION ANALYSIS OF 10-YEAR GOVERNMENT BOND YIELD IN NIGERIA AND SELECTED AFRICAN COUNTRIES

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Abstract

This study examines the correlation between 10-year government bond yield in Nigeria and other African countries. Bond yield is the return on investment which was made by bond investor. Bonds without significant correlation have different risk pattern and can be combined together in appropriate mix for risk management diversification in the same portfolio. Bonds with the same statistical properties should not be put together in the same portfolio. This study compare Nigeria bond with that of Kenya, Morocco, Namibia, and Uganda using Pearson correlation coefficient and its p-value. This study concludes that there is significant correlation between Nigeria government bond yield and Namibia government bond yield as well as Morocco government bond yield but not significant correlation with government bond yield in South Africa and Kenya. The study recommends that investors can combine Nigeria bond together with those of South Africa and Kenya in a portfolio for risk management.

Keywords: 10-year government bond, Bond yield, Africa bond market, Bond correlation

1. Introduction

Bond yield is the return on investment which was made by bond investor. A bond yield could be described as the discount rate that connects the cash flow from bond to its latest currency price. Higher yield implies that investors are owed a greater amount of coupon rate or interest rate which they are entitled to be paid. Bond yields are often inversely related to bond prices. That is, the more the prices of bond move up the more the yield goes down. This is primarily due to the fact that coupon rate at bond market is always remain fixed, therefore the price in secondary market often fluctuates to align with prevailing market rates. Aside bond yield being used to



evaluate risks that are involved in investment, it could be used to ascertain whether the bond is a good investment. Globally, government bonds are often employed as essential tools of raising funds. Aside, government bonds are equally utilized to influence monetary and fiscal policy. The funds realised from government bonds are tailored to public expenditure in order to support economic development and growth (Chen & Bartle, 2017; Chen & Bartle, 2017; TET, 2022; Yale, 2022).

The macro economic variables are being impacted by these government bonds and the yields associated with them. In Nigeria for instance, bond market is now becoming more significant than other sources of raising fund for capital expenditure as a result of its contribution to the development of emerging economy of Nigeria. Apart from being a long term financial debts instruments, bond is a tradable loan security which is often use to raise fund to cater for capital expenditure (Sec, 2010). In Nigeria, corporate bonds and government bonds are the two major composition of Nigeria bond market. These are the big players in economy growth and development. For example, during economic crisis of Asia in 1997, bond market played an important role to help the country come out of the economic meltdown. Mu, Philips and Stotsky (2013) submitted that bond market is instrumental in achieving sustainable economic stability through intermediating between capital savers and capital users. Apparently, many arguments and discussion had emerged from financial analysis on the dominance of government bonds on corporate bonds in Nigeria bond market. That is, the trading of corporate bonds is relating low to that of government bonds. Previous studies have showed that both the federal and the state government bonds have a tendency to constraint issuance of corporate bond in Nigeria. This resulted to the fact that the bonds issued by the government is usually targeted at infrastructural development and it is often higher than corporate bond. More so, the constitution allowed the government to issue bond at the various arms of government. The constitution equally permit federal capital territory (FCT) and community at large to issue municipal bond and special purpose bond respectively (Nwancav, 2014).

In Nigeria, there is high rate of budget deficit and this has led the government into no other alternative rather than raising funds through the bonds market. For instance, the budget deficit stood at ₦6.26 trillion in year 2022 which represent 3.39% of the GDP. However, it should be discussed that budget deficit is a consequence of excess government expenditures over the tax revenue. The implication of this is that the bond yield or economy interest rate of the country will fall. This means that as the budget deficit of any economy is rising the economy interest rate would be declining. Hence, the investors on government or corporate bond would be discouraged and the economy would be worsen. In Africa for instance, Nigeria has economically preferred



budget deficit relative to other Africa countries. For instance, in the year 2018, the budget deficit of South Africa stood at 3.6% while in Nigeria the budget deficit was 1.74%. In the year 2022, South Africa budget deficit was 5.2% while that of Nigeria stood at 3.39%. Theoretically, this is an evidence to show that the yield on bond investment in Nigeria will be higher than the yield on bond investment in any other African countries. Other macroeconomic factors such as inflation rate, exchange rate, banking sector development, trade openness, fiscal balances, foreign direct investment and saving also determine the bond yield of a given economy (Beeket & Ivashina, 2012; Hakaussou, 1999; Adelegan & Redzewick-Back, 2009 and Xiong & Yan, 2010). This study examines the correlation between bond yield in Nigeria and other African countries.

2. Literature Review

Bond market can be said to be a guarantee debit investment avenue which is flexible and readily available to be assessed over a period of time, it could be issued by the government or private sector (Hausa, 2013; Sattar, 2013). Government bond is an assured tool of raising funds by the government to the purpose of financing its capital expenditure (Bratislas, Meceski & Srbinoski, 2012). Bonds is a form of investment which is separated from other forms of investment opportunities because the issuer of bond normally pay back the investors the capital invested plus a predetermined fixed interest (Baker & Mawi, 2020). The government and business organisation have great influence on the magnitude and growth of bond market in Nigeria as a result of their modes of financing capital projects. (Sharima, 2001: 1405). These financing modes are based on complete financial settings of the country. Thus is the only controlling links between government, banks and business organisation (Sharima, 2001:1405). However, less focus were given to bond market by business organisations as a means of financing major project as a result of dynamism in the relationship between banks and government, instead business organisation prefer other financing medium such as shares market where the risks are diversified.

Although, there is no investment without its own degree of risk, but the risks attached to debit investment such as bond is heavier and play essential role in diversified portfolio (Stifel Nicholous & Company, 2012:1). According to a study by Legg Mason Investor services (2018:1), risks like credit risks, etc are connected with bonds. Bond market in a less developed country such as Africa countries are still far behind relative to developed nations such as European, South America or Asia in terms of the market assessment. However, the growth of the markets essential in advancing financial market (Mu, Phelps & Stotsky, 2013). However, to expands the bond market in an economy. It requires many significant facts such as the investors foundation, macroeconomic environment, structure of debt market, etc (South African Reserve



Bank (SARB) 2018:2). The market foundation and regulation is a subject of refinement of the economic sector which is a pivotal for bond market growth and development (Ong, 2005:19). Although, the enormous design of liquidity and prices are the major tools normally used in trading bonds in the market, that is, bonds are often evaluated in relation to their yields (Jonasson & Papaioannou, 2018:45). Choudliny (2019:321) Submitted that price is essential element in order to determine the purchase and sale price of bonds. However, for the comparison of bonds performance, yield of bonds is essentially needed. This is become prices of bonds do not behave as an exceptional indicator. That is, bonds normally react to period of maturity, issuers, etc (Choudliny, 2019:321). Therefore, the only indicator that is essential to ascertain the performance of bonds is the yield of government or organisation bonds constitute the different grouping of risks as a result of yield curve which is mostly established from like group of bonds (Place, 2000:12).

In another dimension, Place (2000:12) explained that yields are differentiated countries wise, value appraisal between government and corporate bonds are done by yield, acknowledgement of forward rate and assessment of various risks in connection with bonds are resultant of the yield element, monetary policy rigidity is being controlled by the yield factors, etc. Various contributory factors are the reasons for the differences in the prices of bonds in bond market and are relatively unpredictable due to the distribution in supply and demand of bonds within the same economic policy in a country (Mega & Widayat, 2019:100, Schuknecht, Von-Hagen & Wolswijk, 2009:375). Mostly included in the bench mark of bond market was the high cost of borrowing which is the resultant effect of high credit risk or frail fiscal policy of the market system (Schuknecht, et al, 2009: 375). Beside, some internal factors are responsible for bond prices. Such as factors are changes in Shareholder's demand, bond rating, etc However, some external factors which also has effect on bond prices are changes in interest rate, inflation rate, exchange rate, etc ((Mega & Widayat, 2019).

Legg Mason investor services (2018) stated that as interest rate changes the prices of bond equally changes. That is, the more the interest rate goes down the higher the prices of bond and vice-versa. (Mega & Widayat, 2019, Zaloom, 2019). Another important parameter to be considered in measuring bond yield is the time period of the bond. This means that a prolonged time span of bond would lead to bond prices being substantially fluctuated (Legg Mason investor service, 2018). Government bonds are examples of bonds with long run fixed coupon rate which cannot do without interest rate risk (US Securities and Exchange Commission, 2015). The relationship between bond yields and prices were not well discussed by Keynes, but the Economist predicted that a drop in bond prices always resulted into an increase in interest rate,



and it would counter balance the rate of bond yield significantly (Malkiel, 1962). However, the value of bonds at the market is fixed by the following elements; the interest rate, coupon rate, principal amount of the bond and the period of maturity (Malkiel, 1962). It was equally noted that the price of a bond is always depending on interest rate common at the market, and thus played a vital role in the yield of government bond (Wilcox & Falozzi, 2013).

There are many empirical research that focused on bond analysis. Duffee (1998), Jacoby, Liao, and Batten (2009), and Morris, Neal, and Rolph (2000) investigated yield spread dynamics by estimating the effect of government rates on yield spreads not only over the long-run, but also over the short-run. Most researchers in this area apply standard regression analysis on changes over time in yield spreads as a function of changes in government rates (Duffee, 1998 & Jacoby et al, 2009). However, some argue that this approach lacks empirical power since they find evidence that the time series of yields on corporate and government bonds are non-stationary. To avoid problems associated with non-stationary, Duffee (1998) and Jacoby et al (2009) apply statistical analysis on changes in bonds' interest rates rather than their levels. Duffee (1998) found that the relation of both callable and non-callable bond yield spreads and treasury yields is negative. However, this negative relation is much stronger for callable bond issues. The relation is also found to be more negative for high-priced callable bonds than for low-priced callable bonds. This is because the call option for high-priced callable bonds is deeper in the money. Lower coupon rates of treasury bonds as compared with corporate bonds reflect the higher duration of treasury bonds.

Ibrahim (2008) used multiple linear regression in testing the effect of interest rate, bond rating, firm size, and debt to equity ratio of 22 corporate bond yields period 2004-2006. He found that interest rate and DER positively related to the corporate yields, bond rating and firm size negatively related to corporate bond yield. Longstaff and Schwartz (1995) found that yield spreads are negatively related to interest rates. They account for this result by presuming that the correlation between the value of the firm's assets and the risk free rate is negative, their regression analysis yields a negative yield spread-treasury rate relation, decreasing in magnitude as credit rating of the bond issue increases. MNR (2000) use co-integration approach to model the relation between corporate and treasury yields. They use monthly averages of daily yields for 10-year constant maturity treasury bonds and Moody's Aaa and Baa seasoned bond indices obtained from the Board of Governors of the Federal Reserve System. The sample size of each data series sums to a total of 456 observations. They show that corporate rates are co-integrated with treasury rates. Theoretically, this result suggests that the dynamics of this relationship is time-varying-the relation between corporate and treasury rates is positive in the long-run and



negative in the short-run. Intuitively, this pattern implies the same time-dependent relation for the relation between yield spreads and treasury yields.

Fink, Hasiss and Hristoforova (2003) investigated aggregate bond markets and real gross domestic product among thirteen (13) developed countries comprising the United States of America, the United Kingdom, Switzerland, Germany, Austria, the Netherlands and Spain for the periods 1950–2000. The study employed the Vector Autoregressive model. The results show that long-run relationships subsists in Japan, Italy, Finland, and Portugal, result from these countries also showed that the short-run autoregressive model supports the supply leading hypothesis. In a study conducted in South Africa, using the Engle and Granger Single-equation based two-step approach and co-integrated Kapingura and Makhetha-Kosi (2014) examined if any causal relationship exists between bond market development and economic growth for the periods 1995–2012. The result indicates a unidirectional causality between bond market and economic growth, while the causal link flows from bond market to economic growth. Bhattacharyay (2011) studied the factors that determine bond market development in Asian economies using a simple, multivariate ordinary least square (OLS), Fixed effect (FE), Random effect (RE) and Generalized Least squares methods (GLS) on cross-sectional data for the periods 1998–2008. The results indicated that the size of the economy is positive and significantly related with corporate bond issuance.

The theme of market efficiency is explored within the context of Kenya's bond market. Promoting capital market development in Kenya has become an important component of the government's financial development strategy. In particular, recent reforms recognized the development of bond markets and the financing of capital formation as key factors bearing upon the prospects for long-term growth. The importance of the local bond market in Kenya, not only as a vehicle to fund the country's budget deficit, but also as a source for investments that are free of credit risk, that can serve as a benchmark for the development of the domestic corporate bond market and as an alternative to equity financing and bank lending has motivated policymakers to initiate measures designed to ameliorate conditions in the bond market. In order to improve market efficiency in the domestic debt market, the Central Bank of Kenya, in collaboration with the Capital Markets Authority and the Nairobi Stock Exchange, initiated a program to enhance the efficiency and liquidity of the Kenyan government securities market as a key part of its strategy to develop the domestic bond market. Since September 2007, the Kenyan authorities have embarked on a focused issuance program aimed at building large and liquid benchmark bonds. This was achieved through larger issuance of new government bonds and re-openings of existing issues, therefore increasing the free-float available for secondary market purposes.



Furthermore, the Kenyan Government has committed itself to macroeconomic stability characterized by moderate inflation, trend growth and sustainable government deficits. In the primary Treasury bonds market, a quarterly analysis indicates that during Q2. 2022, seven treasury bonds were issued (1 reopening, 4 new issues and 2 tap sales). In issuing these bonds, the government sought to raise a total of KShs.240.00 Billion and received bids worth KShs.222.71 Billion. The government accepted offers for bonds worth KShs.202.86 Billion, indicating an aggregated 84.52% acceptance rate. As at March 2022, the total outstanding amount of corporate bonds was Kshs 29.51 Billion. This is a 2.43% increase compared to the KShs.28.81 Billion reported at the close of the 2021 calendar year. In the secondary bonds market, the bond market turnover increased in Q2.2022 by 2.47% with KShs.195.67 Billion worth of bonds being traded compared to KShs.190.95 Billion traded in Q1.2022. Year on Year comparison of Q2.2022 and Q2.2021 indicates a 27.86% decrease from KShs.271.24 Billion recorded in Q2.2021 compared to KShs.195.67 Billion recorded in Q2.2022.

South Africa is the largest economy among African countries. Although it is still an emerging market, the South Africa bond market is more developed than that of other African countries. The South African bond market is also a leader among emerging market economies. In 2008, the total volume of bonds traded in South Africa was over R19 trillion. The government issued bonds to dominate South Africa's domestic bond market, and there is a centralized exchange in place to monitor, regulate and modify the bond market in South Africa, known as the Bond Exchange of South Africa Limited (BESA). The South African bond market is one of the biggest in emerging economies. Having a turnover of 9% of the global bond market turnover, the country's secondary bond market was ranked third in the world in 2011. A conceptual overview South Africa has a relatively liquid bond market and the Turnover Velocity of Exchange is the indicator of liquidity of the bond market. It shows that the market capitalization turnover increased from 17.7 times to 23.4 times per annum in early 2022.

Similarly, the country's private credit by deposit money banks to GDP ratio of 142% in 2011 ranked first among emerging economies and was by far larger than that of China (121%), Brazil (63%) and India (47%). Despite its robust financial development, South Africa is dragging its feet in terms of economic growth. During the period 1991 to 2011 growth per capita (GDP) in South Africa was lower at 5% compared to its BRICS peers Brazil (8%), India (7%) and China (15%) and only slightly better than Russia.

3. Methodology

This study makes use of descriptive research methodology using secondary data. The data was sourced from <https://www.investing.com> from January, 2017 to December, 2021. The study employed Pearson correlation coefficient of correlation analysis using Statistical Package for Social Sciences (SPSS) version 21.0. Graphs were equally used to describe the pairwise trends between the variables.

4. Results

The results of the correlation analysis is displayed in Table 1. The table established the correlation between 10-year government bond yield in Nigeria and selected Africa Countries the correlation. The four selected African countries are Kenya, Morocco, Namibia, and Uganda, it was observed that there is a correlation between the 10-year Nigeria government bond and Morocco government bond was the significant value at 0.02 which is less than 0.05 significant level, Namibia government bond yield also correlate with Nigeria government bond yield with 0.00 significant value. Hence this interprets that Nigeria Government bond yield, Namibia government bond yield, and Morocco government bond yield are statistically significant indicating that there is the correlation between Nigeria Government bond yield, Namibia government bond yield, and Morocco government bond yield.

The above-extrapolated result of the relationship between the 10-year government bond yield in Nigeria and selected Africa Countries. The correlation outcomes of the study establish a significant relationship between the Nigerian governmental bond yields in 10-years against its African counterpart. Nigeria as the giant of Africa has an improved GDP of 12% increment in the last 10 years while some other African counterparts are spiraling higher beyond Nigeria's productive mechanisms.

Table 1: Correlation Analysis

		Nigeria	Kenya	Morocco	Namibia	Uganda	
Nigeria	Pearson Correlation	1	.107**	.053**	0.004	-.099**	
	Sig. (2-tailed)		0	0.009	0.854	0	
	N	2835	2835	2431	1987	2508	
		Nigeria	Kenya	Morocco	Namibia	Uganda	
		Pearson Correlation	.107**	1	-0.037	-.248**	.623**

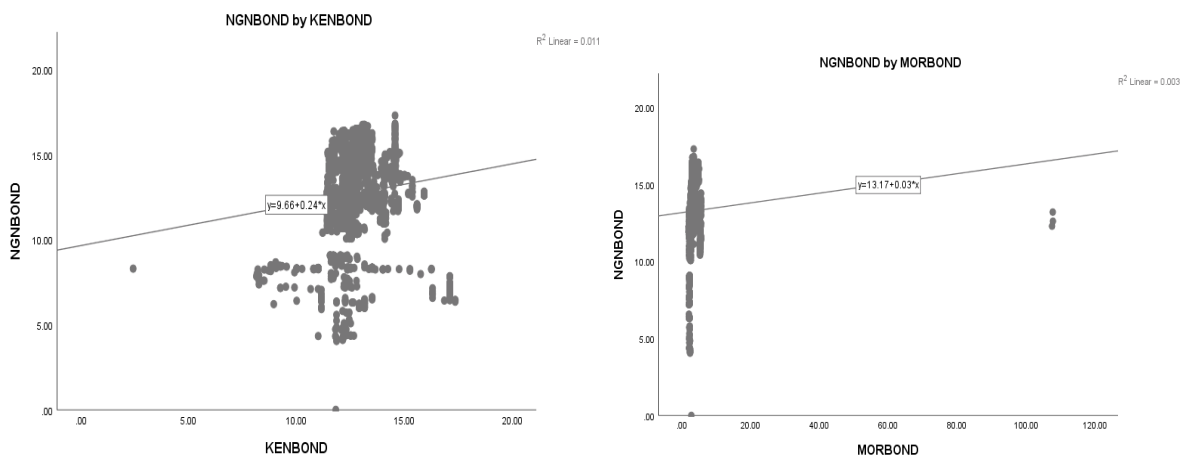


Kenya	Sig. (2-tailed)	0		0.065	0	0
	N	2835	2904	2431	1987	2508
Morocco	Pearson Correlation	.053**	-0.037	1	0.005	-.110**
	Sig. (2-tailed)	0.009	0.065		0.825	0
Morocco	N	2431	2431	2431	1987	2431
	Pearson Correlation	0.004	-.248**	0.005	1	-.301**
Namibia	Sig. (2-tailed)	0.854	0	0.825		0
	N	1987	1987	1987	1987	1987
Uganda	Pearson Correlation	-.099**	.623**	-.110**	-.301**	1
	Sig. (2-tailed)	0	0	0	0	
Uganda	N	2508	2508	2431	1987	2508

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

Source: Authors' Computation

However, the positive correlations of the Nigeria government bond against the African countries are relative without other factors such as fiscal variables which could directly promote the fluctuations in the hikes and dips of the government bond yield which Nigeria and its counterparts are not immune to. In fact, a worse return on the government budget could lead to the spread of the government bond yield thus the correlation relativity between the African country's government bonds reference to Nigeria can be attributed to their fiscal relationships.



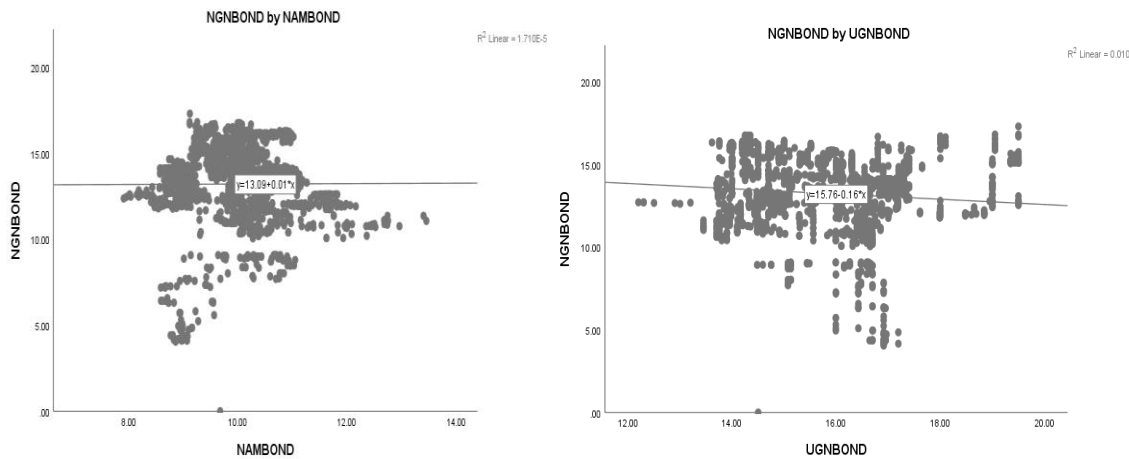


Figure 1: Correlation Charts

5. Conclusion and Recommendation

This study concluded that Nigeria government bond yield, Namibia government bond yield, and Morocco government bond yield are statistically significantly correlated indicating that there is the correlation between Nigeria Government bond yield, Namibia government bond yield, and Morocco government bond yield. Therefore, the first null hypothesis which says that there is no significant correlation between 10-year government bond yield in Nigeria and selected Africa Countries is hereby rejected. Although it was submitted that except for South Africa and Kenya in which the government bond yields in those countries have no significant correlation with the government bond yields in Nigeria. The recommends that investors can combine Nigeria bond together with those of South Africa and Kenya in a portfolio for risk management.

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LANCASTER'S CONSUMER DEMAND THEORY: AN INTERNATIONAL TOURISTS DESTINATION APPLICATION

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Abstract

This theoretical study demonstrate the application of Lancaster consumer demand theory to international tourist destination choices. Using a Cobb-Douglas utility function with two characteristics as arguments (attraction and facilities) and three destination countries with country 1 relative abundant in facilities, country 2 in attraction and country 3 in intermediate position. The study derives the coordinates of the relevant budget lines segment between country pairs, derive the equation of the budget line, and specify the necessary condition for technical efficiency. Using the case of a tourist with high preference for attraction Marshallian demand for facilities and attraction were derived using First Order Condition for Lagrangian function. The characteristics demand function was then transformed to commodity (destination) demand function using matrix algebra techniques. The expected sign of some comparative statics based on the derived demand function were given. This study recommends that characteristics-based consumer behavior should popularized in the teaching of microeconomics to encourage innovative research and applications.

Keywords: Lancaster's Consumer Theory, International Tourists Destination, Lagrangian function, matrix algebra, Marshallian demand

1. Introduction

The appropriate economic theory for analysing consumer choice of destination is the basic microeconomics theory of consumer which implies that a rational agent will always choose the most preferred bundle (of destinations) from the set of affordable alternatives (defined by consumer's budget constraints) to maximize utility. The monotonicity assumption of this theory, which makes consumer to prefer more of any commodities, implies that commodities are good and not bad. According to Lancaster (1966), this popular traditional consumer theory fails to incorporate the intrinsic properties of a particular commodity into the theoretical analysis.

In application of this theory, however, economists' analyses of substitutes and compliments suggest the need to recognize intrinsic characteristics of commodities. For example, if the only relevant property is that 'goods are good', then consumer that only (and always) consumes diamonds is as rational as consumer that only (and always) consumes loafs of bread. Then, in elementary economics, why do instructors use 'margarine and butter' as example of substitutes and use 'automobiles and gasoline' as example of compliments? Why not using 'butter and gasoline' as example of substitute? The answer lies in the assumed intrinsic characteristics of



those commodities. Another limitation of the traditional consumer theory is its inability to explain introduction of new commodities which is a fact of the current technology driven world. Under the traditional consumer theory, to add ‘m’ new commodities to analysis based on ‘n’ old commodities, we need to start the analysis all over again and expand the dimension of commodity space (and that of consumer preference map) from ‘n’ to ‘n+m’.

An alternative theory to the popular traditional consumer theory can be traced to Strotz (1957) who used utility tree to show that a particular commodity is associated with a particular type of utility. Gorman (1959) considered separation of utility function and its aggregation. Lancaster (1966) extends and harmonizes this alternative reasoning into a formal consumer theory based on assumption that consumers derive utility from the properties or characteristics of commodities rather than directly from the commodities itself. The resulting alternative theory is what this study refers to as Lancaster’s consumer theory. This theory assumes that commodities are just input to the consumers’ consumption activity which generates collection of characteristics as output. A particular commodity is assumed to have more than one characteristic while many characteristics are shared by more than one commodity. It also assumes that combination of goods may possess different characteristics from individual commodities. The main features of the Lancaster’s consumer theory are summarized in Table 1.

Table 1: Lancaster’s Consumer Theory versus Traditional Consumer Theory

Lancaster’s Consumer Theory	Traditional Consumer Theory
Wood will not be a close substitute for bread, since characteristics are dissimilar.	No reason except "tastes" why they should not be close substitutes.
A red Buick will be a close substitute for a gray Buick	No reason why they should be any closer substitutes than wood and bread
Substitution (for example, butter and margarine) is frequently intrinsic and objective, will be observed in many societies under many market conditions	No reason why close substitutes in one context should be close substitutes in another
A good may be displaced from the market by new goods or by price changes	No presumption that goods will be completely displaced



The labor-leisure choice may have a marked occupational pattern	Labor-leisure choice determined solely by individual preferences; no pattern, other than between individuals, would be predicted
(Gresham's Law) A monetary asset may cease to be on the efficiency frontier, and will disappear from the economy	No ex ante presumption that any good or asset will disappear from the economy
An individual is completely unaffected by price changes that leave unchanged the portion of the efficiency frontier on which his choice rests	An individual is affected by changes in all prices
Some commodity groups may be intrinsic, and universally so	No presumption that commodities forming a group (defined by a break in spectrum of cross-elasticities) in one context will form a group in another context

Source: Lancaster (1966:155)

This study uses the Lancaster's consumer framework to model tourism destination choice because the traditional consumer theory is even more inappropriate for tourists' destination choice than non-tourists commodities.

2. General Structure of Lancaster Model

Prof. Lancaster proposed a new customer's theory based on characteristics of products in 1966. According to this theory, characteristics of products not only give product utility and describe products as bundle of characteristics. Let's take the example of bread, whose characteristics include taste, calorie, protein etc. Even then, there can be same characteristics in different products with other characteristics in different mixtures. There are different bundles of varieties of sweetness, good smell, juiciness, vitamins, many varieties of apple, mango, orange etc. There is different bundle of characteristics in a 'golden' apple in comparison to 'sweet red' apple. According to Lancaster, every product presents consumption technology to produce characteristics.

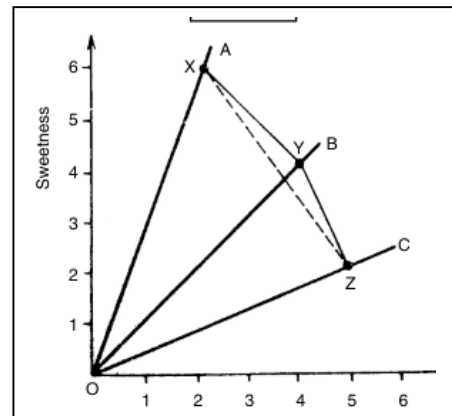
To describe Lancaster's Demand Theory, we take the assumptions described below. 1. Three varieties or brands of apples. 2. They have only two qualities — sweetness and juiciness. 3. There are only these three brands of apples to produce sweetness and juiciness. 4. Can be measured in sweetness and juiciness. 5. Cost of one brand is different from others. 6. Income of

customer is given. 7. Intension of customer is to maximize its utility with a mixed bundle of characteristics.

Variety	Sweetness	Juiciness
A	6	2
B	4	4
C	2	5

On given these assumptions, a customer who consume only one variety of apple which described the characteristics of sweetness and juiciness of that variety in Table 1 can be consumed only in that ratio.

In Fig. 1, sweetness and juiciness are measured on vertical axis and horizontal axis respectively. If every variety of apple's characteristics is shown in table, then a variety of more quantities will provide combination of represented characteristics by the rays of OA, OB and OC to the customer in figure. On given customer's income and price of every variety of apple, let customer buy OX quantity of A or OY quantity of B or OZ quantity of C. By joining X and Y and Y and Z points customer can do different mixture consumption of combination of both the qualities of different quantities of three varieties of apple. XY line is customer's budget line or attributes possibility frontier or efficiency frontier which represents those combinations which the customer can obtain by spending his income on different mixtures of A and B varieties of apple. It is similar for yz budget line, which is related to B and C varieties. This way, budget line XYZ represents the different combinations of both the characteristics, which the customer can obtain on given prices of all the three varieties of apple and his income.



3. Assumption and Models for International Destination Choices

This study assumes a multistage budgeting process in which consumers make consumption decisions in four stages. Stage 1 is time allocation decision stage where consumers decide how to share available time between work and leisure. In stage 2, consumers make decision about the utility maximizing allocation of resources between tourist and non-tourist commodities. Consumers decide the optimal consumption bundle of non-tourist goods in stage 3 while the optimal consumption bundle of tourist goods is decided in stage 4. This study is concerned with the final stage which is the tourism-goods allocation stage.



It is assumed that tourism choice is a process of both quantitative and qualitative consumption. The quantitative unit of tourism consumption is represented by days of stay while the qualitative unit of this consumption is represented by the characteristics bundle provided by destinations for a single day of stay. In line with Lancaster's theory, it is assumed that different destinations provide different characteristics bundles. That is, destinations represent heterogeneous tourism goods. It also assumed that destinations' characteristics can be grouped into attractions and facilities (Papatheodorou, 2001). Attractions include destinations' natural and historical features while facilities encompass tourism infrastructures. It is also assumed that rational individuals are interested in maximizing their tourism utility as constrained by budget considerations, with the utility function defined in the characteristics space.

Assuming a Cobb-Douglas utility function (with $0 < \alpha < 1$), the tourism choice process for an individual coming from a given origin is described as follows:

$$\text{MAX } U = z_1^\alpha z_2^{(1-\alpha)} \quad 1$$

$$\text{Subject to } z = Zx \quad 2a$$

$$p'x + t = Y \quad 2b$$

$$\text{with } z = \begin{bmatrix} z_1 \\ z_2 \end{bmatrix}; Z = \begin{bmatrix} z_{11} & z_{12} & \dots & z_{1n} \\ z_{21} & z_{22} & \dots & z_{2n} \end{bmatrix}; x = \begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ x_3 \end{bmatrix}; p = \begin{bmatrix} p_1 \\ p_2 \\ \vdots \\ p_3 \end{bmatrix}; t = \begin{bmatrix} (1-t_1)Y \\ (1-t_2)Y \\ \vdots \\ (1-t_3)Y \end{bmatrix} \quad 3$$

and where

z_i = total amount of characteristic i , with $i=(1,2)$. 1 indicates attractions, and 2 indicates facilities.

Z_{ij} = consumption technology coefficient, representing the amount of daily characteristic i provided by country j , with $j=(1 \dots n)$.

p_j = tourism price for a single day of stay in country j .

x_j = days of stay in country j .

Y = tourism disposable income.

$(1+t_j)Y$ = transport costs to reach country j , with $(0 < t_j < 1)$.

For analytical simplicity, three destinations ($j=1,2,3$) are assumed, and transport costs are temporarily omitted. The constraint equation 2 becomes:

$$Z_1 = Z_{11}X_1 + Z_{12}X_2 + Z_{13}X_3$$

$$Z_2 = Z_{21}X_1 + Z_{22}X_2 + Z_{23}X_3$$

4

$$p_1X_1 + p_2X_2 + p_3X_3 = Y$$

Further, daily characteristics are assumed to be positive ($z_{ij} > 0$). Moreover, destinations are assumed to provide different tourism products, with country 1 relatively abundant of z_2 , country 3 relatively abundant of z_1 , and country 2 lying in an intermediate position. These destination characteristics can be stated as:

$$z_{11} < z_{12} < z_{13} \quad \text{and} \quad z_{21} > z_{22} > z_{23}$$

5

Finally, destinations' technical efficiency is assumed. A given destination is said to be technically efficient when it provides a "non-dominated" characteristic bundle.

Under the above assumptions, the tourism choice process in the light of Lancaster's theory is clearly illustrated by Figure 1. The characteristics provided by each destination are represented by 'characteristics rays' (labelled as Country 1, Country 2, and Country 3 respectively). Let '*' represents tourists with high preference for attractions and '**' represents tourist with high preference for facilities.

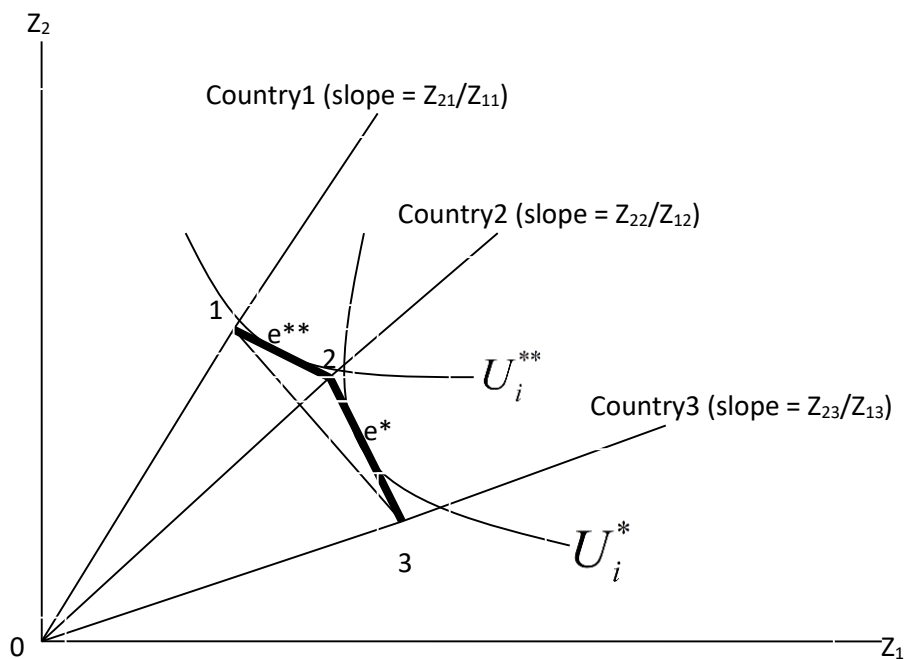


Figure 1: The Tourism Choice Process

Points 1, 2, and 3 are called 'budget vertexes'. They represent the characteristics bundle which is obtainable in each destination, given tourists' budget constraint. The segment in bold, connecting destinations' budget vertexes is called 'efficiency frontier': it represents the place of potential optima available to rational individuals. Potential optima include single-destination trips, and two kinds of multi-destinations trips (linear combinations of country 1 and country 2; linear combinations of

country 2 and country 3). To formally solve the model for x , the coordinates of the budget vertexes are expressed as follows:

$$1 = \left[\frac{Y}{P_1} z_{11}, \frac{Y}{P_1} z_{21} \right]; 2 = \left[\frac{Y}{P_2} z_{12}, \frac{Y}{P_2} z_{22} \right]; 3 = \left[\frac{Y}{P_3} z_{13}, \frac{Y}{P_3} z_{23} \right] \quad 6$$

Using coordinates of budget vertexes as defined in equation 6, the equations of the lines passing through the points (1-2), (2-3), and (1-3) are calculated as:

$$\begin{aligned} \text{Line(1-2)}: z_2 &= Y \left[\frac{z_{21}z_{12} - z_{11}z_{22}}{z_{12}P_1 - z_{11}P_2} \right] - z_1 \left[\frac{z_{21}P_2 - z_{22}P_1}{z_{12}P_1 - z_{11}P_2} \right] \\ \text{Line(2-3)}: z_2 &= Y \left[\frac{z_{13}z_{22} - z_{12}z_{23}}{z_{13}P_2 - z_{12}P_3} \right] - z_1 \left[\frac{z_{22}P_3 - z_{23}P_2}{z_{13}P_2 - z_{12}P_3} \right] \\ \text{Line(1-3)}: z_2 &= Y \left[\frac{z_{21}z_{13} - z_{21}z_{23}}{z_{13}P_1 - z_{11}P_3} \right] - z_1 \left[\frac{z_{21}P_3 - z_{23}P_1}{z_{13}P_1 - z_{11}P_3} \right] \end{aligned} \quad 7$$

By imposing technical efficiency, it is now possible to determine the Marshallian demand for both z_1 and z_2 . Technical efficiency for country 1 and country 3 required that line(1-2), line(1-3) and line(2-3) have negative slope. For country 3 to be technically efficient, the absolute slope of line(1-2) should be lower than that of line(1-3) while that of line(2-3) should be greater than that of line(1-3).

From equation 7, technical efficiency condition for line(1-2) implies that:

$$\begin{aligned} - \left[\frac{z_{21}P_2 - z_{22}P_1}{z_{12}P_1 - z_{11}P_2} \right] < 0 &\Rightarrow z_{22}P_1 - z_{21}P_2 < 0; z_{12}P_1 - z_{11}P_2 > 0 \Rightarrow \frac{P_1}{P_2} < \frac{z_{21}}{z_{22}}; \frac{P_1}{P_2} > \frac{z_{11}}{z_{12}} \\ \Rightarrow \frac{z_{11}}{z_{12}} < \frac{P_1}{P_2} < \frac{z_{21}}{z_{22}} & \end{aligned} \quad 8$$

Similarly, technical efficiency conditions for line(1-3) and line(2-3) are:

$$\frac{z_{11}}{z_{13}} < \frac{P_1}{P_3} < \frac{z_{21}}{z_{23}} \quad 9$$

$$\frac{z_{12}}{z_{13}} < \frac{P_2}{P_3} < \frac{z_{22}}{z_{23}} \quad 10$$

The technical efficiency condition that the absolute slope of line(1-2) should be lower than that of line(1-3) implies that:

$$\begin{aligned} \frac{z_{21}P_2 - z_{22}P_1}{z_{12}P_1 - z_{11}P_2} < \frac{z_{21}P_3 - z_{23}P_1}{z_{13}P_1 - z_{11}P_3} &\Rightarrow \frac{z_{21}P_2 - z_{22}P_1}{z_{12}P_1 - z_{11}P_2} - \frac{z_{21}P_3 - z_{23}P_1}{z_{13}P_1 - z_{11}P_3} < 0 \\ \Rightarrow (z_{21}P_2 - z_{22}P_1)(z_{13}P_1 - z_{11}P_3) - (z_{21}P_3 - z_{23}P_1)(z_{12}P_1 - z_{11}P_2) &< 0 \\ \Rightarrow P_1(z_{12}z_{23} - z_{13}z_{22}) + P_2(z_{13}z_{21} - z_{23}z_{11}) + P_3(z_{11}z_{22} - z_{12}z_{21}) &< 0 \end{aligned} \quad 11$$

Similarly, the technical efficiency condition that the absolute slope of line(2-3) should be greater than that of line(1-3) implies that:

$$P_1(z_{13}z_{22} - z_{12}z_{23}) + P_2(z_{23}z_{11} - z_{13}z_{21}) + P_3(z_{12}z_{21} - z_{11}z_{22}) < 0 \quad 12$$

With the technical efficiency conditions (equations 8 to 12), the Marshallian demand is obtained by finding the tangency point between the indifference curve and the efficiency frontier. To derive the Marshallian demand for α^* (high preference for attraction), the constraint equation 4 can be written as:

$$z_1 \left(\frac{z_{22}P_3 - z_{23}P_2}{z_{13}z_{22} - z_{12}z_{23}} \right) + z_2 \left(\frac{z_{13}P_2 - z_{12}P_3}{z_{13}z_{22} - z_{12}z_{23}} \right) - Y = 0 \quad 13$$

4. Marshallian Demand Function for Destination Choice

The associated Lagrangian function for maximizing 1 subject to 13 is:

$$L = z_1^\alpha z_2^{1-\alpha} - \lambda \left[z_1 \left(\frac{z_{22}P_3 - z_{23}P_2}{z_{13}z_{22} - z_{12}z_{23}} \right) + z_2 \left(\frac{z_{13}P_2 - z_{12}P_3}{z_{13}z_{22} - z_{12}z_{23}} \right) - Y \right] \quad 14$$

with the following solutions:

$$z_1 = \alpha Y \left(\frac{z_{13}z_{22} - z_{12}z_{23}}{z_{22}P_3 - z_{23}P_2} \right) \text{ Marshallian demand for } z_1, \text{ with } \alpha = \alpha^*; \quad 15$$

$$z_2 = (1 - \alpha) Y \left(\frac{z_{13}z_{22} - z_{12}z_{23}}{z_{13}P_2 - z_{12}P_3} \right) \text{ Marshallian demand for } z_2, \text{ with } \alpha = \alpha^* \quad 16$$

Destination characteristics equation 5 and the five technical efficiency conditions ensure that z_1 and z_2 are positives for all values of α . By using equation 2a, it is possible to map the demand in characteristic space (equations 15 and 16) to the corresponding values in the goods space. This requires finding the inverse of matrix \mathbf{Z} in 2a. Since destinations are more than characteristics, \mathbf{Z} is singular and cannot be inverted. However, having information on tourists' preferences (α values), squared sub-matrixes of \mathbf{Z} ($\hat{\mathbf{Z}}$) can be obtained without losing information. The Marshallian demand for x (when $\alpha = \alpha^*$) can be obtained from:

$$\mathbf{x} = \hat{\mathbf{Z}}^{-1} \mathbf{z} \quad 17$$

where,

$$\hat{\mathbf{Z}}^{-1} = \begin{pmatrix} \frac{z_{23}}{z_{12}z_{23} - z_{13}z_{22}} & -\frac{z_{13}}{z_{12}z_{23} - z_{13}z_{22}} \\ -\frac{z_{22}}{z_{12}z_{23} - z_{13}z_{22}} & \frac{z_{12}}{z_{12}z_{23} - z_{13}z_{22}} \end{pmatrix} \text{ for } \alpha = \alpha^*; \text{ and} \quad 18$$

Marshallian demands for x_2 (intermediate destination) are represented by the following equations:

$$x_2 = Y \left(-\alpha^* \frac{z_{23}}{z_{22}P_3 - z_{23}P_2} + (1 - \alpha^*) \frac{z_{13}}{z_{13}P_2 - z_{12}P_3} \right) \text{ for } \alpha = \alpha^* \quad 19$$

Similarly, for consumer with high preference for facilities (α^{**}), we will obtain

$$x_2 = Y \left(\alpha^{**} \frac{z_{21}}{z_{21}P_2 - z_{22}P_1} - (1 - \alpha^{**}) \frac{z_{11}}{z_{12}P_1 - z_{11}P_2} \right) \text{ for } \alpha = \alpha^{**} \quad 20$$



Given that z_1 and z_2 are positives, the positive relationship between characteristics and days of stay ensure positive value for x_2 . The partial derivatives x_2 with respect to each of the variables on the right hand side can give a priori expectation on each of the variables. For $\alpha = \alpha^*$ (equation 19), it can be shown that:

$$\frac{\partial x_2}{\partial Y} > 0; \frac{\partial x_2}{\partial p_3} > 0; \frac{\partial x_2}{\partial z_{12}} > 0; \frac{\partial x_2}{\partial z_{22}} > 0; \frac{\partial x_2}{\partial p_2} < 0; \frac{\partial x_2}{\partial z_{13}} < 0; \frac{\partial x_2}{\partial z_{23}} < 0 \quad 21$$

5. Conclusion and Recommendations

This study demonstrate the application of Lancaster consumer demand theory to international tourist destination choices. It describe the general structure of Lancaster model using three apples case with two characteristics of sweetness and juiciness; and demonstrate the graphical solution for deriving optimal consumption bundles of sweetness and juiciness. The structure and assumption are reformulated for international tourism destinations involving three countries as the fourth stage of consumer multistage budgeting process. Using a Cobb-Douglas utility function with two characteristics as arguments (attraction and facilities) and three destination countries with country 1 relative abundant in facilities, country 2 in attraction and country 3 in intermediate position. The study derives the coordinates of the relevant budget lines segment between country pairs, derive the equation of the budget line, and specify the necessary condition for technical efficiency. Using the case of a tourist with high preference for attraction Marshallian demand for facilities and attraction were derived using First Order Condition for Lagrangian function. The characteristics demand function was then transformed to commodity (destination) demand function using matrix algebra techniques. The expected sign of some comparative statics based on the derived demand function were given. This study recommends that characteristics-based consumer behavior should popularized in the teaching of microeconomics to encourage innovative research and applications.



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**COMMERCIAL BANKS' LOAN AND ECONOMIC GROWTH IN
NIGERIA (1981-2022)**

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Abstract

The research examined the impact of loans provided by commercial banks' on the economic growth of Nigeria over the period from 1981 to 2021. Secondary data were obtained from the Central Bank of Nigeria's annual statistical bulletin for this analysis.

The data underwent a unit root test using the Augmented Dickey-Fuller test to determine the stationarity of all variables. The results indicated that all variables in both model exhibited a combination of I_1 and I_0 order of integration.

The study employed the ARDL bound test to examine whether there was a long-term relationship between the variables. Subsequently, a short-run ARDL was used to estimate the coefficients of the variables.

The findings of the research revealed that commercial banks' loans had a significant impact on economic growth. Notably, loans extended to the production and general commerce sector were found to have a more pronounced influence on the Nigerian economy compared to loans in other sectors. While production sector had a negative impact, loan to general commerce exhibited a positive impact on economic growth in Nigeria. Additionally, the study identified a causal relationship among the variables.

The study recommended that the Central Bank of Nigeria (CBN) should enhance its efforts in supervising commercial banks to ensure that the profits generated from their banking activities contribute to the sustained growth of the Nigerian economy.

Keywords: Commercial Banks'; Economic Growth; ARDL bound test; Production and General Commerce sect

1. Introduction

In Nigeria context, the most developed segment of the financial system is the banking system, primarily composed of commercial banks, as defined by Kent (2015). These banks serve as key financial intermediaries that play a pivotal role in serving the general public and ensuring sustained



growth in the country. Commercial banks have traditionally been recognized for their growth-inducing functions, and they have expanded over the years, particularly when compared to non-financial segments of the economy, in alignment with government efforts to achieve rapid and sustained economic development, especially in developing countries worldwide.

An efficient and robust financial system is capable of stimulating economic activities by mobilizing resources and efficiently allocating them to various productive uses. This reduces transaction costs in the economy, provides an efficient payment mechanism, helps pool risks, and makes long-term capital available through maturity transformation (Manasseh, Asogwa, and Agu, 2014).

Economic growth is characterized by high rates of per capita income or output growth, productivity growth, structural transformation, international flows of labor, goods, and capital (Ochejele, 2007). It can also be measured using indicators such as Gross Domestic Product (GDP) and the Human Development Index (HDI), which considers factors like life expectancy, education attainment, literacy, and adjusted real per capita income. Economic growth is evident when there is a sustained increase in an economy's actual output.

Conclusively, commercial bank loans serve as a central variable, with their impact on economic growth, measured through indicators like real GDP, being a primary focus. Financial institutions, especially the banking system, play a pivotal role in mobilizing and allocating fund as well as regulates the system to stimulate economic growth. The study aims to decipher how these elements interact and impact economic growth in Nigeria within the period under study.

1.2 Statement of Problem

The problem at hand revolves around the pivotal need for liquidity in all economic units. Consequently, governments across the globe direct and incentivize banks to extend credit to economic sectors or entities that can employ these resources most effectively to stimulate economic growth. However, a pressing concern arises when banks primarily provide loans to sectors and individuals capable of repaying the principal with substantial interest rates, potentially acting as a deterrent to economic growth in Nigeria.

Despite the structural transformations and the notable expansion of the commercial banking sector in terms bank density, and asset portfolios relative to other non-bank financial institutions in Nigeria, the sector's contribution to overall economic growth has proven unsatisfactory. It becomes imperative to question whether the financial market in Nigeria is underdeveloped, hindering the



investment required to bolster economic growth. Following the trajectory of previous researchers and their attempts to address the issues surrounding commercial banks' loans and economic growth, scholars have employed diverse empirical methodologies and theories. For example, Cyril et al. (2018) conducted a granular analysis of the sectoral allocation of Deposit Money Banks' credit and its impact on Nigeria's real economy, highlighting the importance of supporting the agricultural sector and encouraging foreign investment. Similarly, Yakubu and Affoi (2014) examined the influence of commercial banks' credit on economic growth, focusing on the substantial contributions of the private sector to Nigeria's economic growth. Their work emphasized the necessity of establishing a robust and comprehensive legal framework to monitor credit performance and facilitate debt recovery in relation to the private sector.

This research will employ a more efficient methodological approach to ascertain whether credit from commercial banks indeed exerts a positive and significant effect on economic growth.

1.4 Research Objective

The research objectives are as to:

- i. investigate the impact of commercial banks' loans on economic growth in Nigeria.
- ii. ascertain the existence of a causal relationship between commercial banks' loans and economic growth in Nigeria.

2 Literature review

2.1 Conceptual review

Primary Functions of Banks

Commercial banks are tasked with primary functions that can be categorized into two major groups:

- a) Accepting deposits: A pivotal role of commercial banks is engaging in financial intermediation by mobilizing deposits from the public. Individuals, businesses, governments, and financial institutions with surplus income find it convenient to deposit their funds in banks. This process allows depositors to earn interest on their deposits, and the deposits grow along with the accrued interest. The types of deposits accepted by banks include traditional current account (demand) deposits, savings deposits, and fixed (time) deposits.
- b) Granting loans and advances: Commercial banks provide loans and advances to the public and the business community at interest rates higher than those offered on various deposit accounts. The interest rate charged on loans and advances



varies based on the purpose, period, and mode of repayment. The difference between the interest rate allowed on deposits and that charged on loans serves as a primary source of a bank's income.

Secondary functions of commercial banks

Commercial banks perform additional functions beyond deposit acceptance and loan provision, known as secondary functions. These include issuing letters of credit, travelers' cheques, circular notes, safekeeping valuables, important documents, and securities through safe deposit vaults or lockers, facilitating foreign exchange for customers and transferring money between places and bank branches, (Smriti, 2015).

Similarly, Ekpenyong (2011) cited Levine (1997) in establishing a link between financial development and economic growth. Levine identified five functions of financial institutions through which they aid economic growth:

- i. Facilitating trading, hedging, diversifying, and pooling of risks.
- ii. Allocating resources.
- iii. Monitoring managers and exerting corporate control.
- iv. Mobilizing savings.
- v. Facilitating the exchange of goods and services.

Products offered by Banks

(a) Certificate of Deposit (CD): This is a savings deposit that necessitates a specific amount of money to be held in the bank for a predetermined period. Generally, a higher interest rate is earned the longer the funds remain in the CD. However, there is a penalty for early withdrawal of funds.

(b) Individual Retirement Account (IRA): An IRA is a savings deposit designed for retirement planning. Contributions to an IRA are typically tax-free, but withdrawals are subject to taxation. Additionally, a significant penalty may be imposed if funds are withdrawn before the account holder reaches a specified age, usually 59 or older.

(c) Checking Account: Checking accounts provide safety, convenience, and liquidity. Some banks may charge fees for checking accounts due to the costs associated with check processing. However, many banks offer no-fee checking accounts or checking accounts that earn interest if a minimum balance is maintained. It's important to note that these accounts are generally limited to non-business customers, as banking regulations typically require businesses to use regular checking accounts that do not earn interest.



(d) Money Market: Similar to checking accounts, money market accounts are deposit accounts that earn interest. However, they usually offer a higher interest rate and require a higher minimum balance compared to regular checking accounts

Economic Growth

Economic growth refers to the increase in a country's output (goods and services) from one period to another. It represents the continuous improvement in the capacity to meet the demand for goods and services, resulting from increased production scale and improved productivity through innovations in products and processes. Economic growth is commonly measured using the gross domestic product (GDP), either in nominal or real terms. Nominal GDP reflects the monetary value of goods and services produced, while real GDP adjusts for the effects of inflation.

Banks' Lending Activities and Economic Growth

The relationship between finance and economic growth has been a subject of interest, with Schumpeter (1911) pioneering the study. Schumpeter argued that financial intermediation through the banking system is crucial for economic growth and development as it influences savings mobilization and allocation, impacting productivity, technical change, and the pace of economic growth.

Efficiently allocating savings by recognizing and funding entrepreneurs with the best chances of successfully implementing innovative products and production processes can boost economic growth. In Nigeria, commercial banks lend more to the private sector compared to the public sector, aiming to spur the economic well-being of citizens.

2.3 Empirical Review

The empirical reviews conducted by various scholars shed light on the relationship between commercial banks' loan and economic growth in Nigeria. Akujuobi and Nwzeaku (2015) explored the relationship from 1980 to 2013, using proxies such as the Human Development Index and industrial Gross Domestic Product. They found a significant correlation between bank lending activities and economic development, particularly in sectors like general commerce and production. However, they also noted issues like insider dealings and poor credit administration among commercial banks, suggesting a need for more robust supervisory roles from the Central Bank of Nigeria to mitigate these challenges.



Ubeise et al. (2019) focused on the sectoral allocation of deposit money banks' credit and its impact on the Nigerian real economy from 2008 to 2017. Despite varied opinions in the empirical literature, their study didn't find significant effects of deposit money banks' credit on various sectors' contributions to real GDP. They recommended that deposit money banks should lower interest rates, particularly for the agricultural sector, and advocated for a reduction in the Central Bank's monetary policy rate to stimulate economic growth.

Similarly, Anyawu et al. (2017) examined the impact of commercial banks' lending on economic development from 1986 to 2015. They found a long-term relationship between commercial banks' lending and real GDP but not with the index of industrial production. Their study emphasized the importance of commercial banks' lending for long-term growth and recommended policies to reduce interest rates and improve credit flow to sectors beyond oil and gas.

In a study by Eugenia, Scholastica, & David (2018), the contribution of commercial banks to economic growth in Nigeria from 1980 to 2016 was investigated. They discovered a positive and significant impact of financial intermediation on economic growth. Their recommendation focused on the need for the Central Bank of Nigeria to closely monitor variables related to financial intermediation to ensure sustained economic growth and development.

Furthermore, Okechukwu and Gerald (2016) analyzed the role of commercial banks in sustainable economic development in Nigeria. Their study revealed that Nigerian banks contribute positively towards economic development and wealth creation. They emphasized the importance of a sound and strong banking system to build public confidence for investment.

Lastly, Murtala (2020) reviewed the roles of financial institutions, particularly commercial banks, in Nigeria's economic growth. His review highlighted challenges such as corruption, political, and economic instabilities hindering economic growth. Murtala recommended concerted government efforts to control macroeconomic instabilities and create an enabling environment for financial institutions to contribute effectively to economic growth.

3.0 Methodology

3.1 Model Specification

The study establish a functional relationship between commercial banks' loan and economic growth in Nigeria. Real gross domestic product (RGDP) which is the dependent variable proxy for the economic growth while Commercial banks loan and advances to production sector (CBLP), Commercial banks loan and advances to service sector (CBLS) Commercial banks loans and



advances to general commerce (CBLG) as the independent variables in other investigate the sectoral impact of the commercial banks’ loan on Nigeria economy the study incorporates and interest rate (INTR) on loan due to its influence as on repayments and overall economics driver.

$$RGDP = f(CBLP, CBLA, CBLG, INTR).....(3.1)$$

In econometric form,

$$RGDP_t = \beta_0 + \beta_1CBLP_t + \beta_2CBLA_t + \beta_3CBLG_t + \beta_4INTR_t + U_t.....(3.2)$$

In log form

$$\ln RGDP_t = \beta_0 + \beta_1 \ln CBLP_t + \beta_2 \ln CBLA_t + \beta_3 \ln CBLG_t + \beta_4 \ln INTR_t + U_t.....(3.3)$$

Where, β_0 = intercept; β_1-4 -coefficients

CBLP = Commercial banks’ loan and advances to production sector (N’ billions)

CBLA = Commercial banks’ loan and advances to service sector (N’ billions)

CBLG = Commercial banks’ loans and advances to general commerce (N’ billions)

RGDP = Real gross domestic product (N’ billions)

INTR = real interest rate on loan (%)

U = Error term

t = time periods (1981-2021)

3.2 Source of data

Annual data spanning from 1981-2021 on all the variables were sourced from the Central Bank of Nigeria Statistical Bulletin (2021 edition).

3.3 Method of data analysis

The study conduct a unit root test using the Augmented Dickey Fuller test statistics as well as the ARDL bound’s testing techniques to check for long run relationship among the two models. The study was unable to establish long run relationship among the variables Therefore, the short-run ARDL model is specify below:

$$\Delta \ln RGDP_t = \alpha_0 + \sum_{pi=1} \sigma_i \Delta \ln RGDP_{t-1} + \sum_{qi=1} \lambda_i \Delta \ln CBLP_{t-1} + \sum_{ri=1} \theta_i \Delta \ln CBLG_{t-1} + \sum_{si=1} \lambda_i \Delta \ln CBLA_{t-1} + \sum_{ti=1} \rho_i \Delta \ln INTR_{t-1} + \epsilon_{it}.....(3.4)$$



Where Δ represents first difference operator, α is the drift term, ϵ are the error terms. $\beta_i, \gamma_i, \theta_i, \lambda_i$, and ϕ_i , are short-run dynamic coefficients. The Akaike information criterion (AIC) was used in selecting the optimal lag lengths (p,q,r,s,t).

4.0 Presentation and interpretation of results

Table 4.1 Unit root test result

AUGMENTED DICKEY FULLER		
VARIABLE	STATISTICS	REMARK
LOGRGDP	-5.986517*** [0.0224]	I(1)
LOGCBLG	-7.634002*** [0.0044]	I(1)
INTR	-11.62534** [0.0205]	I(0)
LOGCBLP	-6.325095 [0.0000]	I(1)
LOGCBLS	-6.517974 [0.0000]	I(1)

**are ADF test statistics and [] are probability values

Table 4.1 reports respective levels of stationarity of the variables. LOGRGDP, LOGCBLG, LOGCBLP, LOGCBLS, were stationary at first difference that is I_1 , while interest rate (INTR) was stationary at level, that is, I_0 .

Table 4.2: Result of ARDL Bound test

Test Statistic	Value	k
F-statistic	3.02324	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52



5%	2.86	4.01
2.50%	3.25	4.49
1%	3.74	5.06

Source: Researcher's Computation 2024

Table 4.2 shows the result of the bound test, the F-statistics of 3.023243 lies between the I_0 and I_1 bounds at 5% level of significance. Hence the test was considered inconclusive. As such, the short-run ARDL was used to analyse the model.

4.3 : Autoregressive distributed lag results (ARDL)

Table 4.3: Short-run ARDL Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(LOGRGDP(-1))	0.54484	0.15182	3.58871	0.0011
D(LOGCBL5)	-0.0019	0.01027	-0.1895	0.8509
D(LOGCBLP)	-0.0138	0.03372	-0.4101	0.0645
D(LOGCBLG)	0.01802	0.01816	0.99251	0.0284
D(INTR)	0.00063	0.00084	0.01645	0.987
C	0.01825	0.01023	1.78494	0.0838
R-squared	0.41212	Mean dependent var		0.04057

Adjusted R-squared	0.20464	S.D. dependent var	0.04194
S.E. of regression	0.0374	Akaike info criterion	-3.5902
Sum squared resid	0.04477	Schwarz criterion	-3.3317
Log likelihood	74.2145	Hannan-Quinn criter.	-3.4982



F-statistic	2.90399	Durbin-Watson stat		1.94612
Prob(F- statistic)	0.02847			

Source: Researcher's Computation 2024

The Autoregressive Distributed Lag (ARDL) results presented in Table 4.6 revealed the impact of sectoral allocation of commercial banks' loan economic growth in Nigeria. The one period lagged of Real Gross Domestic Product (LOGRGDP(-1)) exhibits a significantly positive impact on current-year economic growth (LOGRGDP), with a one percentage increase leading to about 54% rise.

For Commercial Banks' Loans to the Service Sector and Commercial Banks' Loans to the Production Sector, the coefficients are negative, indicating a potential negative impact on economic growth. However, the coefficient of Commercial Banks' Loans to the Production Sector (-0.013829) is significant at 10% implying that a one percent rise in loans to production sector exhibit a negative impact on economic growth in Nigeria while loans to the service sector of -0.001947 is not statistically significant, implying that changes in loans to the service sectors do not has a significant effect on economic growth.

On the other hand, Commercial Banks' Loans to General Commerce exhibit a statistically significant positive impact on economic growth. A one-unit increase in loans to the general commerce sector leads to approximately a 1.8% rise in economic growth. This implies that financing directed towards general commerce activities contributes positively to overall economic growth.

Lastly, the coefficient for the interest rate coefficient is of 0.00063, and the probability values of 0.9870 indicates that a percentage changes in the interest rate will result in about 0.0063 insignificantly rise in economic growth within the studied period. While past economic performance and loans to the general commerce sector have significant impacts on economic growth, loans to the service and production sectors, as well as changes in the interest rate, do not demonstrate statistically significant effects. The independent variables explains about 41.21% of the variation in economic growth, with an F-statistic of 2.903991, and the probanility of 0.028468 implying that the independent variables has jointly explain the dependent variable significantly. The Durbin-Watson statistic of 1.946116 suggests the absence of autocorrelation in the model.

**Table 4.4 Granger causality result**

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
LOGCBLS does not Granger Cause LOGRGDP	38	4.69419	0.0161	Uni-directional
LOGRGDP does not Granger Cause LOGCBLS		0.64178	0.5328	
LOGCBLP does not Granger Cause LOGRGDP	38	4.42009	0.0199	Uni-directional
LOGRGDP does not Granger Cause LOGCBLP		2.10967	0.1373	
LOGCBLG does not Granger Cause LOGRGDP	38	2.08738	0.1401	No causality
LOGRGDP does not Granger Cause LOGCBLG		0.72427	0.4922	
INTR does not Granger Cause LOGRGDP	38	5.14005	0.0114	No causality
LOGRGDP does not Granger Cause INTR		0.07337	0.9294	

Source: Researcher's Computation 2024

Table 4.4 reveals the causal relationships between the sectoral breakdown of commercial banks' loans to Nigeria and its impact on economic growth within the the period understudy. The result revealed a notably significant uni-directional relationship between LOGCBLS and LOGRGDP, wherein only LOGRGDP is identified as a Granger cause of LOGCBLS at a 5% significance level. This implies that variations in economic growth, as captured by LOGRGDP, exert a meaningful influence on the sectoral breakdown of commercial banks' loans.

Similarly, another uni-directional relationship surfaces between LOGCBLP and LOGRGDP, supported by a significant association at the 5% level of significance.

In this context, LOGRGDP Granger causes LOGCBLP, indicating that economic growth has a discernible impact on the specific sector represented by LOGCBLP.

Conversely, the analysis reveals the absence of causality between INTR and LOGRGDP, suggesting that interest rates (INTR) do not significantly contribute to the variations in economic growth captured by LOGRGDP. Furthermore, no causal relationship is identified between LOGCBLG and LOGRGDP, signifying that the sectoral breakdown represented by LOGCBLG does not Granger cause fluctuations in economic growth.



5.1 Conclusion

This study examined the impact of commercial banks' loans on the economic growth of Nigeria spanning the years 1981 to 2021. The study conclude that commercial banks' loan to Nigeria has significant impact on economic growth in Nigeria. Moreover, through the application of Granger causality analysis, the study discerned a causal relationship between commercial banks' loans and economic growth, establishing that causality flows from commercial banks to economic growth.

5.3 Recommendation

Based on the uncovered findings and conclusive outcomes, the following recommendations are proposed:

- i. There is a need for an increased allocation of loans to the Production sector which will strategically catalyze investment, enhance productivity, and foster job creation within the sector, ultimately contributing to the stimulation of economic growth in Nigeria.
- ii. The Central Bank of Nigeria (CBN), functioning as the regulatory authority, is advised to enforce directives compelling commercial banks to channel more credit towards the service sector, particularly the communication industry. This targeted allocation is anticipated to mitigate unemployment challenges and attract Foreign Direct Investment (FDI), thereby fostering economic growth.
- i. Government, through the Central Bank of Nigeria (CBN), should intensify efforts that will guarantee commercial banks' profit as this will enhance increased bank loans and, hence economic growth.



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***THE COST OF HUMANITARIAN CRISES AND SUSTAINING PEACE
AND SECURITY IN NORTHEASTERN NIGERIA***

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Abstract

This study examines the cost of humanitarian crises and sustaining peace and security in Northeastern Nigeria. The region faces a lot of terrorist attacks and violent conflicts, which have resulted in the loss of lives and properties in recent years. The estimated economic cost of humanitarian crises continues to increase every year, and the wave of displacement of people is appreciated in numbers. This study adopted qualitative methodology and applied content analysis to analyze secondary data sources. These sources include articles, academic journals, government reports, and the internet. The findings from the study show that people's lives and properties are victims of conflicts and insecurity in northeastern Nigeria. The low development and growth also account for the region's economic cost of humanitarian crises. To secure peace and security, there is a need to build a better architecture and framework that will protect the lives of the citizens and should be geared toward a better country. The humanitarian crises in northeastern Nigeria deserve better attention from the government and international stakeholders like the United Nations. The paper concluded that the cost of humanitarian crises should be understood and analyzed to bring peace and security to people in northeastern Nigeria.

KEYWORDS: Cost, Economic, Humanitarian, Peace, Conflict, Nigeria

INTRODUCTION

Nigeria, home to approximately 400 distinct ethnolinguistic groups, is the most populous and diverse country in Africa (Internal Displacement Monitoring Centre, 2013). Conflicts based on overlapping ethnic, religious, political, and regional divides plague the nation; these include disputes over resources in the Niger Delta, divisions between Christians and Muslims in the middle of the



nation, and most recently, the emergence of Islamist organizations in the north, chiefly Boko Haram (Onakuse & Jatula, 2021). Founded in Maiduguri, the largest city in Northeast Nigeria and the capital of Borno state, Boko Haram's motto is, "Western education is a sin," in 2002 (Pérouse de Montclos, 2014).

Northeastern Nigeria is one of Nigeria's six political and geographical geopolitical zones. The state comprises Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe (Bashire, 2006). With a land area that makes up almost one-third of Nigeria, the North East is the country's largest geopolitical zone. The tropical West Sudanian savanna ecoregion and the semi-desert Sahelian savanna make up the majority of the zone's environmental divisions.

Northeastern Nigeria is faced with conflicts and terrorism invasion from Boko haram, banditry, herder-farmers conflict, and other displacement issues. The insurgency of Boko Haram, a terrorist organization that has attacked local populations in Nigeria, Chad, Cameroon, and Niger, is primarily to blame for the humanitarian crisis in northeastern Nigeria (UNHCHR, 2015). The worst humanitarian disaster in Nigerian history was brought on by the actions of this terrorist organization and the government's counterinsurgency (Hamid et al, 2017). It is believed that Boko Haram was able to flourish in this area due to the unstable socioeconomic conditions brought on by the region's delicate climate and the central government's negligence (Rizzo, 2015; Kamta, Azadi and Scheffran, 2020).

The cost of humanitarian crises in the northeastern Nigeria are creating alots of inequality, Internally Displaced Persons (IDPs) camps across the region. According to World Bank data, over 70% of people in Northeast Nigeria live in poverty. The region is also plagued by chronic conflicts and climate change, both of which hinder regional development including peace and security (Olatunji, 2021).

With the exception of the civil war in Nigeria in the late 1960s, the insurgency led by Boko Haram poses the country's greatest security threat. For many years, there has been nearly constant news coverage of horrific bomb explosions, suicide bombings, murders, kidnappings, thefts, robberies, torture, and rapes in addition to the willful destruction of both public and private property, including assaults on educational institutions (Balami, Ahmed, & Yusuf, 2016).



The lack of peace and security has hindered the growth of the manufacturing, small-scale business, and agricultural sectors in Northeastern Nigeria, particularly in Borno. It has also resulted in a generation of internally displaced people and refugees in the states of Adamawa, Zamfara, Benue, Taraba, and Yobe, as well as a high rate of economic loss and reduction in government revenue and food security (Jonah & Olawale, 2019)—therefore, the cost of humanitarian crises and sustaining peace and security in Northeastern Nigeria.

RESEARCH QUESTIONS

With the need to achieve the study on the cost of humanitarian crises and sustaining peace and security in Northeastern Nigeria, the following research questions will be considered:

1. What is the nature of the cost and causes of humanitarian crises in Northeastern Nigeria?
2. What impact do humanitarian crises have on sustaining peace and security in Northeastern Nigeria?
3. What are the challenges of addressing the cost of humanitarian crises in sustaining peace and security in Northeastern Nigeria?

RESEARCH METHOD

This study adopted the qualitative research method. The desk research approach was applied to derive data from articles, journals, government reports, newspapers, and the Internet. A purposive sampling of various secondary sources was done to ensure that the different research questions were answered properly.

CONCEPTUAL CLARIFICATIONS

Humanitarian Crisis: A humanitarian crisis is generally described as an occurrence or sequence of occurrences that pose a serious risk to the health, safety, security, or well-being of a community or other sizable population, typically over a vast geographic area (Bloxham, 2022). It typically takes place over a huge land area and might be either internal or external. In such cases, responses on a local, national, and international level are required.



Since the causes of each humanitarian crisis vary, each one calls for a distinct kind of response aimed at the affected sectors. There may be immediate or long-term consequences from this. Natural disasters, artificial disasters, or complicated circumstances can all be considered humanitarian crises. When this happens, several things create a complex emergency that keeps many people from accessing necessities like food, clean water, or safe housing (Gharib, 2019).

Peace: The two elements that characterize peace are the absence of violent conflict and mutual respect and understanding among individuals and groups (Mustafa et al., 2023). The Latin term "pax," which originally meant "a pact, a control or an agreement to end war or any dispute and conflict between two people, two nations, or two antagonistic groups of people," is where the word "peace" gets its literal meaning (Khemando, 1995). Like many theoretical concepts, peace is hard to describe. Similar to contentment, harmony, fairness, and liberty, we can frequently identify the absence of peace. As a result, among others, Johan Galtung—a pioneer in the field of peace studies and peace research—has put out the crucial differentiation between "positive" and "negative" peace. "Positive" peace refers to the coexistence of several desirable social and mental conditions, including equity, justice, harmony, and so forth. In the past, the term "negative" peace has been used to describe the "absence of war" and other major violent human conflicts.

Security: Security is the ability to withstand possible danger or other forms of unwelcome compulsion. Security beneficiaries, or referents in technical terms, might include individuals and social groups, things and establishments, ecosystems, and any other phenomena or organization that is susceptible to unintended change. Although the term "security" is most commonly used to describe defense against hostile forces, it can also refer to a bigger range of other concepts, such as the absence of harm (such as freedom from want), the presence of a necessary good (such as food security), resilience against potential harm (such as secure foundations), secrecy (such as a secure phone line), containment (such as a secure room), and a state of mind (such as emotional security) (Kuner, Svantesson, Cate, Lynskey, and Millard, 2017; Uzoigwe, 2024).

Nigeria has a wide range of security issues, including banditry, secessionist agitation, and terrorism. The menace of Boko Haram terrorists continues in the north. At the same time, in the south, agitations such as the Yoruba nation agitation in the southwest and the Biafra agitation in the southeast contribute to the region's complicated security environment.



FINDINGS AND DISCUSSION

The Situation and Causes of Humanitarian Crises in Northeastern Nigeria

In northeastern Nigeria, the fighting in the states of Borno, Yobe, and Adamawa has destroyed cities and villages and left millions of families without a place to live or a means of subsistence (UN Crises Relief, 2023). The majority of the crises' victims are still civilians, with women and girls suffering the most and being more vulnerable to violence. The three main factors behind Northeastern Nigeria's ceaseless humanitarian crises and insurgencies are political, religious, and economic. Poverty, inequality, unemployment, low levels, and lack of education are a few examples of economic factors. It is not far to seek the reason. While "high rates of unemployment and inequality, combined with low levels of education and development, are thought to soften the ground for recruitment and provide motives to fight," poverty also exacerbates "vulnerability to insurgency at the individual and community level by lowering the opportunity cost of mobilizing for violence" and weakens government institutions, which in turn reduces resilience to conflict (Marks, 2016).

However, political causes of violence include issues like bad leadership, widespread corruption, arming, using, and abandoning young people without jobs as political campaign fodder, among other things (Alao, 2023). As is the situation in the Northeast of Nigeria, poor governance and corruption are the root causes of humanitarian crises, violent conflicts, and factors that impede development. Additionally, they give criminal organizations and armed groups a means of funding, hinder the growth of strong institutions of governance, impede social and economic advancement, and exacerbate already existing conflicts (United States Institute of Peace, 2010). Furthermore, after politicians have won elections, the majority of unemployed youngsters who are armed and deployed as political thugs frequently find themselves abandoned.

The religious component, which has to do with radicalism, rigid beliefs, and ideas held and espoused by some religious leaders, makes up the third group of factors contributing to violence in the northeastern region of Nigeria. In the past, such ideas and philosophies have encouraged indulgence in the North. The violent Maitatsine movement in Kano, a state in North-West Nigeria, throughout the 1970s and early 1980s is the example that naturally comes to mind (Adimbola, 2011). Mohammed Marwa's organization drew a sizable contingent of young, jobless individuals known



as the Yan Tatsine. Its strict and divisive interpretation of Islamic law prohibits using automobiles, radios, wristwatches, and other devices. Following multiple armed conflicts with government security forces, a significant proportion of the group's members, including the leader, eventually perished in 1980 (Albert, 1997).

Mohammed Yusuf, the leader of Boko Haram, developed his religious beliefs in the Izala Society movement before opening the Ibn Taymiyyah Center in Maiduguri (Afolabi & Yusuf, 2019). There, he taught his large following to take up arms against the government, security personnel, and "infidels," or non-Muslims and those who do not practice true Islam (Apard, 2015). He also preached against Western education. These were some of the radical ideologies that stoked unrest in the Northeast.

Impacts of Humanitarian Crises on Sustaining Peace and Security in Northeastern Nigeria

The more than 15 million people who live in the northeastern Nigerian region have been profoundly affected by the bloody attacks that Boko Haram has carried out since 2009 (The World Bank, 2021). The fighting has resulted in about 2.2 million people being forcibly relocated and about 20,000 deaths. Borno, Adamawa, and Yobe are home to over 70% of the displaced people. The research conducted by Taylor, Bohl, Rafa, and Moyer (2020) indicated the impact of conflicts on development in northeast Nigeria, thereby giving the following discussion:

Schools are frequently destroyed or closed due to war, making it difficult or impossible for children to attend in northeastern Nigeria. Children who are displaced by war frequently do not have access to an education. Even children who have not been relocated may quit school because they fear being kidnapped, want to protect their household from shock, or are afraid of being attacked or experiencing violence when they leave the house (Blattman & Annan, 2010; Justino, 2011).

In northeastern Nigeria, agriculture is the primary economic sector, employing 65–80% of the people in Adamawa, Borno, and Yobe and accounting for more than half of the region's (GDP FAO and ICRISAT, 2019). A scenario marked by low productivity, high sensitivity to climate influences, and environmental deterioration has only been made worse by conflict throughout the last ten years. Crop productivity and production have been shown to have decreased in correlation with Boko Haram activities, as have wages and the amount of contracted agricultural labor.⁵¹ Attacks on



markets regularly have resulted in market closures, decreased regional activity, and a decline in agricultural trade (ACAP, 2016). Fallow land and land abandonment have resulted from mass displacement (Adelaja and George, 2019). Many farmers lack access to land, assets, capital, and essential inputs and cannot make agriculture investments. Farmers may encounter limitations in certain regions that restrict the kinds of crops they can plant and the distances they can travel for farming-related purposes.

In addition to human casualties in northeastern Nigeria, one of the most obvious outcomes of violent conflict is the damage of infrastructure (Adelaja and George, 2019). For strategic purposes, critical infrastructure may be the target of an attack. Infrastructure damage has an impact on many facets of economic and human development. It increases production costs, impedes the flow of aid and goods, and encourages the spread of contagious illnesses in the case of water and sanitation infrastructure. Moreover, conflict deflects funding and raises the price of brand-new infrastructure projects.

Additionally, humanitarian organizations have needed help recognizing the scope of the issue and acting quickly enough (International Crisis Group, 2016). In order to effectively respond to one of the worst humanitarian crises facing the globe today, UN agencies and international humanitarian NGOs must take a more proactive approach to working with authorities. By doing this, more foreign funding—currently woefully inadequate—will be mobilized, and international expertise will be more effectively utilized. The humanitarian crisis will have major political and security ramifications if it is not resolved quickly. In the short term, it might force people to return to Boko Haram-controlled areas or to other parts of Nigeria where their ability to survive is in doubt (Walker, 2012).

Violent conflict in the northeastern Nigeria significantly reduces the criteria of a healthy life, particularly for children, by destroying vital health infrastructure and worsening living conditions for the populace (UNICEF, 2023). The violent conflict frequently impedes preventative and treatment initiatives in addition to reducing access to health services in the northeast region of Nigeria.

Boko Haram has targeted and abducted women in particular. Between 2009 and 2014, there were reportedly 500 abductions of women (Human Rights Watch, 2014). Women who were



kidnapped and exploited as spies, warriors, and suicide bombers experienced cruelty and abuse (International Alert and UNICEF, 2016). Reintegration, counseling, and training programs designed for men are not available to women returning from captivity or involvement with armed groups, and women who have fled or been released are not necessarily accepted back into their communities (Alert International and UNICEF, 2016).

The gendered effects of the conflict on schooling are yet unclear. Teachers polled stated that females' attendance has decreased because of their fear of being attacked and kidnapped. However, Bertoni et al. (2018) discovered that Boko Haram activity close by is linked to a higher decline in boys' total educational attainment than in girls. This may be because boys are more likely to be enrolled in school. However, it may also be because fewer educated men are leaving the community or because men's educational attainment began at a higher level.

Challenges of Addressing Cost of Humanitarian on Sustaining Crises in Northeastern Nigeria

The military in Nigeria, which is overworked, underfunded, and beset by corruption, has had difficulty holding onto its victories. In many areas of the northeast, counterterrorism efforts and rebel attacks pose a constant threat to civilians (Hussain, Okeke, Oyebanji, Akunne & Omoruyi, 2021). The Nigerian government's civilian response to the crisis has been hindered by widespread corruption and inefficient coordination, with several local, state, and federal elites profiting from the crisis' prolongation (Breckenmacher, 2019). Furthermore, although international partners emphasize regional response to the crisis, the region needs an efficient political infrastructure, and collaboration has mostly come from outside sources.

A lack of cross-border strategies is needed to address issues, including the return of displaced people, the reintegration of Boko Haram members, and the socioeconomic recovery of rural communities. Because boundaries in the region are so brittle, failing to coordinate might result in the conflict simply shifting from one government to the next.

The camp is extremely crowded, and daily arrivals have made scaling up attempts to declutter it impossible. As a result, the living conditions of already vulnerable individuals are significantly worsened, and many struggle to have restricted access to essential amenities.



Other challenges include:

1. Corruption in managing funds in supporting IDPs in the region.
2. Poor coordination mechanism in supporting the security design in the region.
3. Poverty and lack of socioeconomic empowerment for women and young people.
4. Religion extremism and other ethnic cleansing are creating a lot of humanitarian issues in the region.
5. Poor political will in addressing the insecurity and other safety issue in the region.

During this humanitarian crisis, persistent insecurity has interfered with overland transit routes and made it more difficult for relief organizations to reach people affected by the fighting. According to USAID (2022), there are especially serious access issues in Borno, where 4.4 million people are estimated to need aid. According to the International Organisation for Migration (2023), about 263,000 internally displaced people live in makeshift camps, on top of the 1.3 million displaced people who are dispersed over 1,413 self-established locations inside host communities. IDPs are subject to various vulnerabilities, including health concerns and insecurity, at these locations since they frequently lack adequate infrastructure and access to humanitarian aid.

CONCLUSION

The aforementioned clarifies how important peace and stability are to any country's economic ability. The process of delivering long-term solutions to the various humanitarian crises in northeastern Nigeria deserved urgent responses and strategic implementation. In addition to hindering socioeconomic development and other investments in regional goals, the issues of conflict, terrorism, poverty, displacement, starvation, banditry, food insecurity, corruption, and other social criminals should be addressed to ensure that people in northeastern Nigeria are safe. It is impossible to achieve inclusive peace, security, and development, which benefits the vulnerable and the elite when the cost of humanitarian crises is curbed across the region.



RECOMMENDATIONS

The study recommended the following in tackling the cost of humanitarian crises and sustaining peace and security in northeastern Nigeria:

Effective conflict prevention and resolution techniques have been shown to work locally, but they are challenging to expand. These initiatives have enhanced communication between the public, law enforcement, and security agencies while also assisting in addressing local security issues.

While donor programs have contributed to restoring essential services and infrastructure, the political objectives of stabilization programming still need to be clarified.

The involvement of humanitarian organizations in providing aid relief to displaced people should be done collectively.

The government is to provide a haven for people living in the IDP camps and the host communities across northeast Nigeria.

There is a need to consolidate military victories over Boko Haram by putting in place a comprehensive aid and social and economic agenda for the government of Nigeria.

International partners should fund and provide technical assistance to the government of Nigeria and northeastern states for their comprehensive post-conflict peacebuilding programs for the region.

These programs should focus on developing a citizen-centric security governance culture in the relevant institutions and the security sector.

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***A REVIEW OF RECENT TRENDS IN PENSION REFORMS AROUND
THE WORLD: LESSONS FOR NIGERIA***

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Abstract

This paper analyzed and looked at global pension reform patterns in recent years, with a focus on what Nigeria can learn from them overall. The study's sources included, among others, National Pension Commission (Pencom) publications, international and regional publications were also examined regarding global pension reforms in recent times. The Nigeria Reform Acts of 2014 and its limitation is a primary subject of the study. Netherland maintain the best pension system in the world by attaining first ranking by Mercer-CFA ranking and second best by Global Pension Transparency Benchmark (GPTB) ranking. Other countries reviewed in this study include Australia, Denmark, Iceland, Chile and South Africa. Major identified problems for the Nigeria pension system include: Inadequate funding of the RSA, defaulting employers, poor compliance at subnational level, poor awareness, payment below minimum pension guarantee, and pension payment below 50% of last emolument. The study recommends for Constitution amendment that compel states to comply with the Pension Act; infusion of the guaranteed pension payment to all eligible retiree; increasing investment in pension education among citizens.

Keywords: Global Pension Reforms, Mercer-CFA ranking; GPTB ranking; Nigeria pension reform Act, PenCom.

1. Introduction

The regulatory body of the pension industries in Nigeria, the National Pension Commission (PenCom) in one of its publications defined pension as a flows of income received regularly by a retiree at retirement which may be due to length of services, age or on health conditions. The incomes could either be monthly or quarterly which is meant to cater for retiree needs at retirement (PenCom, 2018). According to Dahir-Umar (2023), Nigeria pension history begins in 1945 through the British colonial administration. The British administration via a Circular No 19 of 24 March 1945, beginnings the process of honoring the old-age protection scheme by announcing the



beginning of pension scheme for the public servant popularly called the native administrative staff which was expected to commence effectively from 1946.

After five years in operation, the Scheme obtained its legal backing through the proclamation of the pension ordinance of 1951 which was back dated to have commenced effectively 1st of January 1946. The power to grant pensions and gratuities to government employees was vested with the governor-general with the permission of the secretary of state for colonial affairs in the U.K of which 10 years of services was fixed as the eligibility period for an employee to qualified for pension and gratuity in line with the Ordinance. The pension ordinance of 1951 does not take into consideration the private sector of the economy, up until 1954 when the Nigerian breweries established introduced pension scheme for her employees thereby make it the first private sector pension scheme in Nigeria. The company introduced the Defined Benefits Pension (DBP) and gratuity scheme in the private sector. The DBP Scheme paid pension using numbers of years in service and grade level at the point of retirement. This Scheme later became standard in the private sector for decades and was later adopted by United African Company (UAC) who established its own pension scheme in 1957 (Bassey, 2020; Ughulu and Uwamusi, 2023; Dahir-Umar, 2023).

In line with Convention 102 of the International Labour Organization (ILO) on social protection, Nigeria enacted the National Provident Fund (NPF) in 1961. Due to changes that have taken place in the governance of Nigeria which also affected the pension administration, the Basic Pension Decree No 102 and Armed Forces Pension No 103 retroactively effective from April 1974 were enacted. The Local Government Pension Scheme was also established by the Military Government in 1979 due to the creation of State and Local Governments. While the private sector operated a contributory pension scheme, the public sector was operating Pay-As-You-Go (PAYGO), which is a Defined Benefits Scheme (DBS). Pension and gratuity payments were based on budgetary provision from the consolidated revenue reserve fund for the public sector. Meanwhile, the National Provident Fund only paid a lump sum pension to retirees in the private sector upon retirement, due to loss of job for two straight years or where an employee became mentally incapacitated (Ukwu, Logan, Eze-Dike, Okanya, Manasseh, Mgbobi and Ejim, 2023; Eghaghe and Oyakhire, 2023; Okonkwo, Ngwu and Emegwara, 2023).

The Nigeria Social Insurance Trust Fund (NSITF) Decree No 73 of 1993 was enacted to repeal the NPF Act of 1961 following the recommendation of the Technical Committee on Privatisation and



Commercialisation (TCPC) set up by the military government. The NSITF scheme covered all organisations registered under the Company and Allied Matter Act (CAMA) regardless of the number of their employee and the rate of contribution was increased to 7.5% of employee basic salary shared in ratio 2.5:5 between the employee and employer respectively (Ukwu, *et. al.*, 2023; Eghaghe and Oyakhire, 2023; Okonkwo, Ngwu and Emegwara, 2023).

The global financial crisis and its implications for unfunded pensions adversely affected many countries including Nigeria. Prior to the year 2004, based on actuarial valuation, the Nigeria pension liability was 2.4 trillion Naira. This was as a result of inadequate funding, insufficient budget provision, weak administration from the government and fraudulent acts on the part of the pension board employees. Retirees in Nigeria were subjected to cumbersome processes and queuing for days trying to obtain their pension benefits. These issues amongst others prompted the administration of General Olusegun Obasanjo to inaugurate a committee to assess the pension system in Nigeria and provide workable recommendations. More so, the World Bank report of 1994 on ageing population identified the need to change the pension system of PAYGO and based pension system on a 3-pillars. The report suggested to diversify the sources of pension system financing by introducing public pension as Pillar I, mandatory pension as Pillar II and voluntary pension as Pillar III (Ukwu, *et. al.*, 2023).

Nigeria Pension Reform began in the year 2004 with the induction of the Pension Reform Act 2004 (PRA 2004) and later replaced by the Pension Reform Act 2014. The Act created the contributory pension scheme and unified management, administration and supervision all pension matters in Nigeria to be carried out by one regulatory body with the establishment of the National Pension Commission (PenCom) with the mandate to ensure effective administration and smooth running of the Pension industry in Nigeria.

2. Global Trend in Pension System Reforms

Global financial crisis in the 90s was one of the main reason for urgent need to reform the pension system globally. The cases of unfunded pensions mostly in the Central and Eastern Europe called for central planning to market economies on the issues of pension. Expert and policy makers are of the views that the future of pension system appeared bright and fairly if the initial crisis can be overcome. To overcome the crisis, majority of retirement benefits asset has to be transferred from the public sector to the private sector for proper management. This was to address the fiscal



unsustainability of pension funding and projected further population aging thereby resulting in accelerated financial market development that will cause higher economic growth for co-financing some of the transition costs of moving from DBS to 3-Pillar pension system (Altiparmakov, 2018; Ebbinghaus, 2019; Milev, 2021; Guardiancich and Guidi, 2022).

The Netherland pension system makes use of the 3- Pillars system of pension with a flat rate state pension under the *Algemene Ouderdomswet* (AOW) law which covers almost 89% of the citizens in relation to the minimum wages and available income via employees' taxes. Also, the occupational pension schemes, which is a defined contributory pension scheme where both employee and employer contribute a certain percentage toward pension benefits upon retirement. Although there is no statutory obligation for the employer to contribute towards the pension for the employee, this is then based on an industrial relation agreement. The third pillar is voluntary contribution by the employee in form of life annuity. Official retirement age in Netherland is 67 years. As at January 2024, an average retiree in Netherland takes a minimum of EUR 302.28 equivalent to 325.85 USD and EUR 770.76 for couples. The pension is higher if an employee utilizes the 2nd and 3rd Pillars of the Pension (Hekken, Hoofs and Bruggen, 2022; Ciurila, de Kok, ter Rele and Zwaneveld, 2022; Ijzereef, van Beukering and Botzen, 2023; OECD, 2023). The Mercer CFA Institute global pension index ranked Dutch pension system as 1st in the world using criteria such as adequacy of fund, sustainability and integrity of the system. While the global pension transparency benchmark ranked it 2nd using cost, performance, governance and responsible investment and a yardstick (Mercer, 2023; GPTB, 2023).

The retirement income system in Australia also made use of the 3- pillars of pension system which comprises of old age pension which is usually funded from the taxation generated by the government, there is also a compulsory contribution by the employer to a guarantee superannuation which is privately managed and the third pillar is a voluntary superannuation contributions and other private savings by an individual. Tax concessions encouraged superannuation savings, and the pension system targeted those who need it mostly. Australian price and wage indexed are used in increasing pension rate to ensure they keep pace with the reality of the economy (Broomhill, 2021; Morris, 2022 and Settle, 2023; OECD, 2023). The average age of retirement is 67 years and 55 years is the minimum age for withdrawal of benefits from the Superannuation Savings. An average retiree earning a compulsory payment of \$670.9 AUD, equivalent to \$437.76 USD and \$505.70 AUD for



each couple retirees. The Australia System was ranked 3rd by the Global Pension Transparency Benchmark and 5th by the Mercer CFA Institute Global Pension Index using their various criteria (Mercer, 2023; GPTB, 2023).

The Danish pension system is designed to enable retirees receive pension from different sources. The system makes use of the 3-Pillars pension system comprises of the public pension scheme which is targeted at providing financial supplement to the most disadvantaged pensioners in the country. They also have a compulsory occupational pension scheme which is based on lump-sum contributions managed by the *Arbejdsmarkedets Tillaegspension (ATP)*. There is also negotiated compulsory occupational pension schemes which covers almost 90% of the employed work force in the country. Employees qualify to receive state pension when the retirement age of 67 years is attained. The employer usually ensures parts of employee salary are contributed to a pension savings account towards funding of employee's retirement benefits. In addition, employees can set up their own personal pension savings. The Danish state pension defined how much a retiree is entitled to from the state pension using the economic situation, a basic amount, supplement and supplementary pension benefits (Andersen, 2022; Jarner, Munk and Steffensen, 2022; OECD, 2023; Pinkus, Pozzoli and Schneider, 2024). An average Danish retiree receives pension of DKK 6,237 equivalent to \$902.27 USD representing 18% of average earnings. The Danish System is ranked 3rd based on the Mercer CFA Institute Global Pension Index criteria and 7th using the Global Pension Transparency Benchmark criteria (Mercer, 2023; GPTB, 2023).

In Chile, the system adopted also have three components. The first component is a redistributive pension known as the Basic Solidarity Pension (PBS) where every individual without other means of pension are entitled to and is pay pension from the age of 65. These are the poorest of the population. The second tier is a mandatory individual account for supplementary welfare pension which is individualized and managed by the administrators for investment purposes. The individual account was introduced in 1981 and was on a defined contributory basis. The third tier is a voluntary contribution by the employee to his individual retirement savings account toward fund his/her retirement benefits which is termed the maximum welfare pension. The rate of contribution for personal pension account scheme is 10% of the employees monthly earning of which administrative fees are levied on the contribution, the retirement age was fixed at 65 years for men and 60 years for women. Upon retirement, retiree has a choice to pick between the four pay-out options for



accessing his/her retirement benefits. The option which include the use of accumulated capital to purchased immediate life annuity, or to obtain a temporary income with a deferred life annuity, or to take the option of programmed withdrawal and can also choose to split the retirement benefits into purchased of immediate life annuity and programmed withdrawal (Abikenova, et. al., 2021; Parada-Contzen, 2022; OECD, 2023; Madeira, 2024). The PBS pays a minimum of CLP 29,070.33 equivalent to \$29.94 which represents 10% of the minimum employee earnings. This system is ranked 13th based on the Mercer CFA Institute Global Pension Index criteria and 14th using the Global Pension Transparency Benchmark criteria (Mercer, 2023; GPTB, 2023).

The South African pension system operates a 2-Pillar pension system. There is public pension which is a flat rate based on a residency test and also many occupational schemes, which coverage is not high at lower-income levels. The state pension system provides a means-tested monthly minimum income of ZAR 940 (49.56 USD) and pegged retirement age at 60 years for both men and women which is to finance from general revenues with the aim of reducing poverty among the elderly. There is also a contribution pension arrangement which could be in form of provident fund or a pension fund in line with the Pension Funds Act of the South Africa. In which ever form the contributory pension is arranged it required the approval of the registrar of pension funds and the commissioner of inland revenue. Presently, majority of employees in the private sector are covered by defined contribution schemes while those in the public sector largely enjoy coverage under defined benefit arrangements (Sanusi and Kapingura, 2021; Redonda and Axelson, 2021; Adediran, 2023; OECD, 2023) This system is ranked 11th based on the Mercer CFA Institute Global Pension Index criteria and 38th using the Global Pension Transparency Benchmark criteria (Mercer, 2023; GPTB, 2023).

3. The Nigeria Pension Reform: Features and Challenges

The Nigerian pension system operates two major schemes. Retirees in Nigeria can either be on Defined Benefits Scheme (DBS) or Contributory Pension Scheme (CPS). Employees who work with the federal government of Nigeria and retired before 1 July 2007 are automatically aligned to receive their pension through the DBS. States are at the liberty to either choose between the CPS, DBS or the Defined Contributory Benefits Scheme (DCBS). The CPS is mandatory for employees in the private sector whose employers have three or more employees not excluding federal government employees who are not exempted by the Act. Members of the Armed Forces, the Secret Agencies and the Judicial are exempted from participating in the CPS. This makes the CPS a unique



system as compared with other nations. The CPS is contributory and mandates both the employer and employee to contribute a minimum of 18% of the employee's monthly emolument to the Retirement Savings Account (RSA) of the employee. The RSA is strictly managed by the Pension Fund Administrator (PFA) and the funds are kept in safe custody with the Pension Fund Custodian (PFC). These are some of the measures put in place to ensure safety of the pension asset by the Act (Nwite and Perpetua, 2014; Dada, 2014; Anyim, Olusanya and Okere, 2014; Nwekeaku and Abimuku, 2019). The Act also provides that an employee may choose to contribute an additional voluntary contribution to augment pension at the retirement. The Act also places a penalty on employers who fail to remit pensions at the time of deduction and not remit the pension into the employee RSA (Nwite and Perpetua, 2014; Dada, 2014; Anyim, Olusanya and Okere, 2014; Nwekeaku and Abimuku, 2019).

The approved retirement age is 50 years of age or 35 years in services which ever comes later and this varies for professors and other staff in the educational sector. Upon retirement, a holder of RSA can use the balance to either procure annuity agreement with an insurance company or a programme withdrawal with the PFA. An RSA holder can access his/her RSA in case of loss of job or became permanent and incapability of body or mind to carry out the functions of his employment. With the introduction of the CPS in Nigeria, the pension liability which was -2.4 trillion Naira in deficit has accumulated to 19.7 Trillion Naira pension asset under management of the Commission (PenCom) as at February 2024. The above figure is invested into the Nigeria economy through FGN securities, state securities, ordinary shares, private placement, corporate bond, money market instrument and many more other means which has helped in many tremendous ways to sustain the economy. It is pertinent to note that the Act also makes provisions for employees who have contributed for a certain numbers of years to enjoy a guaranteed minimum pension in relation to the minimum wages of the employees as retirement. In addition, there is a provision for RSA holders to use part of their RSA balance as equity contribution for residential mortgage provided that the RSA holder has more than 5 years to retirement (Ohioma, 2018; Nwaiwu and Anurume, 2019; Adekunle, 2023).

As good as the Scheme looks, it has its own challenges which have hindered the full implementation of the Scheme. RSA are funded from the accumulated contribution of the employee and investment income. Currently, the approved national minimum wage in Nigeria in line with the Minimum Wage Act of 2019 was ₦30,000.00. This amount is applicable to all federal government employees and

some selected states government who choose to comply with the Act. While the standard in most private firms is still ₦18,000.00 which is equivalent to \$11.87 USD. The employer is expected to deduct and remit a total of 18% from the wages of an employee every month to his RSA. These are approximately ₦5,400 and ₦3,240 respectively for a RSA holder earning the minimum range in both public and private sectors, these amount are considered to be insufficient to aid the individual at retirement. Some employers do not deduct and remit the pension contribution of their employees. This could be the full 18% or their 10% contribution. Majority of employees decide not to report the employer to the regulator for relevant sanctions and recovery of the funds while in active employment due to the fear of losing their jobs. The sanctions are applied with accrued interest. Moreover, some employees are ignorant of the law thereby giving the employer the privilege to abuse their rights (Ohioma, 2018; Nwaiwu and Anurume, 2019; Adekunle, 2023).

The Constitution gives the states national assembly the power to legislate over some issues such as pension. This power, however, makes it difficult to mandate every states of the federation to comply with the PRA 2014. It can only become a law in any state of the federation where the state national assembly passes it into law. States are at liberty to amend the law before passing it to suit their nature based on the administration in power at the time of the enactment which might not be in the best interest of the state's employees. Out of the 36 States in Nigeria and the FCT, 26 states made efforts to implement the CPS in their state while the remaining 5 states subscribed to the CDBS. It is important to note that only seven (7) states, championed by Lagos state, have fully implemented the law in their state while others are at different stages. These include Kaduna, Ekiti, Ondo, FCT, Osun and Edo states. Whereas Jigawa is the only state that has fully implemented the CDBS while the remaining 4 states are at different stages (see Table 1).

Table 1: States Implementation of CPS/CDBS

S/N	Status	Scheme	States Involved
1	Full implementation	CPS	Lagos, Kaduna, Ekiti, Ondo, FCT, Osun, Edo
	Full implementation	CDBS	Jigawa
2	Substantial implementation	CPS	Delta
3	Partial implementation	CPS	Anambra, Kebbi, Benue
	Partial implementation	CDBS	Kano



4	Extended transition period	CPS	Rivers, Niger, Ogun
5	No implementation	CPS	Bayelsa, Taraba, Ebonyi, Oyo, Kogi, Imo, Nasarawa, Bauchi, Abia, Sokoto Enugu
6	No implementation	CDBS	Adamawa, Gombe, Zamfara

Source: Authors' compilation

Another downside to the Nigeria pension system is its low awareness among the citizens. Although the scheme has been existing for over 20 years, a large majority of the population are not aware of its existence. Finally, another concern about the Nigerian pension system is the rate of pension payment at retirement in comparison to employee emolument before retirement. The guidelines released by PenCom provides that retirees are entitle to a minimum of 50% of their last pay before retirement as monthly pension. However, due to inadequate funding and non-payment of gratuity by most employee, a lot of employee could not obtain the expected monthly pension share of last emolument as promised. Some were paid off their RSA balance as a lump sum at retirement due to the fact that the balance could not pay at least 2/3 of the present minimum wage.

4. Lessons and Recommendations for Nigeria

Based on the challenges discussed above and the development in pension industries around the world, it is advisable that Nigeria learns from countries that are performing better in their pension administration, such as Netherland, Australia and Denmark who operate the 3-pillars pension system. It is important to note that although the pension scheme that is operating in Nigeria was designed on a 3-Pillar pension system, implementation was still majorly on a single Pillar system.

The study hereby recommends for:

- i. The amendment of the Constitution of Nigeria to ensure that the pension Act enacted by the national assembly is bound by all the states to comply. By doing so, employees that work in Nigeria are covered by the Scheme, except for those that were exempted by the Act.
- ii. The amendment of the Act to include a guaranteed pension payment to all eligible retiree regardless of the sector where the employees work or retire from. This could only be achieved by making the funding of the PPF a first line charge to the consolidated revenue funds of the federal and state government. Every pensioner who has evidence of tax payment for a specific



numbers of year should enjoy the guaranteed minimum pension. Alternative to this would be to increasing the minimum wage rate to a level that match the desired guarantee minimum pension.

- iii. Increasing investment in pension education among citizens.
- iv. Encouraging contributors to participate in additional voluntary contributions, if their monthly salary can accommodate it.

Appendix 1: Summary of Pension Reforms around the World

S/N	COUNTRY	TYPE OF PENSION SYSTEM	BENEFITS	Mercer Ranking	GPTB Ranking	Retire-ment Age
1	Australia	Three Pillar Pension System (Public Fund, Defined Contributory Pension and Voluntary Contribution)	Compulsory payment of \$670.9 AUD (= \$437.76 USD) to Single retiree and \$505.70 AUD to each for couple retiree	5 th	3 rd	65 years
2	Netherland	Three Pillar Pension i. the state pension system as per the <i>Algemene Ouderdomswet</i> (AOW) law, ii. private pension system regulated by pension law, iii. Individual private pension.	Compulsory payment of 230.24 EUR/month in 2020. Additional holiday allowance of EUR 72.04 per person. This gives a total of EUR 302.28 for singles and EUR 770.76 for couples	1 st	2 nd	66 years 4 months in 2020 67 years in 2024
3	Denmark	Three Pillar source: a. Public Pension Scheme b. Mandatory Occupation Pension c. Compulsory Pension	Compulsory pension of DKK 6,237 (= \$902.27 USD) representing 18% of average earnings of an employee	3 rd	7 th	69 years
4	Iceland	Two Pillar source: • Basic state pension (national pension) • Mandatory Occupational Pension	Compulsory pension of ISK 256,789 per month (= \$1,877 USD) equal to 33% of average earnings of an employees	2 nd		67 years
5	Chile	Three Pillar Source: a. Basic Solidarity Pension	PSB pays a minimum of CLP 29,070.33	14 th	13 th	65 years



		b.Solidarity (Individual and Mandatory Contributory) c.Maximum Welfare Pension (Voluntary Contribution)	Equivalent to \$29.94 which represent 10% of the minimum employee earnings			
6	South Africa	Two Pillar Source: <ul style="list-style-type: none"> Based on residency Defined Contribution of 15% of earnings contributed by both employer and employee 	Basic pension pays ZAR 1990 equivalent to \$104.84 USD for single and ZAR 3980 for Couples and ZAR 2000 for pensioner older than 75 years	38 th	11th	60 years
7	Nigeria	Three Pillar source: <ul style="list-style-type: none"> CPS/DCBS/DBS Voluntary Contribution MPG 	Basic Pension varies based on the Scheme in operation	N/A	N/A	Varies based on employment Sectors

Source: Authors' Compilation

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***SUB-NATIONAL HUMAN DEVELOPMENT AND HOUSEHOLD
WELFARE IN SOUTHWESTERN NIGERIA***

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Abstract

The study investigates the relationship between human development and household welfare in southwest Nigeria. Human development measures used are the health index and education index while measures of household welfare include percentage of poor household, percentage of household with TV, percentage of household with phone and percentage of household with refrigerator based on household level data from the Global Data Lab (GDL) spanning over 10 years, 2011 – 2020. Data analysis was done using correlation analysis and Granger causality test. Lagos, Ogun and Osun demonstrate negative correlation between health index and percentage of poor households while the equivalent correlation are positive for Ekiti, Ondo and Oyo. Household possession of phone Granger cause education index only in Osun state. The study concludes that each state has unique socioeconomic characteristics that prevent them from having similar relationship between human capital and household welfare. This reveal the limited usefulness of results and recommendations based on national analysis for policy direction at subnational level. The study recommends the state governments in southwest Nigeria should always account for the unique structure of their respective state economy in the design and implementation of policies aiming at improving human capital and household welfare.

Keywords: Sub-national Human Development Index, Household welfare, Southwestern state Nigeria, Correlation analysis, Causality analysis.

JEL classification: D13, I15, I25, I31, O15



1. Introduction

Human development is a critical component of development. For example Campbell (2017) cited the work of Ranis as an example of how long-term development can only be achieved with the help of human development. She stated that policymakers should prioritise improving living standards, education, and health (Ita, 2020). Osmani (2016), cited the concept of human development by Dr. Amartya Sen, who stated that the goal of development is to enhance the capabilities of the citizens. According to Sen, human development refers to the rate at which people can acquire or gain access to valuable items of life; enjoy a life of freedom; removing various obstacles that prevent people from making their own decisions and using their reasoning skills properly. It also expands people's opportunity to live long (Osmani, 2016). One of the most effective ways to improve the living conditions of people is by providing them with the necessary education and health services. A country that has a well-trained and healthy workforce will be able to sustain its growth.

Human development is regarded as a process that significantly improves the lives of people and places them at the center of all development efforts. It involves expanding the range of opportunities for people to improve their quality of life, education, and employment. This process also covers a variety of human choices, from political and economic freedom to a sound physical environment. The goal of human development is to increase the level of social and material wealth that people have. It aims to address the root causes of human deprivation and poverty (Ita, 2020).

Despite the country's immense natural resources, Nigeria has been unable to achieve matching level of development. In order for Nigeria to be relevant in the 21st century, it needs to rethink its approach to economic development. According to Ngharen (2013), Nigeria should be among the countries that can compete for the top 20 global economies by 2020. In order to achieve sustainable economic growth, Nigeria needs to build a well-equipped and diverse workforce that can support its operations. This can be achieved through the establishment of strategic human capital investments. Besides education, the country also needs to develop scientific and technological capabilities. Various organizations, such as the government, private sector, and schools, require highly skilled and motivated individuals to maintain their operations. In today's fast-paced world, having a skilled workforce is very important.



Several authors have examined the roles, determinants and implications of human development in Nigeria at national level (Omodero, 2019; Maku, Ajike and Chinedu, 2019; Popogbe and Adeosun, 2020; Dauda and Iwegbu, 2022; Onabote, Ohwofasa and Ogunjumo, 2023; Ikediashi, Orubu, Awogbemi and Odebode, 2023; Bognet, Yashim, Momoh, Bello and Sarki, 2023; Danjuma, Abdullahi, Adamu, Bognet and Ahmadu, 2023; Azeez, 2024). However, due to heterogeneity of state structures, there is need to understand the nature of human development at sub-national level. This study examines the relationship between human capital and household welfare in southwest Nigeria.

2. Literature Review

Human capital is a collection of attributes that can be used to produce economic value by performing labour. It includes knowledge, personality and creativity (Kayode, 2012; Ullah, *et. al.*, 2021; Chinecherem, 2024). The link between human capital and economic growth has been a central argument in supporting government policies to improve job skills and education. Human capital is regarded as an asset that people can contribute to the growth and development of an economy (Lenihan *et al.*, 2019). People's abilities, talents, and aptitudes are the factors that determine productivity. Any costs or inputs that are related to these have to be seen as investment (Harbison, 2018). At a time when rapid technological change is occurring, the ability of states and countries to remain relevant is determined by their citizens' productivity.

Human resource quality, quantity, and availability determines the impact of human resources on economic growth. In the course of economic growth, the importance of physical capital is usually placed higher than that of human capital. Human capital can help individuals improve their productivity and health by increasing their income and fitness. Education and training are some of the factors that can help improve a person's productivity. The quality of human resources can also help individuals improve their health and productivity by increasing their earnings. Education and health are two principal components of human capital. Although it is commonly assumed that people's skills and knowledge are acquired through education, it can also include their vitality and strength, which are dependent upon their nutrition and health. Human capital theory states that health and education are vital determinants of household welfare. Various countries have been able to achieve remarkable economic growth due to the development of advanced scientific and



technological knowledge. For instance, countries such as Japan, Taiwan, and some other Asian nations have been able to achieve impressive economic growth because of the development of their human resources (Omodero, 2019; Onabote, *et. al.*, 2023; Azeez, 2024).

Healthcare expenditures include direct and indirect costs, such as out-of-pocket medical costs. According to Regmi (2012), health expenditure accounts for significant parts of many household expenditures, which may push them into poverty. Due to the high cost of health care, many households adopt different strategies to cope with these expenses. To help pay for their healthcare expenses, families may reduce their consumption of various non-medical goods, such as food, education, and housing (Thakur and Sangar, 2020). This could affect their living standards. When implementing a healthcare financing strategy, the primary objective should be to protect households from high out-of-pocket (OOP) health expenditures. This is because OOP levels violate vertical equity. It is crucial that payments are progressive so that the rich bear more of the healthcare expenditure (WHO,2010).

3. Methodology

This study focuses on the Southwestern region on Nigeria. The research uses secondary data coiled from the Global data lab(GDL),which is adopted for the analysis of the study data. Data such as Health index and Education index were used to proxy for human development index while percentage of poor households, percentage of household with TV, percentage of household with refrigerator and percentage of households with a phone were used to proxy household welfare The data also include overall measure of sub national development index, the analysis covers 10 years period between 2011 and2020 (Smith and Permanyer 2019). The data were collated and sorted using MS Excel tools to analyse the trends and EViews tools used to analyse the correlation and causation among the variables.

4. Results

4.1 Correlation between Health Index and Household Welfare Measures

Table 1 shows the result of the correlation between Health index and Household welfare. From the result, the table shows there is high and positive relationship between health index and percentage of poor households in Ekiti, Ondo and Oyo state that is significant at 5%. In addition, there is high

and negative relationship between health index and percentage of poor household in Lagos, Ogun, and Osun state, which is also significant at 5%.

Table 1: Correlation between Health index and Household Welfare Measures

	Ekiti	Lagos	Ondo	Osun	Oyo	Ogun
Poor household	0.8588 [0.0015]	-0.94797 [0.0000]	0.9614 [0.0000]	-0.5922 [0.0713]	0.9518 [0.0000]	-0.9951 [0.0000]
Households with TV	-0.8107 [0.0044]	0.9539 [0.0000]	0.9492 [0.0000]	0.6300 [0.0509]	0.4628 [0.1780]	0.9886 [0.0000]
Households with refrigerator	-0.9108 [0.0379]	0.5634 [0.0000]	0.7857 [0.0232]	0.8754 [0.0009]	0.7897 [0.7878]	0.9876 [0.0989]
Household with a phone	0.9807 [0.0098]	0.6755 [0.0043]	0.7654 [0.0000]	0.7865 [0.0509]	0.7865 [0.0450]	0.4542 [0.0021]

Source: Authors' Computation

Positive and significant relationship exist between health index and percentage of household with TV in Ondo, Ogun and Lagos state, which is significant at 5%. While the result shows that, there is negative and significant relationship between health index and percentage of household with TV in Ekiti state. However, the relationship in Oyo and Osun state are insignificant at 5% but significant at 10%.

Likewise, there is positive and significant relationship between health index and percentage of household with refrigerator in all the states in south west Nigeria except Ekiti state which has a negative relationship while the positive relationship of Ogun and Osun which are insignificant at 5% level. The table also shows that there is positive and significant relationship between health index and percentage of households with phone among all the states in southwest of Nigeria except Osun state which is insignificant at 5% level.

4.2 Correlation between Education Index and Household Welfare Measures

Table 2 shows the result of the correlation between education index and household welfare. The table shows there is high and negative relationship between education index and percentage of poor households in Ogun and Ondo state however that are significant at 5%. The values are not significant for other states.

There is high, positive relationship between education index and percentage of household with TV among all the southwest states in Nigeria, except Ekiti that is negative. Positive and significant relationship exist between education index and percentage of household with refrigerator in Lagos, Oyo and Ogun. There is positive and significant relationship between education index and percentage of household with a phone in all the states in south west Nigeria.

Table 2: Correlation between Education index and Household Welfare Measures

	Ekiti	Lagos	Ondo	Osun	Oyo	Ogun
Poorest household	0.2065 [0.5671]	0.6089 [0.0617]	-0.8463 [0.0020]	-0.2593 [0.4694]	-0.2592 [0.3684]	-0.9523 [0.0000]
Households with TV	-0.0292 [0.9361]	0.8579 [0.0015]	0.7331 [0.0158]	0.0818 [0.8222]	0.8006 [0.0054]	0.9450 [0.0000]
Households with refrigerator	-0.1307 [0.7190]	0.8686 [0.0011]	0.0132 [0.9710]	0.0831 [0.8195]	0.9437 [0.0000]	0.9097 [0.0003]
Household with a phone	0.8950 [0.0005]	0.9129 [0.0002]	0.8504 [0.0018]	0.7739 [0.0086]	0.9615 [0.0000]	0.9799 [0.0000]

Source: Authors' Computation

4.3 Causality between Health Index and Household Welfare Measures

Table 3 contains the results of the causality between health index and household welfare measures. The results for the causality between health index and percentage of poor households indicates unidirectional causality from poor households to health index for Ekiti and Ogun states; health index Granger cause poor households in Ondo and Lagos states while there are bidirectional causality between percentage of poor households and health index in Oyo and Osun states.

Concerning the household with TV, percentage of households with TV Granger cause health index in Oyo state. This direction of the causality is reversed for Osun state. There are bidirectional causality between percentage of households with TV and health index in Ekiti, Ondo and Ogun states while there is no causality between TV possession and health in Lagos state.

For household with refrigerator, it has no causality with health index in Lagos state; there is bidirectional causality in Oyo state; unidirectional causality from health index to refrigerator



possession in Osun and Ogun states; while the remaining two states have unidirectional causality from refrigerator possession to health index.

No Granger causality between phone possession and health index in Ekiti and Ondo states while the remaining four states demonstrate evidence that health index Granger cause phone possession.

	Ekiti	Oyo	Osun	Ondo	Ogun	Lagos
Health index - Poor hh	0.2573 [0.6301]	23.535 [0.0003]	32.9850 [0.004]	12.6759 [0.0098]	0.9877 [0.0987]	14.98 [0.0015]
Poor hh-Health index	26.5154 [0.0021]	9.4106 [0.0213]	3.5283 [0.004]	8.786 [0.0946]	19.1325 [0.0019]	0.7867 [0.8486]
Nature of Causality	Unidirectional	Bidirectional	Bidirectional	Unidirectional	Unidirectional	Unidirectional
Health index – Hh with a TV	14.3427 [0.0291]	3.3852 [0.1701]	12.2956 [0.0127]	6.1018 [0.0484]	10.8068 [0.0167]	3.7290 [0.1536]
Hh with a TV - Health index	135.918 [0.0011]	13.8868 [0.0304]	0.0001 [0.9925]	8.1006 [0.0293]	10.210 [0.0067]	0.0097 [0.9903]
Nature of Causality	Bidirectional	Unidirectional	Unidirectional	Bidirectional	Bidirectional	No causality
Health -Hh with Refrigerator	27.7988 [0.0019]	32.5142 [0.0013]	12.7976 [0.0117]	0.0014 [0.9715]	9.4520 [0.0218]	0.7801 [0.3321]
Hh with Refrigerator - Health	0.2685 [0.6229]	7.7619 [0.0317]	0.0014 [0.9715]	12.7976 [0.0117]	0.4144 [0.5435]	1.2356 [0.2138]



Nature of Causality	Unidirectional	Bidirectional	Unidirectional	Unidirectional	Unidirectional	No causality
Health - Hh with a phone	1.5825 [0.2551]	6.8174 [0.0401]	14.0163 [0.0096]	5.3585 [0.0599]	6.5756 [0.0427]	11.6217 [0.0143]
Hh with a phone – Health	0.0992 [0.7634]	0.8806 [0.3843]	1.2080 [0.3139]	0.3016 [0.6027]	0.3986 [0.5511]	5.9292 [0.0508]
Nature of Causality	No causality	Unidirectional	Unidirectional	No causality	Unidirectional	Unidirectional

Table 3: Causality between Health Index and Household Welfare Measures

Source: Authors' Computation

4.4 Causality between Education Index and Household Welfare Measures

Table 4 contains the results of the causality between education index and measures of household welfare. The topmost part of the table shows that percentage of poor households Granger cause education index in Ekiti, Oyo, Osun, Ondo and Ogun states while the reverse is the case for Lagos.

Table 4 also indicates a bidirectional causality between TV possession and education index in Ekiti state; with unidirectional causality from TV possession to education index in Osun, Ondo, Ogun and Lagos states. But the results for Oyo state indicate that education index Granger cause percentage of household with TV possession.

Table 4: Causality between Education Index and Household Welfare Measures

	Ekiti	Oyo	Osun	Ondo	Ogun	Lagos
Education index – Poor hh	1.1827	0.3955	3.9850	1.8644	0.1311	18.7434



	[0.3185]	[0.5526]	[0.0929]	[0.2211]	[0.7297]	[0.0049]
Poor hh – Education index	16.6741 [0.0065]	13.0106 [0.0113]	13.5283 [0.0104]	19.2558 [0.0046]	16.1550 [0.0070]	0.0397 [0.8486]
Nature of Causality	Unidirectional	Unidirectional	Unidirectional	Unidirectional	Unidirectional	Unidirectional
Education – Household with TV	19.7232 [0.0132]	33.1211 [0.0101]	1.2956 [0.3452]	1.1054 [0.4564]	1.8453 [0.3167]	3.1233 [0.3236]
Household with TV – Education	23.918 [0.0111]	3.2381 [0.1234]	123.442 [0.0052]	82.454 [0.0025]	112.341 [0.0002]	23.0097 [0.0323]
Nature of Causality	Bidirectional	Unidirectional	Unidirectional	Unidirectional	Unidirectional	Unidirectional
Education – Hh with refrigerator	1.05920 [0.3431]	0.31503 [0.5949]	14.2536 [0.0092]	3.43267 [0.1134]	0.14277 [0.7186]	0.90126 [0.3791]
Hh with refrigerator – Education	19.8703 [0.0043]	9.89472 [0.0199]	3.43267 [0.1134]	14.2536 [0.0092]	15.1455 [0.0081]	2.26557 [0.1830]
Nature of Causality	Unidirectional	Unidirectional	Unidirectional	Unidirectional	Unidirectional	No causality
Education – Hh with a phone	4.34851 [0.0821]	4.52853 [0.0774]	0.39562 [0.5525]	1.35114 [0.2892]	4.52383 [0.0775]	1.91991 [0.2152]
Hh with phone – Education	0.35378 [0.5737]	4.1409 [0.0881]	11.1532 [0.0156]	0.4751 [0.5164]	0.0272 [0.8745]	3.1875 [0.1244]



Nature of Causality	No causality	No causality	Unidirectional	No causality	No causality	No causality
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Source: Authors' Computation

The results further indicate that education index Granger cause possession of refrigerator in Osun state while the reverse is the case for Ekiti, Oyo, Ondo and Ogun state. For Lagos state, there is no causality between possession of refrigerator and educational index.

Finally, the results indicate that household possession of phone Granger cause education index Osun states while there is no causality between phone possession and education index in remaining five states.

5. Summary, Conclusion and Recommendations

The study examined the relationship between subnational human development and households' welfare in southwest of Nigeria between the period of 2011 – 2020. The study discovered that standard of human capital index has improved in all states over time. Most of the Southwestern states have nonlinear human capital development. The findings of the correlation between human development and household welfare in the Southwestern states demonstrate that there is a very significant connection between the two variables when compared side by side. The degree of link between the provision for education and household welfare in southwest state is roughly 0.30 (30%). The average correlation between health index and household welfare is approximately 0.49.

From the findings, the study concludes that there is a weak and positive relationship between human development index and household welfare in the southwest states of Nigeria within the period under study. The study concludes that both human capital development and household welfare have an influence on one another from the result of the granger causality. The actual correlation and causality varies from state to state. This suggests that each state has unique socioeconomic characteristics that prevent them from having similar relationship among economic variables. This revealed that aggregate studies are less beneficial for policy direction at subnational level.

Based on the findings the study recommends the following:



1. Federal and state governments should enact policies that specifically address unique needs and dynamics of states in the Southwest region in relation to human capital development through educational attainment and healthcare access;
2. States within the Southwest Nigeria should devise and execute targeted welfare programs that directly tackle household poverty reduction, increased access to household assets, and increase access to telecommunication services;
3. States in southwestern Nigeria should seek collaborative endeavors involving government bodies, non-governmental organizations, international partners, and local communities that will focus on achievement of the sustainable development goals relating to human development and household welfare in their respective states; and finally
4. Further studies should be conducted to explore the factors that can explain the sharp differences observed on the correlation and causality between human development and household welfare among states in the southwest Nigeria.

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***IMPACT OF INFORMATION TECHNOLOGY ON THE OPERATION OF
BANKING SYSTEM: STUDY ON MICROFINANCE BANKS IN ZARIA
ENVIRON KADUNA STATE, NIGERIA***

BY

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Abstract

This study seeks to determine the impact of information technology (IT) on the operation of banking systems, particularly microfinance banks in the Zaria environment. It reviews existing literature on IT and banking systems and examines the state of IT in microfinance banks in Zaria. The study analysed the impact of information technology in zaria environment the in-dept interview based on a semi-structure questionnaire with open-ended questions. The target population were customers and personnel in the microfinance banks to determine how IT is being used in banking operations in the Zaria environment, the responses obtained from the respondents were analyzed using percentage and chi-square. The analysis reveals that IT is used to facilitate customer on-boarding and loan processing, improve customer service, and reduce banking costs. It also enables the development of new products and services, better risk management, and the ability to provide customers with deeper insights into their financial needs. The study highlights the need for microfinance banks to be agile in the use of IT to remain competitive and ensure the sustainability of banking services. This study provides valuable insights into how the adoption of IT can improve banking operations and suggests ways for microfinance banks to leverage IT to meet the needs of customers in the Zaria environment, such as IT should be emphasized to use in banking sector because of it significant impact, personnel in the banks must be trained on how to use the information technology facilities, such as, counting machine, laptop, desktops, internet connections, ATM machine, cyber security etc, should be available.

Keywords: Information Technology, Banking Operation, Microfinance Bank,

JEL Classification codes: G21,G39, 033

1. Introduction

Global financial services have seen a revolution in recent decades due to the convergence of information technology (IT) and the banking industry. Significant improvements in service delivery,



customer engagement, operational efficiency, and risk management have resulted from the integration of IT into banking operations.

The modern business environment is highly dynamic and evolves quickly due to advances in technology, growing consumer demands, and increased awareness. The 21st-century business environment, particularly in the banking sector, is competitive and complex, with constantly shifting conditions and an extremely uncertain economic landscape. This worldwide transformation is centered on information and communication technology, or ICT. "Give me a lever long enough and a fulcrum on which to place it and I shall move the whole world," declared Archimedes (2017). Prior to the development of information and communication technology, the lever he was discussing was not understood. All banks now consider the application of ICT concepts, techniques, policies, and implementation strategies to banking services to be of utmost relevance and concern, and in fact, it is a requirement for both local and global competitiveness. ICT has a direct impact on managers' decision-making, planning, and service and product offerings in the banking sector. It has persisted in altering the global restructuring of banks and their business interactions as well as the range of cutting-edge tools available to improve the efficiency and caliber of service delivery.

According to Harold and Jeff (2015), in order for financial service providers to stay in business during the 1990s and the ensuing decades, they should alter their conventional operating procedures. They contend that senior bank management's widespread inability to recognize the value of technology and appropriately integrate it into their strategic objectives is the biggest weakness facing the banking sector today. According to Woherem (2014), the only banks that stand a chance of surviving and growing in the next millennium are those that completely revamp their payment and delivery systems and integrate ICT into their daily operations. He recommends that banks review their systems for providing services and delivering goods in order to properly align them with the demands of the rapidly evolving information and communication technology landscape. Over the years, there have been significant changes in the banking sector that are associated with advancements in ICT. In order to maintain current market share, remain relevant globally, and promote sustainable development, the industry must take use of ICT's many benefits by using automated devices.



The use of computers and other electronic devices for data storage, analysis, and distribution is known as information technology (IT), and it has had a significant impact on nearly every aspect of people's lives as well as the national economy, including the banking industry. The integration of various economic units has been made possible by the growing usage of IT in a spectacular fashion. Although the extent of their use may vary, other economies outside of Nigeria can also experience this problem. Even if it may not have been as high as those shown for developed countries, Nigeria's use of IT, particularly in the banking industry, has significantly improved (Adeoti, 2017; Adeyemi, 2018).

This study became interested in the use of IT in the banking industry because of its important role in the economy. By allocating funds to economic actors who require them for profitable endeavors, it promotes economic growth. This function is essential for any economy that hopes to grow meaningfully because it arranges for lenders and borrowers of financial resources to interact more effectively than they would if they had to deal directly (Adam, 2018; Ojo, 2019). Essentially, the banking industry serves as a link between the economy's lenders and investors. Therefore, the Central Bank of Nigeria, or CBN, needs to undergo reforms.

Banks and other financial institutions use computers extensively for processing large volumes of checks, credit card transactions, and other significant daily transactions in addition to managing customer accounts, ledgers, updates, and electronic fund transfers. The most obvious representations of computers in Nigeria's banking industry are the soon-to-be automated teller machines (ATMs), which have already been installed by the majority of banks. Of course, they can be found all over Europe, Africa, America, and Asia. Even when the bank is physically closed, customers can use the ATM to make withdrawals, top up their phones, and transfer money between different accounts. After every transaction, the customer receives a printout or notification and their record is updated.

On the other hand, computers can be a useful tool in the banking industry for expediting and lowering the cost of creating and completing figure works. Credit control and sales budgeting can be achieved through more efficient control procedures in computerized systems. A lot of credit cards, smart cards, and master cards can also be used to make ATM and online banking withdrawals up to the credit limit that has been placed on the card. Customers deposit their money safely with the bank, and it is released as needed through checks and other channels (Bedini et al., 2020).



A vision of a development finance institution replaced the idea of a bank as a financial institution based on traditional investment banks. This study assesses how Nigerian banks have responded to this emerging trend, the degree to which they have incorporated cutting-edge technologies into their daily operations, and the outcomes that have followed.

In summary, there is no denying that the operational environment of microfinance banks has changed as a result of the integration of information technology. Comprehending the particular ramifications in the context of Zaria will not only provide useful perspectives but also add to the current conversation about the mutually beneficial association between information technology and banking activities.

This study aims to investigate the impact of information technology on the banking industry's operations, specifically on Micro Finance Banks in the Zaria area.

2. Literature Review

An expanded definition of innovation is technological innovation. Despite having a fairly clear definition, the term "innovation" is understood broadly by many, particularly in the academic and business communities (Fernanda, 2020). Innovation is the process of going above and beyond to create new goods and services for the public or market that meet unmet needs or provide solutions to issues that haven't been addressed before. However, technological innovation does not cover the entire organization's business model; rather, it concentrates on the technological aspects of a product or service. It's critical to emphasize that innovation is not solely a product of technology. Questions and Answers on Technological Innovation, 2021).

Loonam, et al. (2016) claim that the banking industry has undergone significant restructuring as a result of ICT advancements, globalization, competition, and shifting social trends like greater customer proactivity and increased preferences for convenience. According to Castells (2018), a single butt can now initiate transactions worth billions of dollars in the global electronic circuit in a matter of seconds.

Information and communication technologies (ICT) have a significant impact on the majority of socioeconomic, political, and cultural facets of society in the modern world. In many nations, ICT has become an essential tool for implementing national development plans, assisting in the pursuit



of ensuring the welfare and prosperity of their citizens (International Telecommunications Union, 2020). ICT, or information and communication technology, is crucial to both mitigating and adapting to climate change. The use of ICT is expected to reduce total greenhouse gases by 15% by 2020, according to the World Development Report 2010, which is why this is becoming more and more acknowledged within the climate change technology transfer negotiations. Beyond reducing the effects of climate change, ICT is crucial to achieving Nigeria's Vision 2020 goal of creating a sizable, diverse, competitive, sustainable economy that taps into the skills and energies of its people and ensures a high standard of living and high quality of life for all of its residents. Nigeria places special emphasis on the convergence of mitigating climate change and achieving growth targets (United Nations Conference on Trade and Development, 2021). Other indirect benefits of ICT for the environment include raising GDP growth, productivity, and social well-being of the general public, all of which increase per capita wealth. It also aids in alleviating the nation's poverty problem. It is evident that ICTs are required for monitoring, modeling, administering, and disseminating climate change activities, both as general-purpose and specialized technologies (Stiroh, K.J., 2022).

According to Kast and Rosenzweig (2019), a system is an ordered whole made up of two or more parts, components, or subsystems that are distinguished from its surrounding supra system by recognizable boundaries. Takeda (2018) concurred that organizations should support technological advancements and revolutions, but that in order to help individuals and teams perform to the best of their abilities, these two factors should be integrated with organizational work systems.

According to Drucker (2017), creativity requires both effort and inspiration. Instead of being strict with their staff, managers should encourage them to take initiative. Strict and unbending regulations are easily broken. [Dauda, 2017; Boyd, 2017]. Many industries start their quest to increase customer satisfaction by investing in the newest equipment to boost productivity within their businesses.

According to Barrow (2017) and Dauda (2017), enhancing business and industrial growth requires the proper implementation of effective human resource management strategies in all organizational units, including marketing, production, finance, and others. Due to their incapacity to apply science and technology, the majority of developing countries in Africa, Asia, Latin America, Europe, America, and Russia were unable to fully utilize their natural, material, and human resources for



socioeconomic development. Europe, America, Russia, and China are the four major global markets. A few developing nations, like China, have succeeded in converting their human and material resources into goods and services by effectively applying science and technology.

Theoretical Review

In order for an organization to be more adaptable to new technologies, market challenges, and changes, Bennis theory (2018) offers strategies meant to alter the organization's beliefs, attitudes, values, and structure.

Researchers Daniel Kahneman and Amos Tversky (1979) developed prospect theory to determine the risk orientation of Nigerian banks with respect to technology adoption, and reasoned action theory to comprehend bank customers' intention to utilize banking opportunities extensively. Prospect theory operates under the supposition that while bank customers may choose to use less risky bank services, bank operations may choose not to incur the huge costs associated with adopting new technology.

The study also examined the Swan and Solow model's (1956) theory. On these four variables, the model is based: Output (Y) is the total amount of final goods produced; capital (K) is the number of machines and other structures used in production; and labor (L) is the number of employees or hours worked. Technology (A) finally alludes to multifactor productivity. The Slow and Swam-inspired neoclassical model is based on the assumption of a continuous production function connecting labor and capital inputs to output.

Methodology Research Design

The Descriptive Research Design was used in this study. Ezeani (2021) states that the goal of descriptive surveys is to gather precise, factual data that characterizes an existing phenomenon. Additionally, it could be developmental to look into trends or sequences of development or change over time.

The employees and clients of a few Micro Finance banks in Zaria, Kaduna state, are the study's target population. The targeted population for the research work (study) in particular will be the employees and clients of Zafec Microfinance Bank FCE Zaria, ABU Micro Finance Bank Kongo Campus, and ABU Micro Finance Bank Main Campus Kaduna State.

Table 1: Population of the study

Banks	Bank staffs	Bank customers	Population
Zafec Micro Finance Bank FCE Zaria.	28	560	588
ABU Zaria Micro Finance Bank, Kongo Campus.	15	215	230
ABU Zaria Micro Finance Bank, Main Campus.	21	490	511
Total	64	1265	1329

Source: Field survey, 2023.

Sampling Size of the Study

Three (3) purposively selected Micro Finance Banks in Zaria Environment will be randomly selected to make up the study's sample size of one hundred (100) respondents.

Instrumentation

To accomplish its goals, the study employed a questionnaire titled "Impact of Information Technology on the Operation of Banking Industry: Study of Microfinance Banks in Zaria Environment." The relative benefits of this approach for examining both educated and uneducated members of the population led to its selection. A closed-ended survey was employed. The respondents were given the choice to agree, strongly agree, disagree, and disagree strongly in this instance as well. in order for the researcher to obtain a broad understanding of the respondents.

Method of Data Analysis

The study used both descriptive and inferential statistics for analysis. Under descriptive analysis, the study employed frequency distribution table containing frequencies and percentages. Whereas, for the inferential chi-square was used.

Results and Discussion

Table 2: Category of Respondents

Category	Frequency	Percentage (%)
Permanent staff	32	37%
Casual staff	24	28%
Customer	30	35%
Total	86	100

Sources: Researchers' survey, 2023.

The table 2 shows that the frequency of permanent staff is 32 representing 37% of the respondents, there was 24 responses on the option provided for the casual staff representing 28% of the

respondents, while the frequency of the customers is 30 representing 35% of the respondents. This shows that most of the respondents are permanent staff.

Table 3: Variables of the research study

Table 3: The information technology has impact in the banking industry

Opinion	Frequency	Percentage (%)
Agreed	32	37%
Strongly agreed	46	54%
Disagreed	2	2%
Strongly disagreed	6	7%
Total	86	100

Sources: Field survey, 2023.

The table 3 therefore, shows that 32 representing 37% agreed with the statement, 46 respondents representing 54% strongly agreed with the statement, 2 respondents representing 2% disagreed with the statement. While 6 respondents representing 7% strongly disagreed with the statement. This indicate that majority of the respondents 54% strongly agreed with the statement that the information technology has impact in the banking industry.

Table 4: The capability of information technologies is enhancing the performance of the banking industry.

Variable	Frequency	Percentage (%)
Agreed	35	41%
Strongly agreed	33	38%
Disagreed	8	9%
Strongly disagreed	10	12%
Total	86	100%

Sources: Field survey, 2023.

The table 4 shows that 35 respondents representing 41% agreed with the statement, 33 respondents representing 38% strongly agreed with the statement, 8 respondents representing 9% disagreed with the statement. While 10 respondents representing 12% strongly agreed with the statement. This indicate that majority of the respondents 41% agreed with the statement.

Table 5: There are new measure to take in order to improve the present banking performance with improvement of information technology.

Variables	Frequency	Percentage (%)
Agreed	39	45%
Strongly agreed	31	36%
Disagreed	6	7%
Strongly disagreed	10	12%
Total	86	100%

Sources: Field survey, 2023.

Table 5 shows that 39 respondents representing 45% agreed with the statement, 31 respondents representing 36% strongly agreed with the statement, 6 respondents representing 7% disagreed with

the statement. While 10 respondents representing 12% strongly disagreed with the statement. This indicate that majority of the respondents 45% agreed with the statement.

Hypothesis Testing

This study set three hypothesis

Ho₁ There is significance or positive relationship between information technologies of banking performance.

Table 6: Chi-square-impact of information technologies in banking industry (Laptops, Desktop, Counting Machine, connections cyber, security etc.

Opinion	0	E	0-E	(0-E) ²
Agreed	32	28.67	3.33	11.08
Strongly Agreed	46	28.67	17.33	300.32
Disagreed	2	28.67	-26.67	711.28
Strongly Disagreed	6	28.67	-22.67	513.92
Total	86			1,536.6

Source: Questionnaire Administered 2023.

$$K-1 = 4-1 = 3$$

$$\frac{86}{3} = 28.67$$

3

$$X^2 = \frac{\sum(0-E)^2}{e}$$

$$\text{Calculated value} = \frac{1536.6}{28.67}$$

$$= 53.59$$

Company test statistics with critical value

$$53.59 > 7.815$$

Decision rule: since the calculated value X^2 is greater than tabulated values and value we therefore reject null hypothesis and conclude that is relationship between information technologies of banking performance. This result is in line with K. Forts, G. Loannis, K. Maria (2021)

Ho₂ There is significance relationship between information technologies in enhancing the performance of the banking industry.

Table 7: Capability of information technologies in enhancing the performance of the banking industry.

Opinion	0	E	0-E	(0-E) ²
Agreed	35	28.67	6.33	40.07
Strongly Agreed	33	28.67	4.33	18.75
Disagreed	8	28.67	-20.7	428.49
Strongly Disagreed	10	28.67	-18.67	348.57
Total	86			835.88

Source: Questionnaire Administered 2023.

$$K-1 = 4-1 = 3$$

$$\frac{86}{3} = 28.67$$

3

$$\text{Calculated value} = \frac{835.88}{28.67}$$

$$= 29.16$$

Company test statistics with critical value

$$29.16 > 7.815$$

Decision rule: since the calculated value X^2 is greater than tabulated values and value we therefore reject null hypothesis and conclude that is relationship between information technologies of banking performance. This result is in line with Ohieni and megha D,Shetty and Nikhitha M,k (2022).

H_0 There is relationship between measures to improve the banking performance with improvements on information technology.

Table 8: Measures to improve the banking performance with the improvement on information stechnologies.

Opinion	0	E	0-E	(0-E) ²
Agreed	39	28.67	10.33	106.71
Strongly Agreed	31	28.67	2.33	5.43
Disagreed	6	28.67	-22.67	513.93
Strongly Disagreed	10	28.67	-18.67	348.57
Total	86			974.64

Source: Questionnaire Administered 2023.

$$K-1 = 4-1 = 3$$

$$\frac{86}{3} = 28.67$$

3

$$\text{Calculated value} = \frac{974.64}{28.67}$$

$$= 33.99$$

Company test statistics with critical value

$$33.99 < 7.815$$

Decision rule: since the calculated value X^2 is iess than tabulated values and value we therefore accept the null hypothesis and conclude that no relationship between information technologies and banking performance because of insufficient training of the micro finance bank personnel in information technology operation. This result is collaborates with Brynjoifsson E.elal.,(2022).

Summary, Conclusion and Recommendations

In light of how information technology helps banks perform better by facilitating banking activities, raising customer satisfaction levels, and improving banking performance, the study aims to provide



a concise overview of the entire body of work. The study also attempts to draw conclusions regarding the importance of ITC for improving the performance of banks specifically and other industrial sectors generally, which will ultimately result in economic growth and development. A few of the limitations are noted, and recommendations are also given in light of the topic being discussed.

The advancements in technology, specifically in the field of information and communication technology, are transforming the business landscape in Nigeria. This has caused a revolution in the banking industry and altered trade, connectivity, and business transactions in both domestic and international markets. In order to provide a transaction and payment system that satisfies the requirements of the electronically interconnected global market place, banks are now obliged to make IT investments. The quality and content of banking operations have been significantly impacted by the adoption of various forms of innovation. The results show that technological innovation has an impact on the performance of the Nigerian banking sector. Customer satisfaction has been impacted by the introduction of ICT. ICT adoption has an impact on the nature and standard of banking operations. All signs point to a great deal of potential for ICT to help Nigerian banks reengineer their business processes. For banking operators to ensure optimal performance, information and communication technology investment ought to be a significant part of their overall strategy. Bank management must increase their investment in ICT products in order to provide accurate, fast, and convenient services; if they don't, they will fall behind their rivals. ICT providers in Nigeria have a great opportunity to market their innovations through the banking industry. However, their ability to tailor their offerings to the astute opinions of diverse industry stakeholders will determine how successful they are in this field.

The banking sector, which forms the foundation of any economy, faces a number of difficulties, including deregulation, globalization, competition, and the comparatively high cost of ICT installation and upkeep. ICT use can result in lower costs, but the impact on profitability is still unclear because of the possibility that ICT use will have an impact on the highly skilled labor market that is always in high demand, the need to meet customer expectations for customer service delivery that is growing, the reliability of the information system, and the competition in the financial services industry.



Any economy's cornerstone, the banking industry, faces a variety of challenges, such as deregulation, globalization, competition, and the relatively high cost of ICT installation and maintenance. Although ICT use can lead to lower costs, its effect on profitability is still unknown due to the possibility that it will have an effect on the constantly in demand highly skilled labor market, the growing need to meet customer expectations for customer service delivery, the information system's dependability, and the competitiveness in the financial services sector. The use of different types of innovation has had a major impact on the content and quality of banking operations. The findings demonstrate that technological innovation affects the banking industry's performance in Nigeria. Technology has had an impact on customer satisfaction. Bank profitability and return on equity have increased thanks to ICT. Therefore, it is suggested that a major portion of the overall banking operation strategy be devoted to ICT investment. Bank management needs to invest more in ICT products in order to facilitate services that are faster, more convenient, and more accurate. These will make Nigerian banks competitive, profitable, and efficient. They will also make them capable of managing the challenges and transformations posed by the ICT-controlled globalized economy.

Based on the findings of the study the following recommendation were made;

- Information technology use in the baking industry should be prioritized due to its significant impact.
- Banks should perform at a higher rate in order to carry out their operations more successfully.
- Information technology's potential ought to improve the banking sector's performance.
- Resources such as cyber security, internet access, and counting machines ought to be accessible.
- Enough computers and other IT equipment, including laptops and desktops, should be available in banks.

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WOMEN'S EMPOWERMENT IN AGRICULTURAL SECTOR IN NIGERIA: A CASE STUDY OF LAGOS STATE

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Abstract

Agriculture is an essential growth and poverty-reduction driver. However, the sector is underperforming in many nations in part as a result of the obstacles that women, who are frequently a vital resource in agriculture and the rural economy, must overcome in order to increase production. The study made use of structured questionnaire to collect data from 108 respondents, who are members of agricultural co-operative societies in Badagry, Ojo and Ilogbo-Eremi. The Statistical Package for Social Sciences was utilized to analyze the data. The findings revealed there are available initiatives meant for empowering women in Badagry, Ilogbo-Eremi and Ojo. The commonest form of the empowerment initiatives are co-operative societies, micro-credit programmes, women organization and political parties. The empowerment programmes are mainly organized by governmental bodies and non-governmental women group. However, it was discovered that women involvement in the empowerment programmes is low, as a result of lack of good knowledge about the programmes, restrictions from family and relatives, lack of willpower and lack of interest. Majority of the respondents agreed that participation in empowerment initiatives improved their agricultural activities to a great extent based at group level. The factors responsible for low participation in agricultural process include discriminatory attitude of men, poor economic base, illiteracy and lack of time due to domestic roles amongst others. In light of the paper's reiteration that women contribute significantly to agriculture around the world, it is advised that support systems for women farmers within a comprehensive gender-sensitive framework be developed as soon as possible.

Keywords: Women, Empowerment, Agricultural Productivity

1. Introduction

Renewed and growing agreement among international and regional organizations, decision-makers, and the general public demonstrate the importance of rural development and transformation for moving the African continent forward (NEPAD, 2001; 2003; World Bank, 2007, 2012a; ACBF, 2012). It is a major driver of employment, the GDP, and wealth creation in many African nations, including Nigeria, agriculture is a key component of this development (World Bank, 2007; Chuhan-Pole and Angwafo, 2011; World Bank, 2012). Almost half of all agricultural workers worldwide are women, including two-thirds of cattle farmers, 12% of fish farmers, and a sizable portion of



agroforestry employees (FAO, 2017). Yet, they encounter a variety of obstacles throughout the food system that reduce their output. Although women actively participate in farming, harvesting, processing, marketing, and final food preparation, they lack male colleagues' equal access to productive resources and decision-making (Doss, 2018).

According to Huis et al. (2017), empowerment is the capacity to make wise decisions in places where this capacity has previously been suppressed. Three related dimensions can be used to exercise these options: (i) Materials (access to material, social, and human resources) (ii) agency (decision-making procedures) (iii) accomplishment (well-being outcomes). It is important to keep in mind that women's empowerment is a multifaceted, context-specific social process and lacks a clear definition. Individual personalities, cultures, and experiences all influence how women are empowered (Alkire et al., 2013).

Due to their severe workloads and lack of access to better inputs, women who lack access to land are also ineligible for loans, membership in farmers' organizations, extension training, and services (ICRW, 2013). Their involvement in Nigeria has not yet received full recognition (Omoagan and Abiola, 2001). Against this background this paper tends to examine the impact of women's empowerment in agriculture in Nigeria.

2.1 Literature Review

Women's empowerment acknowledges the poor condition of women, their subordination, intimidation, unequal access to power, Unable to own or control productive resources, lack of education or other required training needed to improve their capabilities, and unpaid employment, theorizes that economic empowerment must cut across several dimensions and key indicators.

2.2 Conceptual Review

This study was conceptualized in accordance with Malhotra et al., 2002, taking into account primarily three significant characteristics of women's empowerment. These factors acknowledge the direct correlation between the degree of gender equality and growth at the home level and are dynamic, interconnected, and mutually reinforcing. The following are these dimensions:

The socio-economic dimension: includes a person's contributions to the household economy, access to resources, and asset ownership. It also refers to their social standing and other related aspects of their economic well-being. Women who actively engage in both farm and non-farm economic activities have higher earning potential, improved negotiation and influence skills, more control



over available resources, a bigger say in household financial decisions, and are better able to meet their basic needs. This all-encompassing strategy promotes independence and ultimately strives to reduce women's economic subordination and dependence.

Family-related dimension: This includes involvement in decisions affecting six key areas of the home. They would be able to better their self-determination, bargaining power, control over resources, self-esteem, autonomy, status, and power dynamics within households as a result of their increasing involvement in household decision-making. That implies that the increased involvement of women in home decision-making will result in both their own and their children's well-being.

The psychological factor comprises perceptions of gender awareness in relation to women's fundamental rights and coping mechanisms for various household shocks. Within the homes, it will improve coping mechanisms, freedom of choice, self-confidence, and bargaining strength. The engagement of women in development activities is predicted to be influenced by a variety of inputs (such as education and skill training) offered by different intervening organisations. Through improved resources, coping skills, freedom of choice, and power dynamics, this process will ultimately result in gender equality. Gender equality is thought to significantly improve women's well-being and lessen their vulnerability to poverty.

2.3 Theoretical Review: *Feminist Agrifood System Theory*

This theory is adopted in this paper because it examines agricultural development, and increase in women working specifically how women are overcoming challenges in rural communities (Sachs et al., 2016) in sustainable agriculture. The FAST emphasises that women are finding and making room for alternative or sustainable farming, in contrast to conventional farming, which is less accepting of women farmers who challenge the agrarian ideal of a farmer (Sachs et al., 2016). The framework presents the FAST's six guiding principles: In order to: (a) achieve gender equality on farms; (b) proclaim the identity of the farmer; and (c) obtain access to resources, it is important to pursue innovative ways of gaining access to land, labour, and money. new food and farming systems by integrating economic, environmental, and social values; by negotiating their responsibilities in agricultural organisations and institutions; and by creating new networking inside organizations for female farmers. Sachs and others (2016)



2.4 Empirical Review

Waikhom et al (2015) in their study titled “Factors Influencing Women’s Empowerment a Manipur study on fishing activities”, used frequency, percentage and Wilcoxon Signed Rank Test methodology and they found out showing farm women's access to assets and resources, spending capacity, cosmopolitanism, and social participation have all improved and grown as a result of their participation in fishery activities, and this improvement is very significant at the 1% level.. The indices used in measuring the influence of Women’s Empowerment are while the variables taken into account are education, area under aquaculture, experience in fisheries, information management behaviour, management orientation, and egalitarianism, the decision-making capacity in the family, spending ability, cosmopolitanism, social involvement, access to assets, and resources are also taken into consideration. Also Shahnaj and Ingrid-Ute (2004) in their study titled Using a combination of quantitative and qualitative methods, Empowerment of Rural Women in Bangladesh: A Household Level Analysis discovered that due to the low level of empowerment, poor women acutely feel their helplessness and insecurity, their vulnerability, and a lack of dignity within the household. This study used cumulative empowerment index (CEI) and the variable used are exposure, spatial mobility, traditional socio-cultural norms.

The 2016 paper "Analysis of Women Empowerment in Nigeria" by Ayevbuomwan, Popoola, and Adeoti A Multidimensional Approach”, the study used Descriptive statistics and found that about 43% of rural women were disempowered at the empowerment cut-off $k=2$. Multidimensional women empowerment index was used to measure Production/Income, Resource, Education and Time Use.

Ovute, Dibia, and Obasi (2015) in their study titled Empowering Nigerian women for national development: State of the art, challenges and prospects used Descriptive statistics method and found that, to effectively contribute to the development of the country, it is crucial to raise knowledge of the potential benefits of women's empowerment and to support women in realising their full potential.

3. METHODOLOGY

The study was constructed using information from primary and secondary sources. Selected respondents were surveyed thoroughly and beforehand in order to gather the primary data. Age was



one of the crucial factors that the study took into account, education level, income level & marital status.

The study was designed for women in agricultural co-operatives: *Agbeniyi Agricultural Multipurpose Cooperative Society located at Ilogbo Eremi, Badagry, Lagos, Agbesowapo Cooperative Agricultural Multipurpose Society Limited located at Badagry, Lagos and Amalgamated Women Farmers' Cooperative Agricultural Multipurpose Society Limited located at Volkswagen Ojo*. Purposefully chosen samples of 50 from each of the aforementioned cooperative groupings were distributed equally among the three largest cooperatives.

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

The following is a presentation of the survey's findings:

Section A: Bio-Data of Respondents

Table 4.1: Community Distribution of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Ilogbo-Eremi	32	29.6	29.6	29.6
Ojo	38	35.2	35.2	64.8
Valid Badagry	37	34.3	34.3	99.1
Others	1	0.9	0.9	100
Total	108	100	100	

Table 4.1 presented the respondents' distribution according to the location of the cooperative societies they belonged to. 38(35.2%) of respondents are members of co-operative societies in Ojo; 37(34.3%) are from Badagry; 32(29.6%) are from Ilogbo-Eremi and 1(0.9%) are from other areas of Lagos. The respondent from the other area belong to cooperative societies in Torikoh.

Table 4.2: Marital Status of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Single	42	38.9	38.9	38.9
Married	52	48.1	48.1	87
Valid Widowed	8	7.4	7.4	94.4
Divorced/Separated	6	5.6	5.6	100
Total	108	100	100	

The result in Table 4.2 contains the survey respondents' allocation according to marital status. Majority of the respondents, which constituted 52(48.1%) are married; 42(38.9%) are single; 8(7.4%) are widowed and the other 6(5.6%) are either divorced or separated.

Table 4.3: Age Distribution of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18-25 years	22	20.4	20.4	20.4
26-40 years	35	32.4	32.4	52.8
41-50 years	22	20.4	20.4	73.1
51-65 years	27	25	25	98.1
66 years and above	2	1.9	1.9	100
Total	108	100	100	

The result in the distribution of respondents by age is seen in Table 4.3 22(20.4%) of respondents are between 18 to 25 years; 35(32.4%) are between 26 to 40 years; 22(20.4%) are between 41 to 50 years; 27(25%) are between 51 to 65 years and the other 2(1.9%) are above 66 years. It can be said that majority of the respondents, which constituted about 106(98.1%) belong to the working class or economically active population.

**Table 4.4: Educational Status of Respondents**

	Frequency	Percent	Valid Percent	Cumulative Percent
No formal education	5	4.6	4.6	4.6
First school leaving certificate	15	13.9	13.9	18.5
GCE/WASCCE/TCH	26	24.1	24.1	42.6
Valid OND/NCE	24	22.2	22.2	64.8
HND/Degree	25	23.1	23.1	88
Higher Degree	10	9.3	9.3	97.2
Others	3	2.8	2.8	100
Total	108	100	100	

The result in Table 4.4 contains the educational distribution of respondents. 5(4.6%) have no formal education; 15(13.9%) have first school leaving certificate; 26(24.1%) have senior secondary school certificate; 24(22.2%) have ordinary national diploma or national certificate of education; 25(23.1%) hold higher national diploma or first degree; 10(9.3%) have higher degrees and the other 3(2.8%) possess other educational certificates.

Table 4.5: Monthly Income of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Below N10, 000	20	18.5	20.8	20.8
N11, 000 - N30, 000	19	17.6	19.8	40.6
N31, 000 - N50, 000	27	25	28.1	68.8
Valid N51, 000 - N70, 000	25	23.1	26	94.8
N71, 000 - N90, 000	3	2.8	3.1	97.9
Above N90, 000	2	1.9	2.1	100
Total	96	88.9	100	
Missing System	12	11.1		
Total	108	100		



Table 4.5 showed the monthly income of respondents. There are 96 valid responses for this question. 20(18.5%) of respondents earn less than ₦10, 000 monthly; 19(17.6%) earn between ₦11, 000 and ₦30, 000 monthly; 27(25%) earn between ₦31, 000 and ₦50, 000 monthly; 25(23.1%) earn between ₦51, 000 and ₦70, 000 monthly and 2(1.9%) earn above ₦90, 000 monthly.

Section B: Women Empowerment in Agricultural Sector in Nigeria

Table 4.6: Initiatives available for women empowerment (Question 1)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	70	64.8	66.7	66.7
Valid No	35	32.4	33.3	100
Total	105	97.2	100	
Missing System	3	2.8		
Total	108	100		

The result in Table 4.6 contains the respondents' opinions on whether there are initiatives that are available for women empowerment in their respective communities. There are 105 valid responses for this question. Majority of respondents, which constituted 70 (66.7%), stated that initiatives are available for empowering women in their communities and the other 35(33.3%) responded otherwise.

Table 4.7: Types of Empowerment Initiatives available for Women (Question 2)

S/N	Empowerment Initiatives	Frequency(N=108)	Percent (%)
A.	Micro-credit programme	32	29.6
B	Free-education	18	16.7
C	Women organization	31	28.7
D	Co-operative societies	55	50.9
E	Right to use land and other cash crops	6	5.6
F	Provision of agricultural production facilities	15	13.9
G	Adult literacy programme	9	8.3
H	Child day care services	7	6.5
I	Political parties	22	20.4



J	Establishment of skill and capacity building centers	17	15.7
K	Awareness programmes	16	14.8
L	Others	-	-

Source: Author's extraction from SPSS Output

Based on the responses, co-operative societies is the most common form of empowerment initiatives available for women, followed by micro-credit programme, women organization; political parties; free education; establishment of skill and capacity building centers, awareness programmes; adult literacy the right to use land and other income crops, a scheme, and child care services.

Table 4.8: Who organized these Empowerment Initiatives (Question 3)

S/N	Organizers of Empowerment Initiatives	Frequency(N=108)	Percent (%)
A.	Governmental bodies	36	33.3
B	Non-governmental women group	32	29.6
C	Individuals	8	7.8
D	Others	-	-

Source: Author's extraction from SPSS Output

Based on the responses, 36(33.3%) respondents indicated that governmental bodies organizes women empowerment initiatives; 32(29.6%) indicated that non-governmental women group organizes women empowerment initiatives and 8(7.8%) went for individuals.

Table 4.9: Causes of Women's Low Involvement in Empowerment Initiatives (Question 5)

S/N	Causes	Frequency(N=108)	Percent (%)
A.	Ignorance of the existence of these initiatives	32	29.6
B	Restrictions from husband and other relations	27	25.0
C	Lack of interest among women	23	21.3
D	Lack of willpower to take advantage of these initiatives.	24	22.2
E	Others	2	1.9

Source: Author's extraction from SPSS Output

Table 4.15 presented respondents' opinions on the causes of women's low involvement in empowerment initiatives. 32(29.6%) attributed women's low involvement to ignorance of the existence of these initiatives; 27(25%) attributed it to restrictions from husband and other relation, 24(22.2%) attributed it to lack of willpower to take advantage of the initiatives, 23(21.3%) attributed it to lack of it to lack of interest among women. 2(1.9%) provided other causes namely lack of funding and lack of connection.

Table 4.10: Economic Ways of Women Empowerment (Question 8)

S/N	Economic ways	Frequency(N=108)	Percent (%)
A.	Access to micro-credit facilities	32	29.6
B	Skill/technical training	40	37.0
C	Cooperative societies	31	28.7
D	Access to land and cash crops	14	13.0
E	Provision of agricultural production facilities	17	15.7
F	Others	1	0.9

Source: Author's extraction from SPSS Output

Table 4.9 presented information on possible ways through which respondents have benefited from women empowerment initiatives economically. 40(37%) benefited through skill/technical training; 32(29.6%) through access to micro-credit facilities; 31(28.7%) through cooperative societies; 17(15.7%) through provision of agricultural production facilities; 14(13%) through access to land and cash crops and 1(0.9%) through other reasons.

Table 4.11: Factors responsible for women's low participation in agricultural process in Lagos State (Question 17)

S/N	Group	Frequency(N=108)	Percent (%)
A.	Discriminatory attitude of men	43	39.8
B	Patriarchy	7	6.5
C	Lack of sustained process of empowerment	20	18.5
D	Lack of coalition group among women	21	19.4
E	Lack of time due to domestic and reproductive roles	22	20.4
F	Lack of efficient and trustworthy women	14	13.0



G	Religious beliefs	16	14.8
H	Poor economic base	27	25.0
I	Illiteracy	27	25.0
J	Lack of assertiveness among women	12	11.1
K	Others	1	0.9

Source: Author's extraction from SPSS Output

Table 4.10 sought opinions of respondents on the factors responsible for the low participation of women in agricultural process in Lagos. According to the respondents, the major factor responsible is discriminatory attitude of men, followed by poor economic base, illiteracy, lacking time because of domestic and reproductive duties roles, lack of coalition group among lack of women sustained empowerment process, religious beliefs, shortage of capable and reliable women and a lack of assertiveness among women. According to one respondent, laziness is another factor responsible for this incident.

4.4 Discussion of Findings

According to the report, there are available initiatives meant for empowering women in Badagry, Ilogbo-Eremi and Ojo. The commonest form of the empowerment initiatives are co-operative societies, micro-credit programmes, women organization and political parties. The empowerment programmes are mainly organized by governmental bodies and non-governmental women group. However, it was discovered that women involvement in the empowerment programmes is low, as a result of lack of good knowledge about the programmes, restrictions from family and relatives, lack of willpower and lack of interest. Despite, the low participation of women in empowerment initiatives, majority of those who partook in the programmes benefitted. It was found that women were mainly empowered through training and loan facilities.

The major economic benefits of participation in empowerment programmes include skill/technical training, access to micro-credit facilities and co-operative societies amongst others. Furthermore, the major educational benefits of participation include access to media/awareness programmes, agricultural-based programmes, lectures by extension workers and free education amongst others. The political benefits include voting in elections, belonging to a women's organisation, and having access to political parties. It was discovered that majority of respondents believed that women did not make use of the benefits equally. The major kind of women that benefitted from the



empowerment initiatives includes women related to politicians, female civil servants and women leaders. Majority of the respondents agreed that participation in empowerment initiatives improved their agricultural activities to a great extent based at group level. The findings revealed that women participated in the developmental process of Lagos State. The factors responsible for low participation in agricultural process include discriminatory attitude of men, poor economic base, illiteracy and lack of time due to domestic roles amongst others. Majority of the respondents indicated that increasing opportunities in women empowerment impacts on agricultural productivity to a great extent. The results of chi-square technique revealed that (a) women do not play significant role in agricultural productivity in Nigeria; (b) empowerment of women have significant effect on agricultural productivity in Nigeria, and (c) increasing opportunities for women does not have impact on agricultural productivity in Nigeria.

5.1 Conclusion

Women involvement in empowerment initiatives is low in Lagos State, and does not have any significance on agricultural output in Lagos State in particular and Nigeria in general. Participation in empowerment initiatives improved the agricultural activities of most respondents that are involved, and consequently on the agricultural productivity in Lagos State. The impact of increase in empowerment opportunities for women has more robust impact on agricultural productivity in Nigeria.

5.2 Recommendations

In an attempt to enhance agricultural productivity in Nigeria through provision of empowerment opportunities to women, the following recommendations are put forward:

Firstly, to build a policy development, project design, and implementation agenda, it is vitally necessary to develop support mechanisms for women farmers within a comprehensive gender-sensitive framework. Women should play a more active role in the creation and application of new technology.

Secondly, women should be given the opportunity to actively participate in the agriculture sector's decision-making. In order to build systems that would support social protection, enforcement, and advancement of women's rights and accomplishments, actions to improve women's voice in the home must be combined with public anti-discrimination and anti-segregation policies targeted towards women.



Thirdly, women should be recognised as key players in the food production process, and obstacles to their productivity should be eliminated through the passage of laws protecting their rights to land, access to credit, and payment for unpaid labour.

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FEMALE POPULATION AND SOCIO-ECONOMIC DEVELOPMENT IN NIGERIA

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ABSTRACT

The study evaluated the impact of female population on education and employment in Nigeria economy. It examined the impact of female population on technological infrastructure, while also estimating the impact of entire labour force on female employment rate and education. The study employed descriptive and econometric procedures. Annual secondary data spanning from 1980 to 2022 were employed. The data for analysis were sourced from the world development indicator (WDI) and international labour organization (ILO). Data were analyzed using tables, graph, autoregressive distributed lag (ARDL), fully modified ordinary least square (FMOLS) and bounds test. Despite the increase in female population in Nigeria economy, the impact of the female population on socio-economic development is inversely related. Further result from the study revealed that the impact of the female population on infrastructural technology is also inversely related but the impact of female population on female education is positively related and significant. Also, the total labour force is positively related to female with employment opportunity but it is not significant. The study concluded that for Nigeria to have significant impact of female population on socio-economic development, some cultural beliefs need to be adjusted. More empowerment and increase in the ratio of male to female in employment opportunity is also recommended.

Keywords: Gender, Education, Employment, Labourforce

Introduction

Women in Nigeria constitute a large number of the population. They are noted globally as the main support for socio-economic development, but have been continually marginalized from many spheres of life in terms of lack of education, financial empowerment and cultural norms. (Onuoha & Alom, 2024). This is seen through the visible disparity in socio-economic and political status in Nigeria. Although some progress has been recorded in the last decade on efforts to address the



incessant challenges of women in socio-economic development in Nigeria, more is still left to be desired in the fight for women empowerment and inclusion in key decision-making processes. This has often sparked insightful debates across Nigeria, like many advocates for the involvement of functions the Nigerian women have carried out through history (Okolo-Obasi & Uduji, 2024).

According to Mbatha, (2024), women participated in key social and economic activities before the Colonisation of the country. There was division of labour among gender lines and the Nigerian women oversaw occupations such as cooking, pottery making, fishing, mat weaving, farming, buying and selling, etc. Moreover, there was communal living and the land was owned by women, who equally had access to it through their parents or spouses. Although in a patriarchal setting, a man was the head of the household, older women controlled the labour of younger members of the family. Women in Nigeria were also known for petty trading. (Oyeku, 2024).

Nigeria is a typical example of a patriarchal society with a struggling economy and therefore the prevalence of gender issues that marginalize girls and women holds reasonable implications for women's economic development and national growth. (Anam et al., 2024). Uchendu, Roets and Vandebroek (2019), believes that women are structurally made to be submissive in societies where social and economic inequalities are active. The economic status of women seems to be subjugated in many dimensions by men, right from the home to the work place and in the public. Many women seem to be restricted or hindered from freely exploiting equal opportunities with their opposite counterparts that can significantly improve their conditions of living.

The level of women's economic development in Nigeria has been linked to a number of issues of inequality entrenched by the overwhelming influence of the patriarchal structure of the larger Nigerian society. In agreement Okoroafor, (2019) stressed that Nigeria has a strong patriarchal structure that is maintained by the sexual division of labour in the household and that the same structure directly restricts women's availability for wage work and for the service industries

According to world bank collection of development indicators compiled from officially recognized sources, female population percentage of total population was 49.46%. (1,026 males per 1,000 female) as of 2023. Irrespective of the little gap, there has been a gross gender gap between men and women, especially in political representation, socio-economic development, economic management and leadership. This is not understandable and acceptable if it is happening in a 21st century developing economy, when most economies of the world are encouraging inclusive, diversified and competitive economic enterprise



Furthermore, empirical debates around the impact of female population on socio-economic development have attracted contributions from international organization and scholars. The issue around the impact is still inconclusive since the impacts vary from developing to developed countries. The necessity to identify the impact of female population in Nigeria economy, considering the little gap. Some studies on developed economy, have observed aspect of positive impact (Akhtar, Masud, Jafrin, & Shahabudin, 2023; Duflo, 2012) while others identified a negative impact between the female population and socio-economic development (Alwago,2023; Anam et al.,2024; Owoibiae et al, 2024; Obianefo, Mailafia & Yusuf, 2022; Belcher, 2016). However, female population is fraught with many irregularities in Nigeria economy compared with the developed economy. in line with this empirical assertion and the problem explained earlier, this study is poised to reveal the impact of female population on socio-economic development of Nigeria economy.

2.0 Literature Review

Understanding the role of the female population in the socio-economic fabric is imperative, as it reflects broader societal norms and profoundly impacts the nation's overall progress.

The significance of comprehending the relationship between the female population and socio-economic development in Nigeria cannot be overstated. Historically, women have faced marginalization, hindering their full participation in economic activities and decision-making processes (Bissel&Duke,2019). Recognizing and addressing these disparities is crucial for fostering inclusive development and ensuring sustainable progress. The socio-economic development of any nation is intricately linked to the empowerment and involvement of its female population. In Nigeria, where women constitute a substantial portion of the workforce, their contributions to various sectors play a pivotal role in shaping the economic landscape (Bissel&Duke, 2019). Moreover, empowering women economically can have a ripple effect on their families and communities, creating a more equitable and prosperous society.

This literature review provided a comprehensive analysis of existing research on the relationship between the female population and socio-economic development in Nigeria. By synthesizing and critically evaluating relevant literature, this review elucidated the current state of knowledge, identified research gaps, and proposed directions for future studies.



Conceptual Review

Understanding the historical context of the female population in Nigeria provides valuable insights into the roots of current demographic trends. Historically, women in Nigeria have held diverse roles within their communities, contributing to economic, social, and cultural spheres. In pre-colonial times, women played essential roles in agriculture, commerce, and governance in various ethnic groups (Oyeku,2024). However, the advent of colonialism introduced new dynamics that influenced the socio-economic status of women.

Population Distribution by Age and Gender

Examining the population distribution by age and gender provides a nuanced understanding of the demographic landscape in Nigeria. According to recent demographic data (Badasso & Sandefur,2024), Nigeria has a population of over 200 million, with females constituting approximately 49% of the total population. The age distribution reveals a relatively young population, with a significant proportion below the age of 25.

The youthfulness of the population is particularly pronounced among females, with a large cohort in the 0-14 age group. This demographic structure has implications for education, healthcare, and employment, as a substantial portion of the female population is in the formative stages of life (National Population Commission, 2019).

Education Levels Among Females

Education is a pivotal determinant of the socio-economic status of females in Nigeria. Analyzing education levels among females provides insights into progress made and persisting challenges. Over the past few decades, there has been a notable increase in female literacy rates, reflecting improvements in educational access for girls (Gabster et al, 2020).

However, challenges persist, particularly in certain regions and rural areas where cultural norms, economic constraints, and inadequate infrastructure hinder female education. Early marriage, a prevalent issue in some communities, further exacerbates the barriers to education for young females (National Population Commission, 2019). Efforts to enhance female education must address these multifaceted challenges to ensure sustained progress.



Socio-Economic Status of Women in Nigeria

The socio-economic status of women in Nigeria is a critical aspect of the nation's development. Understanding the dynamics of women's participation in employment, education, and income distribution is essential for fostering inclusive growth and addressing gender-based disparities. This exploration delved into the employment and labor force participation of women, assessed trends in female workforce engagement, examine occupational segregation, scrutinize progress in female education and literacy rates, and evaluate income and wealth distribution, including the gender wage gap and access to economic resources.

Trends in Female Workforce Participation

The evolution of female workforce participation in Nigeria reflects both progress and persistent challenges. Historically, societal norms often limited women's involvement in formal employment. However, in recent decades, there has been a discernible shift, with more women actively participating in the labor force.

According to Obianefo, Mailafia & Yusuf (2022), the female labor force participation rate has increased steadily, reaching 47.5% in 2020. This upward trend is attributed to various factors, including increased access to education, changes in societal attitudes, and economic diversification. Government initiatives promoting women's empowerment and entrepreneurship have also contributed to these positive shifts (Okafor, et al 2022).

Despite these advancements, challenges persist, particularly in certain sectors and regions. Cultural expectations, gender stereotypes, and inadequate support systems often impede women's entry into specific professions and discourage their sustained engagement in the labor force.

Theoretical Review

Feminist Theory

The feminist theory propounded by Mary Wollstonecraft (1759-1797) provides a critical lens for examining power structures, gender relations, and the socio-cultural dynamics that shape women's lives. Rooted in the quest for gender equality, Feminist Theory acknowledges the historical subordination of women and seeks to challenge and dismantle patriarchal structures.



In the Nigerian context, Feminist Theory is crucial for unpacking deep-rooted cultural norms and traditional gender roles that influence female empowerment. It enables an analysis of how societal expectations, stereotypes, and discriminatory practices intersect with women's socio-economic status. For instance, examining the impact of cultural practices like child marriage and inheritance norms through a feminist lens reveals how these practices contribute to the economic vulnerabilities of women (Mbathu,2024).

Moreover, Feminist Theory emphasizes the importance of agency and the need for women to have control over their bodies and lives. The theory encourages scrutiny of policies and practices that limit women's reproductive rights, hinder access to education, or perpetuate domestic violence. The study unveiled the power dynamics shaping women's opportunities and challenges in Nigeria, offering insights into the transformation of gender relations for genuine empowerment.

2.3 Empirical Review

Female empowerment in Nigeria has been a subject of growing interest, with researchers examining various dimensions of women's socio-economic status of the current state of female empowerment in Nigeria.

Several empirical studies have investigated the trends and determinants of women's participation in the labor force in Nigeria.

Alwago (2023) Opined that there exist high gender inequality occupational segregation and economic growth in sub-Sahara Africa. With the use of simultaneous least square. The finding revealed that gender inequality and occupational segregationally account for a significant portion for economic growth in sub Saharan Africa. Recommendation was that SSA should fully implement the international labour organization (ILO) treaties on gender inequality.

Oweibi et al., (2024) assessed gender inequality and economic development in developing economies, with the use of disk methodology, finding revealed that gender inequality impedes the full realization of human resources. It also hinders several economic growth and stability. Conclusion was on policies to address the disparities.

Okolie- Obasi and Udiji (2024) assessed government enterprises and empowerment program with the women's performance in entrepreneurship development in Nigeria. making use of difference-



in-difference (DID) quasi-experimental design. The finding indicates that GEEP intervention has a significant impact on enterprise turnover, reduction in per unit cost of production and increase in return on investment (ROI). Conclusion was embracing increase GEEP intervention with rural dwellers will enhance women's entrepreneurship development and raise women economic status

Izugbara and Wekesah (2020) conducted a longitudinal study examining the long-term effects of women's education on socio-economic outcomes. Their findings suggested a positive correlation between higher levels of education and improved health outcomes for women. Additionally, women with increased educational attainment were more likely to engage in income-generating activities, contributing to their economic empowerment.

Ogunbameru (2019) explored the impact of occupational segregation on women's economic opportunities. Using data from the Nigerian Demographic and Health Survey, the study revealed that women were often concentrated in lower-paying and less prestigious occupations, contributing to the gender wage gap. The study emphasized the need for policies that address occupational segregation to enhance women's economic empowerment.

Tsani, Paraoussos, Fragioudakis, Charahambidis and Capros,(2012) opined that female labour force participation and economic development in southern using a two- step methodology involving econometric estimation and the use of a general equilibrium model. The econometric model suggested a U-shape relationship and the result conclude that lower female participation rate may lower the economic growth of the region. Conclusion was on the removal of the barrier that affect the contribution of the female in the development.

Arowoshegbe,2011 examined factors militating against women education in Nigeria and suggested solution on how to solve them. In order to examine this problem, opinion survey involving 420 respondents' sample from six departments of the faculty of social science Ambrose Alli University Ekpoma were conducted. The study revealed that parental attitude, economic factors, social cultural factor among others are factors militating against the education of the girl-child in Nigeria. The paper therefore, recommended that mass media, traditional rulers and women-based institutions under the ministry of women affairs should map out programmes that will support the girl-child education in Nigeria.



Methodology

Theoretical Framework

Based on Feminist theory, the importance of agency and the need for women to have control over their bodies and lives were clearly stated. The theory considered the policies and practices limiting women access to education, reproductive rights, and perpetuate domestic violence. With the application of Feminist Theory, the dynamics in restructuring the female gender in Nigeria economy, offering insights into the transformation of gender relations for genuine empowerment.

Model Specification

The relationship among the variables (female population and economic growth) was analysed based on adopted model by Stella et al., (2012). The model states that female labour force participation rate is a function of growth rate of an economy (GDPGR) and other variables (X).

The adopted model is stated below:

$$FTLF = (GDPGR, X) \dots\dots\dots 1$$

$$TLF = F(GDPGR, FD, FM, X) \dots\dots\dots 2$$

$$FP = F(FD, GDPGR, FM, RSV, X)$$

X is a set of variables comprising: Fertility, Education control, Urbanization, Religious norms and unemployment. GDPGR is the Gross Domestic Product Growth rate used to proxy socio-economic development, FD represents educated female, FM represents employed female, TLF represents Total Labour Force, FSP represents self-employed female and RSV is reserve used to proxy technological infrastructure.

The adopted estimation techniques for the regression model are based on the result of the unit root test with the use of stationarity test.

Co- integration test.

It is the long run test among the variables. For unit root at level and first different, the long run bounds test was used for the auto-regressive distributed lag short run test., while Johansson co-integration long run test was used based on the result of the stationarity test also.

Robustness check

The fully modified ordinary least square (FMOLS) was used to determine the robustness check of the model, by observing the coefficient of the baseline regression result with the Fully modified ordinary least square coefficient result.

4.0 RESULTS AND DISCUSSION

Figure 1

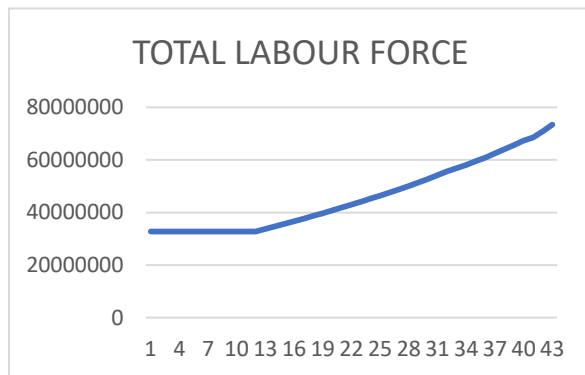


Figure 2

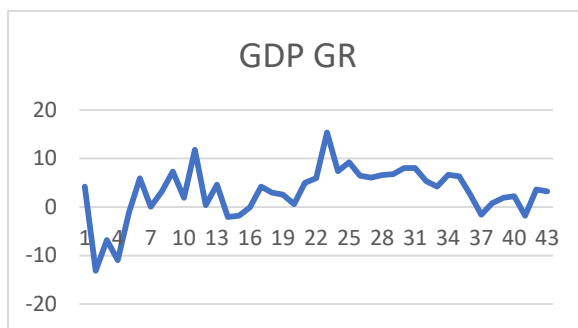


Figure one and two shows the trend in total labour force and growth rate of the Nigeria economy respectively. There has been a steady increase in the total labour force due to increase in the population of the economy without an economic increase in the productive sector. The growth rate of the economy (GDPGR) which was used to proxy socio-economic development has been fluctuating due to majority of the sectors not performing up to the task. The non-economic growth has been the result of arithmetic increase in productive output and geometric increase in the population.

Correlation matrix

VARIABLES	GDPGR	FM	FP	FSP	LOGTLF	RSV	FD
GDPGR	1.0000						
FM	0.3438	1.0000					
FP	-0.2563	-0.5335	1.00000				
FSP	-0.3316	-0.6630	0.7821	1.0000			
LOGTLF	0.2517	0.6949	-0.6712	-0.7454	1.0000		
RSV	0.1970	0.1675	-0.0287	-0.1536	0.0893	1.0000	
FD	-0.1609	-0.2489	0.6987	0.6089	-0.5311	0.1548	1.0000

Author's computation via e-view 13

The table above shows the correlation statistic between the variables in the model. There exist positive, negative, and weak correlations among the variables. There is no threat of multicollinearity among variables as depicted in the correlation matrix. The coefficient of correlation among the variables have a low correlation with a few having weak correlation but this does not constitute any serious threat of multicollinearity among the variables

Unit root test**@LEVEL****@1ST DIFF**

Variables	F – STAT	PROB	F – STAT	PROB	OOI
GDPGR	-2.85555	0.0595	-12.0896	0.0000	1
FM	-1.11112	0.9029	-6.4566	0.0000	1
FP	1.99267	0.9999	-1.53502	0.0506	1
FSP	-0.51381	0.8781	-6.6749	0.0000	1
LOGTLF	-1.9073	0.0032	-0.37815	0.0000	0



RSV	-5.6707	0.0000	-6.7589	0.0000	0
FD	-0.62583	0.05821	-0.13761	0.00021	1

Author's computation via e-view 13. @level = at level. @ 1st diff = at first different. OOI = order of integration

Long Run Bounds Test for Broad Objective

The long run bounds test conducted on the broad objective resulted to a value of (2.140068) for F-statistical which is a figure lower than the lower boundary $i(0)$ and the upper boundary $i(1)$ at both 1% and 5%. It indicates that there is no long run existence among the variables at 1% and 5% significant level. Therefore, the null hypothesis of no long run relationship between the variables in the model was accepted and the alternative hypothesis was rejected.

Short Run ARDL Test for Broad Objective

The short run Autoregressive Distributed Lag (ARDL) analysis for the broad objective where the impact of female population was checked on the socio-economy revealed that the lag of the gross domestic product growth rate (GDPGR) is positively related to the present growth rate and significant at 5%. The test also revealed that Female population (FP) is inversely related to the growth rate of the economy. For every one unit increase in the growth rate, female population falls by 72.6779 but not statistically significant at either 1% or 5%. It indicated that the female population in the economy are not productive due to the cultural belief of the northern part. Employed female (FM) in the economy is also inversely related to the growth rate of the economy but not significant. The result also showed that the educated female in the economy (FD) is positively related but also not significant. The log of total labour force (LOGTLF) was also found to be inversely related to the GDPGR used to proxy socio-economic development in the economy. The error correction term is less than one and also not significant.

Robustness Check (FMOLS) for The Broad Objective

The robustness of the model was checked using the fully modified ordinary least square (FMOLS). Most of the coefficient of the variables in the baseline regression result, (FM, FD, FSP, LOGTLF, GDPGR and RSV) conformed with the coefficient of the variables in the fully modified ordinary least square, it revealed the level of robustness of the regression models.



Summary, Conclusion and Recommendation

From the baseline regression analysis for the time series data from 1980 to 2022, the regression analysis shows that female population is increasing in the Nigeria economy but their socio-economic contribution is not comparable to the developed economy. Irrespective of the female population, it has an inverse relationship with the growth rate of the economy which is used to proxy the socio-economic development of the Nigeria system. With very high increase in the population of female in Nigeria especially in the northern part of the country and increase in the female participation by the government, the baseline result shows that the contribution of the female in the economy is far below expectation. It is therefore concluded that for female population in Nigeria to contribute to the socio-economic development of the country, cultural changes and beliefs of the people needs to be amended. Females needs to be encouraged to finish basic education and also encouraged to acquire basic skills.

It is hereby recommended that Cultural systems that affect the female population should be amended. Skill acquisition should be extended to the female population for technological infrastructure development. In addition, basic education should be compulsory for female in all part of the country to reduce the level of illiteracy and lastly more employment opportunity should be given to the female to reduce the ratio of male to female in government establishment.

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GOVERNANCE AND ECONOMIC PERFORMANCE OF NIGERIA'S OIL AND GAS INDUSTRY: A DYNAMIC REGRESSION APPROACH

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ABSTRACT

Being a predominant oil-exporting nation, Nigeria's oil and gas industry constitutes the mainstay of the economy accounting for approximately 90% of its foreign exchange earnings. However, the economic performance of the sector has drastically plummeted in recent times with revenue accruing from the sector nosediving and the share of oil exports in total net exports declining marginally. This paper explores governance factors and economic performance of the oil and gas industry from 1993 to 2022. The objective is to determine the influence of economic and political governance factors on the economic performance of the oil and gas industry in Nigeria. The study utilizes a dynamic regression model and co-integration approaches to establish the empirical relationship among the key variables. Empirical findings show that there is a statistically significant relationship between economic and political governance and the economic performance of the oil and gas industry in Nigeria. Regression results show that both the corruption perception index (CPI) and government efficiency (GE) that are used as proxies for political and economic governance respectively have a statistically significant relationship at a 10% level of significance with oil revenue (OILR) as a measure of economic performance. Further results show that the corruption perception index has a statistically significant Granger-causal relationship with oil revenue (OILR) at the 0.05 level, while government efficiency (GE) has a significant Granger-causal relationship with oil revenue (OILR) and this relationship was also statistically significant at the conventional 0.05 level. The policy implication of our findings is that the government could influence the economic performance of the oil and gas industry by controlling corruption and improving government efficiency through the creation of a conducive environment for economic freedom to thrive.

Keywords: Governance, Oil and Gas Industry, Economic Performance, Dynamic Regression Model, Economic Freedom.

1.0 INTRODUCTION

Several scholars have posited that poor governance has adversely affected the quality of institutions to the extent that public and private institutions are used for selfish interests (Adegboyega & Arikewuyo, 2020) thereby clogging the wheel of good governance which is seen as a *sine qua non*



for formidable economic performance in terms of sustainable economic growth. For instance, Alozie (2017) noted that despite that Nigeria is blessed with an abundance of human and material deposits in several parts of the country, the vast majority of the people are still afflicted with extreme and multidimensional poverty which is symbolized by a high level of unemployment, deteriorating health delivery, eroding educational standards and a poor state of economic financing with dire consequences for the national development. The growing incidence of endemic poverty, rising unemployment, climate-related and environmental challenges as well as other forms of social degradation are all traceable to poor economic management and an abysmally low level of transparency and accountability in governance in Nigeria.

Expectedly, the contagious malaise of poor governance and weak and ineffective institutions have been suspected to have been spread into the oil and gas sector of the Nigerian economy, especially the oil and gas industry which serves as the nation's economic nerve-center, producing over 90% of its total exports which stood at N29 trillion in 2023 (Nairametrics, 2024). Nigeria ranks among the world's most resource-dependent nations and it is only natural that the strength of the oil and gas sector's governance impacts the performance of the economy as well as the wellbeing of its citizens. Resource Governance Index (RGI), compiled by the Natural Resource Governance Institute (NRGI), shows that governance challenges are present throughout Nigeria's oil industry decision chain and Nigeria's oil and gas sector ranks 55th out of 89 governance assessments worldwide, with a score of 42 of 100 points (Natural Resources Governance Institute, 2023).

Consequently, the issue of good governance and economic performance in the oil and gas industry has been of keen interest to the government, international oil companies, policymakers, industry regulators, etc., and these issues have featured eminently in the proposal for the Petroleum Industry Governance Bill (PIGB under consideration. Essentially, the PIGB seeks to make the oil and gas sector more transparent and commercially viable. The PIGB focuses on reforming the governance and institutional framework of the oil and gas sector (Nwozor, *et al.* 2020).

However, even though substantial empirical scholarly works have been conducted on the impact of governance on economic performance, no empirical work, to the authors' best knowledge, has been conducted to investigate the effect of economic and political on the economic performance of the oil and gas industry in Nigeria using a dynamic regression as a methodological approach. In this context of analysis, several authors, Hall and Jones (1999), Acemoglu, Johnson and Robinson



(2002), Rodrik, Subramanian and Trebbi (2004), Easterly and Levine (2003), and finally Dollar and Kraay (2003) showed that political institutions prompt economic growth.

More clearly, this study is aimed at bridging the existing research gap on the influence of economic and political governance on the economic performance of the oil and gas industry in Nigeria and our approach represents a unique approach to the estimation of the relationship between governance and economic performance as it seeks to utilize oil revenue as a measure of economic performance in a critical departure from the standard approach where performance is measured in terms of economic growth or output capacity over time. The remainder of this paper is organized as follows: Section 2 focuses on a review of the literature with emphasis on conceptual and theoretical background. Methodology and model specification is the subject of Section 3, while findings and discussion of results are undertaken in Section 4. Section 5 draws the paper to a close with a conclusion and recommendation.

2.0 REVIEW OF RELATED LITERATURE

Torfig, Peters, Pierre & Sorensen & Christensen (2012) conceptualize governance as all those activities executed by several social, political and administrative players is directed towards guiding, steering, controlling or managing (sector or facets of) societies. This definition highlights the roles of social-political governing which is a form of governance in which public or private actors do not act separately but in conjunction, together, in combination, that is to say in 'co' arrangements. Similarly, governance is defined as the system of values, policies and institutions by which a society manages its economic, political and social affairs through interactions within and among the state, civil society and private sector. It is the way a society organizes itself to make and implement decisions—achieving mutual understanding, agreement and action. It refers to the rules, institutions and practices that prescribe limits and offer incentives for individuals, organizations and firms in a particular domain. Governance, including its social, political and economic dimensions, operates at every level of human activity - household, village, municipality, nation, region, or globe (UNDP, 2004).

Fosu (2018) identifies two broad areas of governance, namely: economic governance and political governance. Economic governance. OECD (2008) defines economic governance as the policy and regulatory framework that governments use to steer the affairs of the economy. Economic governance can be disaggregated into two broad categories of public policy, namely:



macroeconomic which includes aggregate fiscal and monetary management and microeconomic management which refers to the policies that influence the private-sector business operating environment, including business licensing procedures and contract enforcement processes. Economic freedom is the most important measure of economic performance (Fosu, 2018). Gwartney *et al.* (1996) conceptualize economic freedom for Individual businesses/investors as when a) the property they acquire without the use of force, fraud, or theft is protected from physical invasions by others, and b) they are free to use, exchange, or give property to another as long as their actions do not violate the identical rights of others.

Generally, the broad policy areas of economic freedom under the Frazer Index is as follows: (a) Size of Government: Expenditures, Taxes and Enterprises, (b) Legal Structure and Security of Property Rights, (c) Access to Sound Money, (d) Freedom to Trade Internationally: Freedom to Exchange with Foreigners and (e) Regulation of Credit, Labour and Business (Jones & Stickman, 1992).

Similarly, political freedom has been described as the process of choosing leaders through the electoral process to office, the linking chain between the political and bureaucratic arms of government, the strength of independent bodies responsible for checks and balances such as the judiciary and the ombudsman, and the role of civil society in influencing the quality of governance (Saldanha, 2005). Persistent political instability, trends of weak parliaments, political corruption, emasculated and weak executive governments, and failure of institutions of good governance such as the auditor-general and the ombudsman are some of the contemporary issues in political governance militating against the free market economic systems in most African countries.

Along with the above definitions, political governance is measured by the following indicators of democracy: (a) Electoral competitiveness, (b) Constraints on the Government Executives, (c) Policy, and (d) Political Instability (Fosu, 2018). However, the World Bank (2023) has provided a compendium of World Governance Indicators (WGIs) which are intended for general cross-country comparisons and for evaluating broad trends over time and assessing governance reforms of specific countries over time. Six broad policy areas are identified under this system of aggregate governance indicators, namely: (a) Voice and Accountability, (b) Political Stability/ Absence of Violence/Terrorism, (c) Rule of Law, (d) Government Effectiveness, (e) Regulatory Quality, and (f) Control of Corruption (World Bank, 2023).



In conclusion, the economic and political measures of governance are critical metrics in measuring the performance of the economy as a whole or any of its sectors as a segment of the whole. Because the oil and gas industry in Nigeria is the hallmark of the Nigerian economy in terms of its contribution to the government's budget revenue and the nation's foreign exchange earnings, this study is worthwhile as it will enable the government, policymakers and industry players to appreciate how the dynamics of economic and political variables influence the economic performance of the sector and the appropriate policy prescription to boost the performance of the sector to improve Nigeria's declining socio-economic narratives.

3.0 METHODOLOGY

5.1 Model Specification

Taking the lead from Tochukwu & Dewari (2017) and Onakoya & Agunbiade (2020) with slight modifications to accommodate governance/institutions variables, the simple model for this study relating to governance and the economic performance of the oil and gas industry is re-specified as follows:

$$OILR_t = f(INF_t^{\beta_1}, EXR_t^{\beta_2}, UNEMP_t^{\beta_3}, GDP_{t-1}^{\beta_4}, PQ_t^{\beta_5}, CPI_t^{\beta_6}, GE_t^{\beta_7}, e_t^{et}) \quad (1)$$

Equation 1 can be restated as:

$$OILR_t = f(e^{(INF_t^{\beta_1}, EXR_t^{\beta_2}, UNEMP_t^{\beta_3}, GDP_{t-1}^{\beta_4}, PQ_t^{\beta_5}, CPI_t^{\beta_6}, GE_t^{\beta_7} etet)}) \quad (2)$$

where OILR_t is the total oil revenue at time t; The total oil revenue will be measured as the log of OILR for Nigeria at time t; INF_t is the inflation rate at time t, which is measured as the annual percentage change in consumer prices and is proxied by the GDP deflator; EXR_t is the exchange rate at time t which is measured as the average exchange rate divided by a price deflator using 2010 as the base year; UNEMP_t is the variable for unemployment and it is measured as the percentage of the total labour force. GDP_{t-1} is the lagged real GDP growth rate at time t, which is measured as the annual percentage change in GDP growth; PQ is the OPEC production quota which represent the oil production allocation to Nigeria at time t, CPI_t is the corruption perception index for Nigeria at time t and it is used as the proxy for control of corruption, GE_t is the variable for government at time t and we use the composite economic freedom measures in five broad areas: the size of government (SG); legal structure and security of property rights (LS); access to sound money (AM);

freedom to trade internationally (FT); and regulation of credit, labour and business; as a proxy for this variable. ϵ_t is the error term; $\mu \frac{1}{4} \beta_0$, and $e \frac{1}{4} 1$. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ and β_7 are the parameters to be determined.

By taking the logarithm of Equation (2), we arrive at:

$$\ln OILR_t = \beta_0 + \beta_1 \ln INF_t + \beta_2 \ln EXR_t + \beta_3 \ln UNEMP_t + \beta_4 \ln GDP_{t-1} + \beta_5 \ln PQ_t + \beta_6 \ln CPI_t + \beta_7 \ln GE_t + \epsilon_t \quad (3)$$

Differencing Equation (3) as a result of the non-stationarity nature of the variables, gives Equation (4), the FDI equation is then stated as:

$$\Delta \ln OILR_t = \beta_0 + \beta_1 \Delta \ln INF_t + \beta_2 \Delta \ln EXR_t + \beta_3 \Delta \ln UNEMP_t + \beta_4 \Delta \ln GDP_{t-1} + \beta_5 \Delta \ln PQ_t + \beta_6 \Delta \ln CPI_t + \beta_7 \Delta \ln GE_t + \epsilon_t \quad (4)$$

The a priori signs of the explanatory variables are:

$$\beta_1 < 0, \beta_2 < 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0, \beta_6 > 0, \beta_7 > 0$$

The vector autoregressive (VAR) representations of the variables of interest are specified as follows:

$$Y_t = \delta + \gamma_1 Y_{t-1} + \dots + \gamma_p Y_{t-p} + v_t \quad (5)$$

where Y_t is a $(K \times 1)$ vector of endogenous variables; δ is a $(K \times 1)$ vectors of intercepts; γ_p are the $(K \times K)$ fixed VAR coefficients matrices and $v_t (v_{1t}, \dots, v_{kt})$, is an unobserved error term. It is to be noted that K is the number of variables.

3.2 Sources of Data

The time series data utilized for the study are sourced from the Central Bank of Nigeria Annual Report and Statistical Bulletin, the OPEC members' statistical database, the World Development Indicators database and the databases of Transparency International and the Frazer Index of Economic Freedom of the World.

3.3 Estimation Techniques and Analytical Tools

This study started by using the unit root test to explore the stationarity properties of the series using the augmented-Dickey-Fuller (ADF) and Philip-Perron (PP) tests procedure. This test is done in

the first place to avoid spurious regression which is a common problem among most of the macroeconomic variables whose data generation processes follow a time trend. The ADF test procedure tests the null hypothesis that the variables have unit roots or are non-stationary as against the alternative hypothesis that the variables are stationary. The study then resorts to the Dynamic Regression framework to estimate the long-run and short-run relationships between FDI and the associated explanatory variables.

The study employs both descriptive and quantitative analyses. Unit roots tests will be carried out on all variables using the ADF and PP tests to ascertain their order of integration to do away with spurious regression. Additionally, the study will adopt Johansen's cointegration econometric methodology within the dynamic regression framework to test for cointegration of the variables to obtain both the short- and long-run estimates of the variables involved.

4.0 FINDINGS AND DISCUSSION OF RESULTS

The results of the regression estimation of the model are presented in Table 1 below. The table shows the result of the regression estimation of the log-linear transformation equation for the model presented in Equation 4.

Table 1: Regression Estimates for Governance and Economic Performance in Nigeria

Dependent Variable: Ln OILR			
Regression Method: Dynamic Regression Model			
	Coefficient	t-statistics	P-value
LnCPI	0.938**	1.759	0.097
LnEXR	4.889	1.845	0.083
LnEXR	-1.046	-2.615	0.039
LnGDP	-0.436	-3.216	0.018
LnINF	0.179	1.095	0.315
LnGE	2.740**	2.209	0.069
LnPQ	-0.206	-2.186	0.071



LnUNEMP	-1.402	-2.409	0.049
C	13.467	3.678	0.010
R-Squared (R ²)	0.959		
Adjusted R-Squared	0.911		
F-Statistics	20.224		

Source: Regression Results (2024)

Note: indicates positive relationship and significance at 10%**

The result above indicates that the R-squared value of 0.959 means that 95.5% of the variation in OILR (oil revenue) is explained by all the explanatory variables included in the model, while the adjusted R-squared of 0.911 suggests that the inclusion of new variables improves the model more than would be expected by chance.

Furthermore, given an F-Statistics value of 20.224, it means that all the explanatory variables are effective and jointly significantly responsible for explaining the variation in oil revenue (OILR), the dependent variable which is used as a proxy for the performance of the oil and gas industry. Based on the regression outcomes, we conclude that there is a positive relationship between oil revenue (OILR) and corruption perception index (CPI) as the co-efficient of the CPI shows a positive sign of 0.938 which means that an improvement in the corruption perception index by 1% will produce an almost 1% commensurate increase in oil revenue, all other factors affecting OILR being held constant.

Furthermore, testing at a 10% level of significance, we note that the p-value of 0.097 is less than 0.1 which means that there is only a 9.7% probability that the relationship happened by chance. Therefore, there is a strong indication to accept the alternative hypothesis at 10% significance level and conclude that there is a statistically significant relationship between the corruption perception index (CPI) and oil revenue (OILR) In Nigeria.

Similarly, the result of the regression estimates shows that there is a positive relationship between oil revenue (OILR) and government efficiency (GE) as measured by the indices of economic freedom which is the proxy for economic governance in our model. We can deduce that the relationship between oil revenue (OILR) and government efficiency (GE) is positive since the co-efficient of the GE shows a positive sign of 2.740 which means that an improvement in government



efficiency by 1% will produce a 2.74% corresponding rise in oil revenue (OILR), all other factors affecting OILR being held constant. Testing at a 10% level of significance, we conclude that the p-value of 0.069 is less than 0.1 which means that there is only a 6.9% probability that the relationship happened by chance. Therefore, there is a strong indication to accept the alternative hypothesis at 10% significance level and conclude that there is a statistically significant relationship between government efficiency (GE) and oil revenue (OILR) In Nigeria.

Table 2: Result of Pairwise Granger Causality Test for Oil Revenue, Corruption Perception Index and Government Efficiency.

Sample : 1993 – 2022			
Lag Length : 2			
Null hypothesis	Obs	F-Statistics	Prob. (5%)
OILR does not Granger Cause CPI	25	6.454	0.006
CPI does not Granger Cause OILR		1.727	0.203
OILR does not Granger Cause GE	23	0.140	0.869
GE does not Granger Cause OILR		1.121	0.347
GE does not Granger Cause CPI	22	5.282	0.015
CPI does not Granger Cause GE		1.454	0.259

Source: Regression Results (2024)

Note: indicates positive relationship and significance at 10%**

The result of the Granger Causality test from oil revenue (OILR) to corruption perception index (CPI) shows a probability value of ($p = 0.006$) which indicates that the null hypothesis cannot be rejected and we conclude that the variable OILR does not Granger-cause CPI significantly at the 0.05 level. Similarly, the probability value of the test from government efficiency (GE) to the corruption perception index (CPI) is 0.015 which tends toward the rejection of the null hypothesis that government efficiency does not significantly Granger-cause the corruption perception index at the 0.05 level.



However, the result of the Granger Causality test from the direction of CPI to oil revenue (OILR) shows that the null hypothesis of no causality should be rejected as it suggests that the corruption perception index (by extension, control of corruption) has a statistically significant Granger-causal relationship with oil revenue (OILR) at the 0.05 level. That is, control of corruption has a statistically significant Granger-causal relationship with the level of oil revenue, indicating that changes in the perception of corruption in Nigeria might predict or influence changes in revenue (by extension economic performance) in the oil and gas industry.

As for the Granger-causal relationship from government efficiency (GE) to oil revenue (OILR), the null hypothesis is also strongly rejected as it shows a relatively high p-value (0.347). It implies government efficiency (GE) which captures all indices of economic freedom and is used as a proxy for economic governance has a significant Granger-causal relationship with oil revenue (OILR) which is a measure of the performance of the oil and gas industry and this relationship may be statistically significant at the conventional 0.05 level, suggesting that changes in government efficiency tend to predict or influence changes in oil revenue in Nigeria thereby influencing the economic performance of the oil and gas industry.

5.0 CONCLUSION AND RECOMMENDATIONS

This study has offered some insights into the extent of the relationship between governance as measured by economic and political governance and the economic performance of the oil and gas industry as proxied by oil revenue. Based on the empirical estimation of the model, we observe that there is an empirically statistically significant relationship between economic and political governance indices and the economic performance of Nigeria's oil and gas industry. economic freedom indices and FDI in Nigeria when all the indices are aggregated as a single variable as demonstrated in our model. We conclude that economic and political governance parameters most notably the corruption perception index (control of corruption) and government efficiency (indices of economic freedom) can significantly influence the performance of the oil and gas industry in Nigeria in terms of revenues accruing from the industry. Along the lines of the empirical findings, we recommend that the government can influence better economic performance in the oil and gas industry in Nigeria by improving all indices of economic and political governance. Control of corruption in all facets of private and public life and the creation of a salubrious macroeconomic



and institutional environment for enhanced economic freedom in the oil and gas industry will boost the economic performance of the sector as the mainstay of the Nigerian economy.

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A REVIEW OF ENERGY TRANSITION AND EMERGENCE OF LIQUEFIED PETROLEUM GAS (LPG): PANACEA TO SUSTAINABLE FOOD SECURITY IN NIGERIA

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Abstract

Energy is a key ingredient for social, economic and industrial development of every nation. However, access to modern, affordable and reliable energy services is an enormous challenge facing the African continent particularly in Nigeria. The use of firewood followed by charcoal are the most widely used solid cooking fuels but their burning is accompanied with pollution which constitute health and environmental hazards. The paper review the current transition from conventional means of cooking to the emergence of liquefied petroleum gas (LPG) technology aimed at ensuring sustainable food security in the nation. The study adopted synthesizes of available literatures and observations to draw out inferences. The review concluded that LPG usage is still limited. It recommends massive campaign and capacity building for LPG to enhance acceptability and adoption at homes and in the country at large.

Key words: Energy, food security, sustainability, technology, Nigeria

Introduction

Energy is a major component of the social, economic and industrial development of any nation (Oyedepo, 2012; Chukwu, Ibrahim, Ojosu, and Iortyer, 2014). Almost, half of the world's population depends on solid fuels for household cooking (Bonjour, Adair-Rohani, and Wolf, 2013). In Africa, access to modern, affordable and renewable energy services is a huge challenge, especially in sub-Saharan Africa (Baiyegunhi and Hassan, 2014). In Nigeria, household cooking energy accounts for a major part of the total energy consumed (Emagbetere, Odia and Oreko, 2016). Household cooking consumes more energy than any other end use services in low income developing countries (Daioglou., Van Ruijven, and Van Vuuren, 2012). Households need energy



for various activities; chief among this is cooking which accounts for a greater percentage of the total domestic energy consumption. (Oyedepo, 2012). Unfortunately, household cooking energy Consumption has not received adequate attention from the local communities, researchers and policy makers.

Despite the abundance of renewable and environmentally friendly energy sources, about three billion people worldwide still use solid fuels for their basic needs which include cooking (Hossain, 2012). The use of firewood followed by charcoal are the most widely used solid cooking fuels but their burning is accompanied with pollution which constitute health hazard (Bisu, Kuhe and Iortyer, 2016). In addition, the use of solid fuel also has some environmental implications like increase greenhouse gas emission, deforestation and desert encroachment. Firewood is the oldest cooking fuel. It is relatively abundant in the rural areas than in the urban areas. It is synonymous with fuel wood. Other cooking fuels are electricity, sunlight (solar energy), processed plant wastes and biogas. Households in developing countries generally use solid fuels, biogas and LPG for cooking. Kerosene is mainly used for cooking and lighting while natural gas is used for cooking and heating. Some studies (Bisu *et al.*, 2016; Emagbetere *et al.*, 2016; Okwanya *et al.*, 2021; Onyekuru *et al.*, 2020) have attempted to assess the household energy choice and preference in Nigeria. Presently, there is scanty documented information in Nigeria on the current level of utilization of cooking energy sources among households for sustainable food security. Therefore, this review intends to annex relevant literature on the emergence of liquefied petroleum gas (cooking) as a panacea for sustainable food security in Nigeria.

Conceptual Framework

According Malla and Timilsina, (2014) household cooking energy can be categorized based on the level of energy development into traditional (firewood, agricultural wastes, etc.), Intermediate (charcoal, coal, kerosene, etc.) and Modern (solar, liquefied petrol gas (LPG), Electricity, etc.). Based on the method of production; they can be classified into primary (from natural resources, e.g., firewood) and secondary (from transformation of primary energy sources). Cooking energy can also be classified into renewable (biomass, solar, biogas) and non-renewable (coal, kerosene, LPG). The acute shortage and irregular supply of clean energy sources has also caused more households in Nigeria to depend on traditional energy sources such as wood, animal dung and agricultural residue causing personal health and environmental problems such as excessive deforestation, estimated at 300,000 ha per year (Matera, Bailis, Drigo, Ghilardi, and Ruiz-Mercado, 2015). It was responsible



for the death of about 396,000 people in Sub-Saharan Africa, where Nigeria is located (Youssef, Lannes, Rault, and Soucat 2015).

The scenario above calls for attention and interventions that will facilitate changing the energy consumption behaviour of households and individuals towards minimal household health risk and environmental sustainability.

Food security is: “the state or condition when all people at all times have physical, social, and economic access to sufficient , safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (Brown, 2015; FAO 2013; Aborisade & Bach 2014).

The challenge of food insecurity has persisted in many parts of the world despite efforts by governments and donors to address it. In Nigeria, studies have shown how most households are food insecure despite periodic growth spurts in non-agricultural sectors of the economy (Adekoya *et al.*, 2023). The prevalence of food insecurity has consistently been on the increase in Nigeria. The fall in oil prices starting in 2014, the recession in 2015 and recent removal of fuel subsidies in 2023 may have contributed to the rise in the number of persons with access to food in Nigeria.

Theoretical Review

Renewable energy theory: According to Zarębski *et al.*, (2021) the theoretical framework for renewable energy is focused on creating a local energy innovation system based on renewable energy sources. This framework involves classifying areas based on energy-generation capacity and socio-economic factors, such as local wealth, relational capital, scientific and research capital, and energy demand.

Food security theory: According to Allen (2012) theory of food suggests that cognitive activities related to food may be cognitive enhancers, which could have implications for maintaining healthy brain function in aging. They propose that theory of food evolved as an internal, cognitive representation of our diets in our minds. Like other complex cognitive abilities, it relies on complex and overlapping dedicated neural networks that develop in childhood under familial and cultural influences. Normative diets are analogous to first languages in that they are acquired without overt teaching; they are also difficult to change or modify once a critical period in development is passed.

Methodology

This article undertakes review of liquefied petroleum gas usage in the country using synthesis of available literatures. Analysis was based on available evidence from previous research work and observations in the environment.



Source and type of data used: The research relies solely on secondary data (national and international) from previous research works, publications and bulletins.

Method of data collection: Data collected through synthesizes of previous literatures and observations gathered in the environment.

Techniques/Method of data Analysis: The paper concentrates on review of available literatures on the subject and used non-probability sampling technique to synthesize gathered information.

Results

The review revealed that there is paucity of literatures on the subject. Also, there exist huge gap in the level of awareness for the usage and adoption of cooking gas in homes particularly in the suburbs.

Conclusion and Recommendations

Traditional cooking means such as the use of fire wood, charcoal, and kerosine are common phenomenon in Nigeria. The conventional methods of ensuring ready to eat food at homes has negative health and environmental consequences in Nigeria and globally. Hence the need to recognize and adopt fast growing liquefied petroleum gas otherwise called cooking gas as a viable alternative. The goal of this review is to bring to the fore the emergence of LPG technology as a means of enhancing sustainable food security in the nation. Since food is the most basic human needs, providing information of this nature is therefore critical for promoting safety technology and sustainable food security in Nigeria. It is recommended that massive awareness campaign and grassroots' mobilization should be develop towards LPG technology adoption by households.

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CASHLESS POLICY AND ECONOMIC GROWTH IN NIGERIA

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Abstract

A cashless economy is an economic environment in which money used for transactional purposes is spent without being physically carried from a transactional location to another. The cashless policy was introduced for certain reasons which includes the modernization of the payment system in the country which was to align with the Nigeria's Vision 2020 goal to rank amongst the top 20 economies of the world by 2020. However; as at the end of year 2020, Nigeria ranked 26th in the world in terms of Gross Domestic Product (GDP) and this falls below the expected ranking as the 20th nation that was to be an accomplishment of Vision 20:20. This study is to assess the impact the implementation of cashless policy has had on Nigeria economy growth. Secondary data were sourced from Central bank Statistical Bulletin, Macrotrends and World Development Indicators with sample period from 1991 to 2022. Given the unit root test; growth rate which is the dependent variable was at I(1), cashless economy was at I(1), gross fixed capital formation, labour and individual access to internet was at I(0). This informed the use of the Auto-Regressive Distributed Lag Model for the purpose of analysis for the short-run and long-run effect. The findings revealed that in the short-run and long-run, a cashless economy has a positive relationship with economic growth although in the long-run it is not statistically significant. Therefore, the study recommends that the government should roll out policies that would aid structural development in rural areas so they could be financially included and have more individuals gain access to the internet.

Keywords: Cashless, Economic Growth, Financial Inclusion, Financial Institutions

1. Introduction

Internet banking and mobile banking have revolutionized Nigeria's business environment, with the cashless policy being implemented in Lagos state in 2012. This policy aims to modernize the payment system, enhance efficiency, and curb corruption (CBN, 2012). It was further launched in six other states which are Anambra, Ogun, Rivers, Abia, the Federal Capital Territory, and Kano in 2013 and national implementation began in July 2014. The policy applies to all financial accounts,



except government income-generating accounts, lending institutions, microfinance banks, and embassies. The cashless policy was initially announced in 1996 however implementation began in 2012 which aimed for gradual take-off and nationwide compliance, overcoming challenges such as digitization. (Chukwuma, Chris & Martins, 2020).

The cashless policy has been widely adopted globally as a strategy to modernize the financial system, enhance efficiency, and boost financial inclusion. This policy provides easier access to financial services, empowering economic agents to participate actively in the formal economy. In Nigeria, the adoption of the cashless policy is a giant step towards realizing its economic potential. The policy was introduced to align with Nigeria's Vision 2020 goal of ranking among the top 20 economies by 2020. It aims to lower the cost associated with bank services, promote financial inclusion, and enhance the effectiveness of the Central Bank's monetary policy. This policy also aims to curb inflation and drive economic growth (CBN, 2020). Nigeria is transitioning towards a cashless economy, driven by economic agents like individuals, firms, financial institutions, fintech companies, and the government. The CBN reports that the inclusion rate has increased from 47.0% in 2012 to 64.1% by 2020, indicating increased financial inclusion and job creation in Point-of-Sale businesses. However, challenges such as cybersecurity concerns, failed transactions, fraudulent activities, infrastructural gaps, and a digital divide hinder the full realization of the cashless policy (Odumusor, 2023). This study objective therefore, is to determine if the implemented cashless policy has led to economic growth in Nigeria.

2. Literature Review

Tran and Wang (2023) investigated through a study cashless payment impact to economic growth: evidence in G20 countries and Vietnam. The countries investigated for the purpose of this study are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom, United States, European Union and Vietnam. The study utilized annual data from various sources, including the World Bank, Bank for International Settlements, State Bank of Vietnam, and the World Government Index, to analyze the impact of cashless payment on Vietnam's economic growth. The dependent variable was Real GDP growth rate, while the independent variables were debit card transaction value, credit card transaction value, E-Money transaction value, and check transaction value. The control variables included inflation rate, population growth rate, secondary school enrollment, and trade



openness. The results showed a robust relationship between economic growth and cashless payment, despite controlling for endogeneity, omitted variables, and outliers.

Noman, Maydybura, Channa, Wong and Chang (2023) carried out a study on the impact of cashless bank payment on economic growth: evidence from G7 countries which were Canada, Germany, Japan, France, Italy, the United Kingdom and the United States. The study used secondary data from the Bank for International Settlements (BIS) and World Bank economic database to examine the relationship between cashless bank payment and economic growth from year period 2010 to 2020. The dependent variable was Real Gross Domestic Product (GDP), and the independent variables were credit transfer transactions, cheque payment transactions, and Card & E-Money transactions. The Panel Autoregressive - Distributed Lag (ARDL) was used to analyze the relationship between these variables. The findings showed a positive relationship in both short and long run, but credit transfer had an insignificant relationship with Real GDP however, in the study of (Tran & Wang, 2023), the result is negative given the difference in economic structure and degree of pressure that emanates from the difference in technologies.

In Nigeria, there has been various studies that have been done to examine the impact and relationship that exist between cashless policy on the nation's economic growth and development. To begin with, Ogunlade and Amodu (2024) determined the influence cashless policy has on economic growth and development in Nigeria. The study used primary data from a structured questionnaire to analyze the correlation between cashless policy and economic growth and development in Nigeria. The target population consisted of ten selected deposit money banks, with 181 questionnaires retrieved out of 200 sent out. The independent variables were Electronic Banking System, Electronic Transfer System, and Peer-To-Peer payment. The findings showed a significant positive impact of cashless policy on economic growth and development.

A study on the impact of cashless policy on the economic growth of Nigeria was done by (Chukwuma *et al.*, 2020). The study employed the use of secondary data sourced from the Central Bank of Nigeria Statistical Bulletin, Nigeria Stock Exchange Fact book and Exchange Commission database which covered year 2013 to 2019 given the availability of data as at the time the study was carried out. For the purpose of analysis, and the variables used were Automated teller Machine (ATM), Point of Sale, Mobile and Internet Banking with Real GDP. The study however had no analytical content but used historical findings to form the basis for impact analysis which had a mix



of various variables. The conclusion from the study reveals that determination on the kind of impact cashless policy has on economic growth cannot be ascertained.

Ehiedu, Oditia and Kifordu (2020) embarked on a study on cashless policy model and Nigeria economic growth. The study investigates the impact of Automated Teller Machines (ATM) on money laundering activities in Nigeria and the relationship between Point of Sale (POS) and employment opportunities. Results show ATM reduces money laundering, while POS facilitates employment generation, and e-banking services positively impact economic growth in Nigeria. (Agu & Agu, 2020) study had an examination on the impact of cashless policy on economic growth in Nigeria for year periods 2010-2018 through the use of quarterly time series data sourced from the Central Bank Statistical Bulletin Annual Report and World Bank Development Indicator. The study used the Johansen cointegration test and granger causality test to analyze the impact of cashless policy on Nigeria's economic performance. It found a positive relationship between cheque payment and POS services, while ATM and online web payment negatively impacted economic growth. However, no significant relationship was found between cheque value and online payment.

What relationship exist between gross fixed capital formation, labour productivity, access to internet and economic growth? The study done by (Topcu, Altinoz & Aslan, 2020) revealed that gross fixed capital formation has a positive relationship with economic growth in the long-run and statistically significant (Kanu, Ikechi, & Anayochukwu, 2014) had a finding that in the short-run there exist a positive relationship which is not statistically significant. (Adeshina, Adewale, Elvis & Emile, 2019) examined the relationship between labour and economic growth and found out that there exist a positive relationship and it is not statistically significant. However, in a previous study carried out by (Jajri & Ismail, 2010) the findings revealed that there exists a positive relationship which is also statistically significant. Access to internet has been on the rise in recent times with individuals getting to use digital platforms to transact on a daily basis, to this end what kind of relationship could exist between individual access to internet and economic growth? (Meah, 2012) whose study was on the impact of internet on economic growth in Bangladesh unveiled through his findings that there exists a positive relationship between the two variables which is not statistically significant. Moreover, studies years after done by (Abdulqadir & Asongu, 2022; Edquist *et al.*, 2021) has established that there exists a positive relationship which is also statistically significant.



3. Theoretical Framework

The study employs Quantity Theory of Money which is an economic model under macroeconomic, specially designed to control the level of activities that pertains to the economy of a particular economy. The theory is of the postulation that the level of prices in an economy is directly to the quantity theory of money i.e. the amount of money supplied in an economy at a given point in time determines the price level and a change in the supply proportion would bring about a proportion change in prices.

The relevance of this theory to the study can be viewed from the context that the theory suggests when reliance on physical cash is reduced which in turn influences the money supplied in an economy; consequently, impacts inflation and economic growth. With the promotion of various electronic payment methods, much reliance and demand for money would be reduced which enhances efficiency, reduces transaction costs and in turn improve the overall economic performance of a nation.

This theory was also employed in the study of Comfort and Omoare (2015) and Ibe and Odi (2018)

4. Methodology

4.1 Model Specification

The model examines the relationship between cashless policy as it relates to economic growth in Nigeria between 1991 and 2022. The data were sourced from CBN statistical bulletin, Macrotrends and World Development Indicators. The dependent variable (GR) was used to capture economic growth. It was further measured as a function of independent variables which are CAS, GFC, LAB and INT. This statement in functional form is written as:

$$GR = F (CAS, GFC, LAB, INT) \quad (1)$$

Furthermore, it is written as an economic equation based on the specified equation above as:

$$Y_t = \beta_0 + \beta_1 X_t + \beta_2 W_t + \beta_3 L_t + \beta_4 I_t + \varepsilon_t \quad (2)$$

Where Y: economic growth variable is GR;

X: cashless economy variable is CAS;

W: capital invested variable is GFCF;

L: labour force variable is LAB and

I: Individual access to internet variable is INT.

The equation can further be expressed in linear form as:



$$GR_t = \beta_0 + \beta_1 CAS_t + \beta_2 GFC_t + \beta_3 LAB_t + \beta_4 INT_t + \varepsilon_t \quad (3)$$

Where:

GR represents Growth Rate;

CAS represents Cashless economy;

GFC represents Gross Fixed Capital Formation;

LAB represents Labour force and

INT represents Individual access to internet.

i. Relevance of selected variables.

Gross Domestic Product Growth Rate (proxy for economic growth): The growth rate is the percentage change in a country's real GDP over a certain period of time, generally measured yearly or quarterly. Greater financial inclusion can help maximize the economy's potential, grow participation in official banking systems, and stimulate consumption and investment, all of which contribute to economic growth.

Cashless Economy: A cashless economy is one in which nearly all transactions are handled digitally, with little dependence on cash. The switch to a cashless economy may enhance transparency, effectiveness, and ease in transactions involving money, thus minimizing the cost of transactions and boosting total economic output. This variable was calculated by dividing currency-in-circulation over money supply, which is a novel variable as a proxy for cashless economy.

Gross Fixed Capital Formation (GFCF): is the overall value of an economy's capital asset investments, which include machinery, technology, buildings, and structures. Increased use of electronic payment technology in a cashless economy may boost business investment by accelerating financial transactions, lessening administrative obstacles, and enhancing credit access. This, in turn, can help to boost GFCF, a crucial driver of economic development.

Labour Force: The labour force includes those who are either employed or actively looking for work. In a cashless economy, Digital payment systems can enhance labour market efficiency by facilitating faster, more comfortable salary payments, reducing physical currency handling, and supporting remote working. This could boost demand for skilled workers in industries like IT, banking and financial services, and electronic commerce, potentially contributing to higher employment rates and productivity.

Individual Internet Access: Participating in a cashless economy requires access to the internet, as many methods of digital payment rely on internet-based platforms and digital communication channels. Improved accessibility to the internet could additionally encourage financial inclusion by giving communities with limited access to banking services, educational resources, and job possibilities, so promoting economic growth and development.

4.2 Results and Discussion

For the purpose of this study, the result would be broken down into sections. To begin with, descriptive statistics are provided to give an analytical overview of the mean, standard deviation. Furthermore, a unit root test is conducted to determine the level of stationarity. Lastly, ARDL model is used to perform the analysis for this study and to critically unveil the type of relationships that exist amongst the variables under study.

Table 1: Descriptive Statistics

	GR	CAS	GFCF	LAB	INT
Mean	4.053702	7286151	12190.12	50620812	14.03841
Median	4.213	7189171	7266.445	49475731	6.157518
Maximum	15.3292	21406250	65227.13	73389347	55.4
Minimum	-2.0351	20816.3	285.59	32844703	0
Std. Dev.	3.782566	5162680	16231	11965322	18.09074
Skewness	0.484808	0.665777	2.073635	0.24191	1.164116
Kurtosis	3.786457	3.612204	6.551323	1.893917	3.056481
Jarque-Bera	2.078225	2.863772	39.74899	1.943337	7.231802
Probability	0.353768	0.238858	0	0.378451	0.026893
Sum	129.7185	2.33E+08	390083.8	1.62E+09	449.2292
Sum Sq. Dev.	443.5419	8.26E+14	8.17E+09	4.44E+15	10145.52
Observations	32	32	32	32	32

Source: Authors Computation (2024)

The Table 1 is the descriptive statistics used to analyze the variables in this study. The mean values for GR, CAS, GFCF, LAB, and INT were 4.05, 7286151, 12190.12, 50620812, and 14.03841. Skewness was measured to determine if the variables were normally distributed if equal to 0; GR,

CAS and LAB are normally distributed. Kurtosis is to determine normal distribution if it has a value of 3; GFCF and LAB are not normally distributed which aligns with the result from Jargue-Bera probability with the null hypothesis for the variables rejected, indicating that the distribution was not normally distributed.

Table 2: Unit Root Test

VARIABLES	ADF T-STATISTICS	CRITICAL VALUE	PROB. VALUE	ORDER OF INTEGRATION.
GR	-7.8887	-2.963972	0	I(1)
CAS	-4.448219	-2.967767	0.0015	I(1)
GFCF	4.354744	-2.963972	1	I(0)
LAB	8.58803	-2.960411	1	I(0)
INT	-3.200013	-2.963972	0.0299	I(0)

Source: Authors Computation (2024)

In Table 2, the unit root test is conducted to check the variable stationarity level. The critical value is set at 5% and from the computed result above, GR and CAS are at order 1 while GFCF, LAB and INT are at order level. Hence the null hypothesis was rejected for the variables examined under this study.

Table 3: Bound Test

F-Bounds Test		Null Hypothesis: No levels relationship			
Test Statistic	Value	Signif.	I(0)	I(1)	
Asymptotic: n=1000					
F-statistic	6.95665	10%	2.2	3.09	3.49
k	4	5%	2.56	3.49	3.49

Source: Authors Computation (2024)

From Table 3. bound test shown, using the 5% significance value, the lower threshold is 2.56 while the upper value is at 3.49. Given the F-statistic value of 6.95665 which is greater than both lower and upper value, there is a likelihood of a long-term stable relationship between the dependent variable and the independent variables examined in this study. Hence, it is safe to reject the null hypothesis and conclude that there is a long-term relationship at 5% level of significance.

Table 4: Auto Regressive Distributed Lag Model (ARDL)

4.1 Short-Run and Long-run result



Dependent Variable: GR					
Variable	Coefficient	Std. Error	t-Statistic	Prob.*	
GR(-1)	0.021397	0.218386		0.097979	0.9258
GR(-2)	0.507483	0.259553		1.955219	0.1079
GR(-3)	-0.128246	0.163162		-0.786004	0.4675
GR(-4)	0.521965	0.20195		2.584629	0.0492
CAS	-9.67E-07	2.49E-07		-3.881643	0.0116
CAS(-1)	1.34E-06	3.51E-07		3.810253	0.0125
CAS(-2)	-7.25E-08	2.85E-07		-0.253841	0.8097
CAS(-3)	9.53E-07	3.34E-07		2.851694	0.0358
CAS(-4)	-7.51E-07	3.07E-07		-2.449849	0.0579
GFCF	0.000617	0.000403		1.53026	0.1865
GFCF(-1)	-0.001129	0.000636		-1.774683	0.1361
GFCF(-2)	0.000955	0.000564		1.69478	0.1509
LAB	2.54E-07	7.66E-06		0.033129	0.9749
LAB(-1)	-1.41E-06	9.95E-06		-0.141589	0.8929
LAB(-2)	-3.49E-06	1.10E-05		-0.31653	0.7644
LAB(-3)	5.63E-05	1.45E-05		3.8881	0.0115
LAB(-4)	-5.28E-05	1.14E-05		-4.634516	0.0057
INT	3.428094	1.275363		2.687937	0.0434
INT(-1)	-10.13015	2.033231		-4.982293	0.0042
INT(-2)	2.695704	1.412298		1.908736	0.1146
INT(-3)	0.399167	1.414702		0.282156	0.7891
INT(-4)	5.120849	1.371528		3.733682	0.0135
C	-2.726916	23.23369		-0.117369	0.9111
R-squared	0.972121	Mean dependent var			4.592105
Adjusted R-squared	0.849454	S.D. dependent var			3.600002
S.E. of regression	1.396809	Akaike info criterion			3.426349
Sum squared resid	9.755383	Schwarz criterion			4.52066
Log likelihood	-24.96888	Hannan-Quinn criter.			3.760891
F-statistic	7.92488	Durbin-Watson stat			2.325108
Prob(F-statistic)	0.015078				
LONG RUN					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
CAS	6.46E-06	5.33E-05		0.121171	0.9083
GFCF	0.005722	0.041224		0.138802	0.895
LAB	-1.49E-05	0.000127		-0.117244	0.9112
INT	19.55608	165.8264		0.117931	0.9107
C	-35.2309	189.0573		-0.18635	0.8595

Source: Authors Computation (2024)



The study reveals a strong relationship between the dependent variable (GR) and the independent variables (CAS, GFCF, LAB, and INT) with the R-squared around 97% and an adjusted R-squared of 85%. The F-statistic with a p-value of 0.015 which is less than the p-value of 0.05, indicates the model's appropriateness for policy-making. The Durbin-Watson statistic of 2.325 indicates a negative autocorrelation.

Interpretation of Result

The constant term which is growth rate in the short-run is negative and it is not statistically significant at -2.726916, with a probability value of 0.9111, this is with the absence of the independent variable contribution. The relationship between growth rate and cashless economy is inverse in the short-run. It is predicted that a cashless economy would lead to a decline in the growth rate by -0.000000967 for every unit increase in the policy implementation for a cashless economy. The relationship has a probability value of 0.0116 which indicates that it is statistically significant. However, in the long-run; the relationship would be a positive relationship which implies that a rise in the drive for a cashless economy would lead to 0.00000646 unit increase in the growth rate of Nigeria, although the probability value of 0.9083 shows it is not statistically significant. The study carried out by (Tran & Wang, 2023) revealed that there is a positive relationship between cashless payment and economic growth. However, from the result gotten in this study, cashless payment is statistically significant only in the short-run while there is a positive relationship in the long-run.

The relationship in the short-run that exist between gross fixed capital formation and growth rate is positive as it has a value of 0.0000617. Growth rate would increase by 0.0000617 unit for every addition of gross fixed capital formation. The probability value associated with this relationship is 0.1865 which indicates that it is not statistically significant. Similarly in the long-run the relationship would still have a significant value, hence a unit increase in gross fixed capital formation would lead to a 0.005722 unit increase in the growth rate with a probability value of 0.895 which is not statistically significant. This is consistent with the study of (Topcu, Altinoz & Aslan, 2020). Respective studies found out that there is a long-run relationship between gross fixed capital formation and economic growth which is also statistically significant while the study of (Kanu et al., 2014) had a finding that in the short-run; gross fixed capital formation is not statistically significant with economic growth.



The short-run relationship between labour and economic growth has a positive value of 0.000000254; this implies a unit rise in labour would lead to a 0.000000254 increase in growth rate however this relationship is not statistically significant as it has an associated probability value of 0.9749. In the long-run, the relationship takes a turn as it would have a negative effect on growth rate with a revealed value of -0.0000149. This implies a unit rise in labour in the long-run would lead to a 0.0000149 decrease in growth rate and the relationship is not statistically significant. (Adeshina et al., 2019) study on labour and economic growth conforms to the findings from is study given the result obtained that labour has a positive relationship with economic growth and it is not statistically significant in the short-run.

Individual access to internet has a positive relationship with growth rate in the short run with a value of 3.428094. This implies that a unit rise in the access to internet by individuals would lead to a 3.428094 unit increase in growth rate and this relationship has a probability value of 0.0042 which indicates the relationship is statistically significant. In the long-run, there exist also a positive relationship between access to internet and growth rate. A unit increase in access to internet would lead to a 19.55608 increase in growth rate. The probability value is 0.9107 which indicates that the relationship is not statistically significant. The study carried out by (Ji, 2019) concluded that access to internet has a positive impact on economic growth which is supported by (Yi & Choi, 2022). In terms of significance, (Abdulqadir & Asongu, 2022) had a finding that access to internet had a positive impact on economic growth which was also statistically significant. However, the study by (Meah, 2012) revealed that access to internet had a positive impact on economic growth however was not statistically significant.

Conclusion

The study has examined the impact cashless policy has on economic growth in Nigeria. The findings have shown that in the short-run there is a negative relationship to economic growth and it is statistically significant. Nigeria's economic growth has been negatively impacted by the implementation of a cashless policy in 2023, as it led to a decline in business operations and activities. The real GDP increased by 2.31% in Q1 2023, but decreased from 3.11% to 3.52% in Q4 2022. This decline is attributed to the negative impacts of the cash crunch. The study suggests that implementing a cashless economy could potentially aid economic growth in Nigeria, as more financially-informed individuals are expected to contribute to the economy. Nigeria's economic



growth is hindered by infrastructure shortfalls in transportation, electricity, and telecommunications, affecting productivity and efficiency. However, investment in skill training, healthcare, social protection programs, and structural reforms can stimulate innovation and boost labor productivity. The internet, enabling informed decision-making and adapting to economic changes, and e-commerce platforms, further boost economic growth.

Recommendation

1. The government should roll out policies that would aid structural development in rural areas so they could be financially included and have more individuals gain access to the internet.
2. Banks should work on having their respective digital platforms accessible and user friendly for those who might not be literates in information technology.
3. Establishment of social protection programs, skill acquisition programs, training and development to stimulate labour productivity.

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EXCHANGE RATE AND SUSTAINABLE ENERGY PRICING

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ABSTRACT

This study investigates the relationship between oil prices and exchange rates in Nigeria using annual data from 1990 to 2022. The research employs econometric analysis, including unit root tests, ARDL bound tests, and impulse response analysis. Through an extensive literature review, theoretical frameworks such as purchasing power parity (PPP), and empirical evidence, the study delves into the nature of this relationship and its implications for Nigeria's economy. By addressing research objectives and questions, this study contributes to a deeper understanding of how variations in energy prices affect exchange rates, essential for effective policymaking and economic stability in Nigeria. The model specification includes variables such as exchange rate, oil price, inflation, trade balance, and external reserves. The findings reveal a long-run positive relationship between oil prices and exchange rates, contrary to the expected positive correlation between inflation and exchange rates. Additionally, the study identifies a negative relationship between trade balance and exchange rates. Policy recommendations include economic diversification to reduce reliance on oil exports, building foreign reserves during periods of high oil prices, and maintaining fiscal discipline to stabilize the economy. Through these measures, Nigeria can mitigate the adverse effects of oil price volatility on its exchange rate and promote sustainable economic growth.

Introduction

Exchange rate policies in emerging nations are frequently delicate and controversial, owing to the type of structural transformation necessary, such as lowering imports or increasing non-oil exports, which always result in a depreciation of the nominal exchange rate. Domestic changes that have a short-term influence on pricing and demand are viewed as harmful to the economy. Ironically, the inefficiencies inherent in an inflated exchange rate system are rarely discussed in emerging countries that rely on imports for production and consumption (Akpan and Atan, 2011).



Without a doubt, the Nigerian economy is based primarily on oil. Approximately 90% of Nigeria's foreign exchange income and 80% of total government revenue come from oil. Changes in the price of oil create worry that ripples through the financial system. Nigeria's prospects for growth are negatively impacted by its reliance on oil (Senkus et al., 2018). Numerous data points at the significant role that changes in oil prices play in dictating the direction of the exchange rate, particularly from the post-Breton Woods era (Adeniyi et al., 2012). Krugman (1983) asserts that in countries that export oil, the exchange rate increases in response to rising oil prices and decreases in response to falling oil prices. Countries that import oil, however, are probably going to witness the opposite pattern.

Thus, the goal of this study is to investigate how exchange rates and energy costs relate to one another.

Research Objectives:

- To estimate the link over time between Nigeria's energy prices and exchange rate.
- To evaluate the impact of energy price shocks on Nigeria's exchange rate.

Research Questions

- What is the nature of the relationship between exchange rates and energy prices?
- How can variations in energy prices affect the exchange rate?

Statement of Research Problem

This study aims to ascertain the degree to which fluctuations in oil prices impact Nigeria's exchange rate (Aigheyisi, 2018). This is especially crucial because oil is Nigeria's main energy source and has a direct impact on the inflow of foreign currency into the nation. Policymakers and other stakeholders who want to effectively handle the potential economic problems that come with such shifts must comprehend the relationship between oil prices and exchange rates. Nigeria's economy is heavily dependent on oil, which has a significant impact on both the political and economic future of the nation. Even though crude oil has brought Nigeria enormous wealth, its impact on the country's economy's growth in terms of returns and productivity is still debatable (Ubani et al., 2016).



Literature Review

Petroleum is a naturally occurring yellowish-black liquid combination made mostly of hydrocarbons that is commonly referred to as crude oil or just oil (EIA, 2017). It is estimated that the world uses approximately 100 million barrels (16 million cubic meters) of petroleum per day, which is used to produce a variety of goods essential to contemporary life. The 20th century witnessed the expansion of the world economy, primarily reliant on the potentially lucrative resource of petroleum. As a result, a number of countries referred to as "oil states" significantly increased their economic and global power. (Clifford Krauss; Jad Mouawad, 2011).

There are two main methods for estimating energy pricing, according to (Zheng, Junjie; Lai, Chun Sing; Yuan, Haoliang; Dong, Zhao Yang; Meng, Ke; Lai, Loi Lei 2020). For each energy unit: This is the method used most frequently to determine energy prices. While fuel costs are often announced in dollars per gallon, electricity rates are typically given in cents per kilowatt-hour (kWh). Time-based pricing: This type of pricing varies dependent on the day of the week and the time of day. Peak demand times, such summer afternoons when air conditioners are in heavy usage, are usually associated with higher prices.

Overview Of Exchange Rate In Nigeria

Nigeria had a fixed exchange rate regime in the 1970s, with the value of the Naira being correlated with that of the US dollar. Nigeria's large oil profits supported this arrangement and were used to maintain the stability of the Naira's value. But when the price of oil fluctuated globally, Nigeria's economy started to falter, leading to a string of Naira devaluations in the 1980s and early 1990s. When the naira was eventually devalued in 1992, the market determined its worth. The goal of this move was to boost foreign investment and boost Nigeria's standing in the international market.

Nigeria's economy faces challenges such as inflation and reliance on oil exports, leading to multiple devaluations of the Naira in the early 2000s and 2010s. The Naira's value declined against other currencies, notably the US dollar, due to fluctuating exchange rates. Nigeria's heavy dependence on oil exports made its currency vulnerable to the volatility of the global oil market, causing depreciation during sharp drops in oil prices. Additionally, issues like political instability, corruption, and a limited economic diversity have further weakened the Naira in recent years.



In summary, there have been notable variations in Nigeria's currency rate during the 1970s, primarily due to the devaluation of the Naira caused by political unrest, fluctuations in oil prices, and economic difficulties. In order to stabilize its exchange rate and promote sustainable growth, Nigeria will need to concentrate on expanding its economy, enhancing governance, and putting good economic policies into place going forward.

Theoretical

Review

A fundamental tenet of international economics is the concept of purchasing power parity (PPP), which holds that the ratio of the price levels of two countries should equal their exchange rates. The PPP basically says that the same basket of goods should be priced the same in both countries when expressed in the same currency. This concept is essential for comparing economic performance and living standards across national borders, as well as for comprehending the relationship between inflation and exchange rates.

Empirical Review

Ngo (2023) The purpose of this study is to examine the price spillover effects and time-varying causation of the crude oil and exchange rate markets on the G7 economies during the COVID-19 and Russia-Ukraine crises. The time-varying Granger causality test and spillover index are used in this investigation. The results of this analysis show a time-varying causal relationship between oil prices and exchange rate returns, indicating that the foreign exchange rate markets in the G7 countries may be predicted by crude oil prices. This result confirms the hypothesis that the near run is where most of the time-varying interplay between oil prices and exchange rates takes place. Therefore, investors and policymakers may fully comprehend the intercorrelation between oil prices and the G7 exchange rate markets thanks to the time-varying features' straightforward insights.

Rohit and Rakesh (2021) conducted a study aiming to identify macroeconomic factors influencing stock market performance in developed and developing countries, examining their effects on both overall and sectoral indexes. They reviewed publications spanning from 1972 to 2021, focusing on titles and abstracts to select relevant papers. Using Excel for analysis, they found that gold prices negatively impacted stock markets across both types of economies, while GDP, FDI, and foreign institutional investment (FIII) had positive effects. Interest rates generally had a negative impact, except for a few developing nations. For oil-exporting nations, oil prices had a positive impact, whereas for oil-importing nations, it was negative. The study provides an overview of the



relationships between various macroeconomic variables and stock market indexes, suggesting further research is needed to explore their impact on sectoral, strategy, and theme indices.

Ajala et al. (2021) analyzed monthly time series data from January 1996 to September 2020 to investigate the asymmetric impact of oil prices on currency rates and stock prices. They employed the nonlinear autoregressive distributive lag (NARDL) econometric technique. The study suggests utilizing increased oil revenues for infrastructure upgrades. Co-integration tests revealed a long-term relationship between stock prices and oil prices, while NARDL results indicated asymmetric effects of oil price changes on exchange rates in both short and long terms. Additionally, the study advocates for governments heavily reliant on oil exports to establish laws ensuring financial system stability regardless of oil price fluctuations.

Ezeaku et al. (2017) examined the relationship between oil price shocks and exchange rate volatility using monthly data from January 1996 to December 2015. The rate of adjustment was assessed using the vector error correction model (VECM), and the presence of a long-term relationship was determined using the Johansen Co-integration test. The findings show that the exchange rate increases by 6.5% for each unit increase in the price of oil, and the VECM shows that there is a short-term negative correlation between the two variables, suggesting that fluctuations in the price of energy globally have an impact on the Nigerian economy.

In his 2014 study, Dauvin explored the relationship between energy costs and the effective exchange rates of commodity-exporting nations. He analyzed two groups: 10 energy-exporting nations and 23 non-energy-exporting ones from 1980 to 2011. Using panel co-integration estimation, Dauvin found a positive long-term connection between energy terms of trade and real effective exchange rates, indicating the presence of energy currencies. The study revealed a threshold in terms of trade where exporters' exchange rates respond to oil prices, identified through panel smooth transition regression models. Dauvin suggested strategies for exporting nations to mitigate excessive price fluctuations, such as establishing sovereign wealth funds, adjusting nominal exchange rates, and monitoring speculative activities closely.

Methodology

To explain the relationship between exchange rate and oil price, an econometric analysis was used to establish it. The model used for this research was adapted from (Onoja, 2015) who came to a conclusion that there is a long run and short run relationship between exchange rate and oil price



Model Specification

$$EXCH = f(OILP, INFL, TRABAL, EXRES) \dots\dots\dots (3.1)$$

The stochastic form of the model is as follows.

$$EXCH_t = \beta_0 + \beta_1 OILP_t + \beta_2 INFL_t + \beta_3 TRABAL_t + \beta_4 EXRES_t + \mu \dots\dots\dots (3.2)$$

Where:

EXCH – exchange rate

OILP – spot oil price

INFL – inflation

TRABAL – trade balance

EXRES – external reserve

β_0 : is the intercept of the model.

μ : is the error term

$\beta_1 - \beta_5$ is coefficients of the respective independent variables of the above model.

t is the time period from 1990 to 2021

Apriori Expectation of Variables

Oil Price: positive relationship. This means $\beta_1 > 0$

Inflation: positive relationship. This means $\beta_2 > 0$

Trade Balance: negative relationship. This means $\beta_3 < 0$

External reserve: negative relationship. This means $\beta_4 < 0$

Techniques of estimation

For this research, a unit root test will be conducted first to understand the trend of the variables follow by the ARDL bound test to check if there is any presence of Co-integration among the variables, Vector Error Correction Model will be used to check for speed of adjustment of the variable in the long run and some post-estimation techniques will also be used, like the impulse response, etc.

Data Selection

For this study, the data set used in this research is annual data from the years 1990–2022. The data was sourced from the World Bank Open Data, the Central Bank, and Organisation of Petroleum Exporting Countries.

Result and Discussion

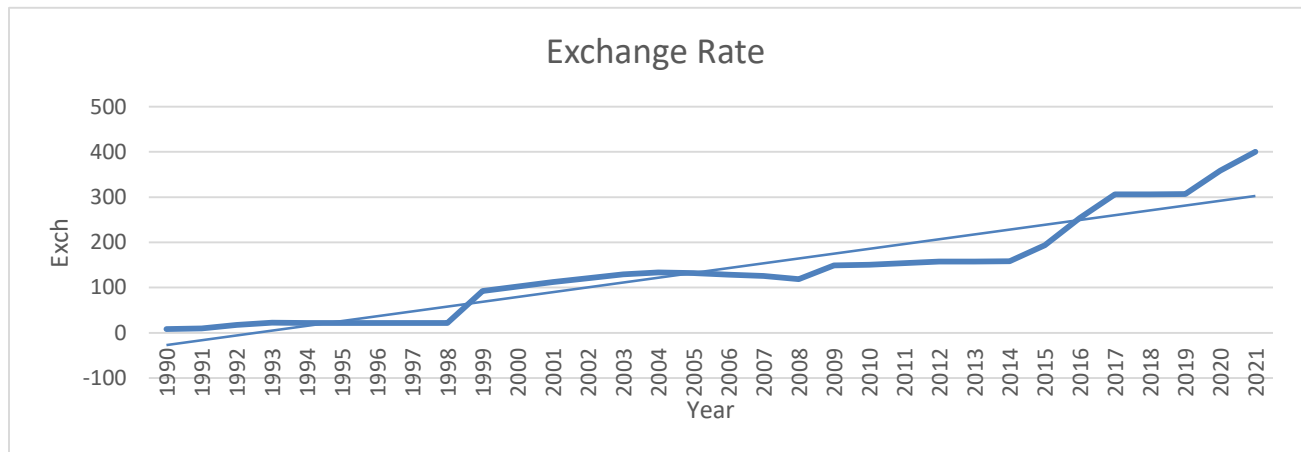


Figure 4.1: Trend Analysis of Exchange Rate in Nigeria

Source: Author's Compilation

Over the past thirty years, there has been a notable depreciation of the Nigerian Naira (₦) in relation to the US Dollar (USD). A complicated interaction between internal and external forces is reflected in this devaluation. This is a thorough examination of the trend. Until the early 1970s, Nigeria operated under a fixed exchange rate system. This meant the Naira had a set value against other currencies, often pegged to the US dollar and the gold standard.

In the 2000s Booms in oil revenue result in an overpriced currency, which lowers the competitiveness of exports (Dutch Disease). The non-oil sector is weakened as a result, and the Naira is under pressure. The 2008 financial crisis triggered capital flight from emerging markets, putting pressure on the Naira. Capital controls, interest rate modifications, and currency auctions are just a few of the ways the Central Bank of Nigeria (CBN) has tried to influence the exchange rate. Nonetheless, the effectiveness of these therapies has been uneven.

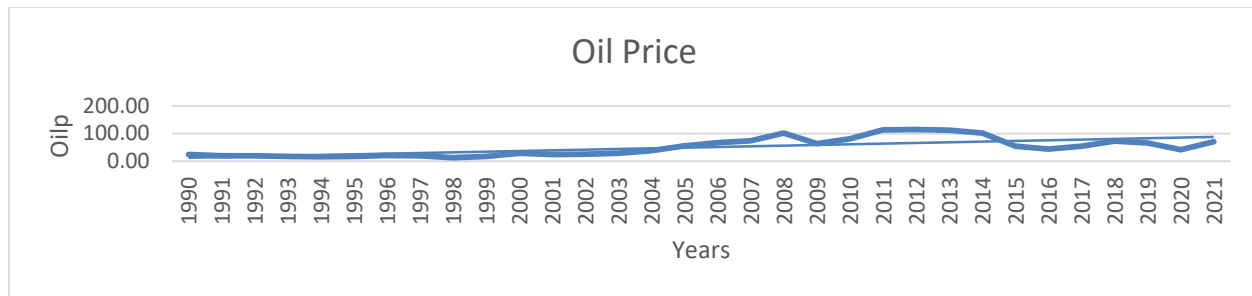


Figure 4.2: Trend Analysis of Oil Price in Nigeria

Source: Author's Compilation

The 1990-91 Gulf War caused a surge in oil prices, benefiting Nigerian oil exports. Prices reached a peak of around \$40 per barrel in 1990. Oil prices fell after the war and hovered at \$15–\$20 per barrel in the mid-1990s. The decrease strained Nigeria's export revenue. Oil prices began a steady climb in the early 2000s, fueled by strong global demand from China and other developing economies. Prices exceeded \$30 per barrel by 2004 and surpassed \$70 per barrel by 2008. This period of high prices brought significant revenue to Nigeria. The 2008 financial crisis triggered a temporary decline in oil prices, reaching a low of around \$30 per barrel in 2008. However, prices rebounded quickly. The 2010s witnessed a period of high price volatility. Prices reached a peak of over \$100 per barrel in 2014 but then plummeted due to a global oil glut and increased production from the US shale oil industry. The emergence of US shale oil production significantly impacted global oil prices. Shale oil production offered a more cost-competitive alternative, putting downward pressure on prices throughout the latter half of the decade. Prices hovered around \$40–\$60 per barrel for most of the 2010s.

Table 4.2: Unit Root Test

Variables	Series at Level			Series at Frist Difference			Order of Integration
	ADF statistic	Critical value at 5%	Remarks	ADF statistic	Critical value at 5%	Remarks	
Exchange rate	-1.848167	-2.960411	Non-Stationary	-3.759472	-2.963972	Stationary	I(1)
External reserves	-1.172280	-2.967767	Non-Stationary	-4.725782	-2.967767	Stationary	I(1)

Inflation	-2.118862	-2.960411	Non-Stationary	-4.511443	-2.963972	Stationary	I(1)
Oil price	-1.49602	-2.960411	Non-Stationary	-5.074031	-2.963972	Stationary	I(1)
Trade balance	-2.132946	-2.981038	Stationary	-10.03022	-2.967767	Stationary	I(0)

Source: Author's Compilation

The table above shows the unit root test conducted for the key variables in this research work. The exchange rate, external reserves, inflation, oil price and were tested to be stationary at first difference because the ADF statistic of all variables are less than the critical values at 5%. While trade balance was stationary at levels. Thus, the Auto-Regression Distribution Lag estimation technique (ARDL) is best suited for this research work.

Table 4.3: ARDL Bound Test

Test Statistic	Value	k
F-statistic	4.665241	4
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Author's Compilation

The bound test shows that the f stat at 4.66521 is greater than the lower bound and higher bound of the critical values at 5% which is 2.86 and 4.01 respectively. Therefore, we will accept the null hypothesis which states that there is co-integration. Co-integration indicates that the variables have a long-term equilibrium relationship. This means that even if they deviate from this balance in the short run, there's a force that pulls them back together in the long run.

Table 4.4: Normalised Co-integrating coefficients

Long-run regression analysis(standard error in parenthese, t-stat in bracket)



EXCH(-1)	OILP(-1)	INFL(-1)	EXRES(-1)	TRABAL(-1)	C	ECT
1.000000	-1.213048	4.464044	-0.006954	7.93E-05	-170.6715	-0.179507
	(0.73000)	(0.74625)	(0.00121)	(1.5E-05)	(29.4554)	(0.08923)
	[-1.66171]	[5.98201]	[-5.75113]	[5.29393]	[-5.79424]	[-2.01174]

Source: Author's Compilation

The normalized Co-integrating coefficients helps us in answering our first research objective which is to investigate if there is a long run relationship between oil price and exchange rate. Note that in interpreting the results, the signs in the table will be reversed.

- Based on the table above, there is a positive long-run relationship between exchange rate and oil price in Nigeria holding other variables constant, meaning a 1% increase in OILP will lead to a 1.2130 increase in EXCH. The t-stat is statistically significant because it is higher than 2.
- The study found a surprising negative relationship between inflation and exchange rates, contrary to the expected positive correlation. Holding other variables constant, a rise in inflation was associated with a decrease in the exchange rate by 4.464044 units. The statistical significance was confirmed with a t-statistic greater than 2 at 5.98201.
- There is a positive long-run relationship between external reserve and exchange rate holding other variables constant meaning a 1% increase in EXRES will lead to a 0.006954 increase in exchange rate. It is statistically significant as the t-stat is greater than 2 at 5.75113.
- The result above shows that there is a negative relationship between trade balance and exchange rate holding other variables constant as an increase in the rate of TRABAL will lead to a 7.53E-05 decrease in the rate of EXCH. It is statistically significant as the t-stat is greater than 2.
- Holding other variables constant and assuming these variables are zero, the normalized Co-integrating coefficients shows that there is a positive relationship between the intercept and exchange rate which means that if other variables are zero then the exchange rate will depreciate by 170.6715 and it is statistically significant as t-stat is greater than 2 at 5.79424.

The error correction term shows that the speed of adjustment of a variable from a disequilibrium to a long run equilibrium and for exchange rate, the ECT is 17% meaning that the speed of adjustment from a disequilibrium to equilibrium is 17% and the t-stat is statistically significant.

Table 4.5: Impulse Response

Response of EXCH:					
Period	EXCH	OILP	INFL	EXRES	TRADEBAL
1	18.73749	0.000000	0.000000	0.000000	0.000000
2	22.55245	-4.469552	1.914287	1.215883	-8.783019
3	31.64092	-10.41869	-0.191497	-1.450565	-15.21772
4	39.02712	-12.24265	-4.854469	-1.996787	-16.60288
5	45.56931	-9.988803	-10.18495	2.564539	-12.53485
6	50.65594	-5.788299	-11.91508	9.477344	-10.55156
7	54.03837	-4.830164	-8.712422	10.53250	-14.66303
8	55.91065	-9.659836	-5.648361	4.954571	-20.01671
9	56.46707	-14.94453	-7.860011	1.080729	-18.96377
10	56.41107	-13.94492	-13.49748	5.572055	-12.38839

Source: Author's Compilation

The impulse response analysis illustrates the impact of oil price shocks on Nigeria's exchange rate over 10 periods. It reveals a consistent pattern: when oil prices experience a shock (periods 2 to 10), Nigeria's exchange rate tends to depreciate. This depreciation is attributed to Nigeria's heavy reliance on oil exports. When oil prices drop, Nigeria's export revenues decline, resulting in reduced inflow of foreign currency. To remain competitive in the export market, the exchange rate depreciates. Thus, the negative relationship between oil price shocks and the exchange rate is explained by Nigeria's status as a major oil exporter.

Therefore, based on the data provided, shocks in oil price are likely to have a negative impact on the exchange rate in Nigeria.



Policy Recommendations and Conclusion

1. Economic Diversification: Nigeria should encourage economic diversification in order to reduce the nation's excessive reliance on oil exports and the detrimental effects of oil price volatility on the exchange rate. Investing in other sectors of the economy, such as manufacturing, services, and agriculture, might help create new sources of income and reduce reliance on changes in the price of oil.

2. Building Foreign Reserves: Nigeria should place a high priority on the creation and upkeep of sizeable foreign exchange reserves during periods of high oil prices. Sufficient reserves can act as a safety net against sudden declines in oil prices, preventing the currency rate from depreciating too much during recessions.

3. Fiscal Discipline: During times of high oil prices, the government can control spending by implementing prudent fiscal policies, which can assist stabilize the economy and lessen the impact of oil price shocks on the exchange rate. One way to do this is to put extra money into sovereign wealth funds for upcoming development and stability initiatives.

In conclusion, Nigeria should take a comprehensive strategy to deal with the issues brought on by the volatility of oil prices, which includes diversifying the economy, increasing its foreign reserves, and upholding fiscal restraint. Through the implementation of these policy proposals, Nigeria can strengthen its ability to withstand fluctuations in oil prices, protect the stability of its exchange rate, and promote long-term sustainable economic growth.

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AGRICULTURAL SECTOR DEVELOPMENT: THE NEED FOR FOOD SECURITY TO ACHIEVE SUSTAINABLE ECONOMIC DEVELOPMENT

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Abstract

The objective of this paper is to examine the need for food security so as to curb food crisis and achieve economic development in Nigeria. Food security refers to the availability of food and one's access to it. A household is considered food secure when its occupants do not live in hunger or fear of starvation. Food security exists when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life. Food security is the ability of domestic production to meet local consumption, particularly of staple food crops. Economic development is dependent on the achievement of food security. Without food security strategy, countries will bear a large portion cost to sustain food security by increasing domestic production and minimizing relying on food importation. A country with abundant food tends to live a happier way of life. Improves the living standard of people, reduces social ills and improves health condition of people especially the children and vulnerable ones in the society. A sustainable economic development gives hope for a better living for the future generation and creates an enabling environment for good governance. The paper lastly recommends among others that, government should bring the end of ethnic and religious conflicts which claimed many lives and the destruction of food crops with able men and women staying in refugee camps for two or three years.

Key Words: Food Security, Economic Development.

INTRODUCTION

Food is one of the major necessities of human beings required for survival, as rightly claimed by Magrabi (1991) food is an indispensable need, absolutely the most important need of all. Food security not only carries significant benefits for human health, but also serves as the basis to achieve sustained economic development. For this reason, it is essential that food security strategy needs to be seen as more than a single sector issue, it requires a combination of coordinated actions in various sectors. Such as agriculture, health and nutrition, infrastructure, and other sectors. Countries with very high levels of poverty and chronic malnutrition face limitations in human capital development, which is required to achieve sustainable economic development. High levels of poverty, inequality, and chronic malnutrition force governments to invest significant resources in the short-term through



social safety net programs and conditional cash transfers. High rates of malnutrition can lead to a loss in gross domestic product (Torero, 2014).

Despite the fact that Nigeria is bestowed with fertile soil and supposed to be able to produce sufficient food to cater for the uprising population. But the situation is not so, due to insufficient production of food, the prices of available ones are skyrocketed. Nigeria is a very large economy with population of about 150 million according to United Nation estimate. In 2011 the World Bank data estimated Nigerian population to be 162 million. The country represents about 20 percent of total population of sub-Saharan Africa. The growth of the population varies indirectly with the food production. The food situation of the country given less attention on agriculture has not helped matters in spite of the fertile and endowed the economy by nature. Therefore, food production received less attention visa-a-visa oil exploration. Torty (2004), believes that Agriculture is the highest employer of labor in the country, but it has to be revived so as to raise more resources use by the sector.

In Nigeria the activities of Boko Haram and other intracommunity conflicts, herders-farmers' conflicts, clashes between security agencies and socio cultural and religious groups and other criminal activities also contribute to food crisis and have devastating effects on the sustainable economic development

Concept of Food Security

Food security is defined as access by all people at all times to enough food for an active healthy life. To the Economic commission for Africa, food security involves not only food availability through storage, and trade but also more importantly food access through domestic or home production (Jacob, 2013). According to Food and Agriculture Organization (FAO, 2009). Food security refers to the availability of food and one's access to it. A household is considered food secure when it occupants do not live in hunger or fear of starvation. Abdul and Ismail (2019) believed that, food security exists when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life. Food security is the ability of domestic production to meet local consumption, particularly of staple food crops. Food security will save foreign exchange that can be used to purchase other agriculture commodities that cannot be produced locally.



Nwozor, John & Modupe, (2019) believed that Several factors contribute to food security in national settings. The key factors include favorable agro-ecological conditions, access to land, good agricultural policies that ensure sustained public and private investment in the sector, availability of farm inputs in terms of quality and quantity and peaceful atmosphere. If these factors are lacking in states, the likelihood of their meeting their food expectations may be a mirage and if there is a shortfall in the availability of food, such that a cross section of the population could face the likelihood of food crisis, Sustainable economic development could be compromised as it could spark social unrest.

Types of Food Security

Food security is divided into four categories; high food security, marginal food security, low food security and very low food security (Jacob, 2013). Food security exists when no problems or limitations related to food access or availability. The marginal food security concerns that food will run out before being able to afford more. While low food security Reduced quality, variety, or desirability of food intake. A household at this level is also classified as “food insecure.” The issue of very low food security disrupted eating patterns resulting in reduced food intake. A household at this level is also classified as “food insecure.”

Factors that Impede Food Security

Ajayi & Akinbobola (2020) identified some of the factors that impede food security. They asserted that, factors impede food security are both economic and socioeconomic factors. Food wastage is one of the factors that impede food security. This may be caused by lack of good infrastructure, climate change as the case may be in developing countries and change in consumer taste in developing countries as a result of increased income. Gender inequality is another factor that impedes food security. This is because women are confronted with discrimination and denied access to be educated and be gainfully employed. At the same time, women spent more of their income for their children. Climate change is another factor that hampers food security. It is accountable for damages in the ecosystem which has led to unpredictable weather and physico-biological systems. Low modern technology is a factor that also impedes food security especially in developing countries including Nigeria. This is because the percentage of people that engage in farming are the rural people, and there is lack of local innovation in technology that could help to improve food productivity through proper processing and storage. Achieving food security requires that wastage should be prevented. Lack of education impedes food security, as the individuals do not know the



nutrients that are required by the body which in turn prevents the individuals from being gainfully employed and in turn results in poverty. Absence of intersectoral coordination between forest and land management can have a negative effect on forest and land management and subsequently on nutrition and food security. Other factors that impede food security include urbanization which affects availability of food due to usage of land for other activities other than food production, low-income level, and exchange rate among others.

How to achieve food Security

To achieve food security according Maximo (2014), several factors must be put in place. One is land tenure system which is an important factor that determines the success of food security. This is because the larger the volume of land available for food production, the higher food supply which will also alleviate constraints to food security. Equally, the land available for cultivation is reducing gradually especially in the cities as a result of rural-urban migration, land markets among others has a negative effect on food production, further resulting to land scarcity. These land markets have frightened the small land holders and made groups prone of losing their land rights, thereby becoming food insecure. Secondly, education is another factor that determines the success of food security, as better education enlightens the individuals of a country to consume food that will provide their bodies with necessary nutrients to achieve sound health. Acquiring information about food to consume has impact on the food status of individuals. Thirdly, innovation is another factor which helps to achieve food security. Adoption of agricultural innovation by farmers through encouragement by the government is key to achieving food security in the face of increase in population growth. It is important for the government therefore to adopt policies that support acclimatization, adoption, and creation of technologies, innovations, and knowledge so as to achieve food security. Fourthly, availability of good infrastructure is important for the achievement of food security, especially in rural areas. Increase in food availability may not necessarily lead to food security if consumers do not have the physical access to purchase the food available. For instance, availability of good transport system will lead to economic and social development, which will bring about reduction in poverty, hunger, and increase in food security and production.

Lastly the issue of insecurity must be tackled. Nigeria is not at war in the real sense of the word but the carnage resulting from various forms of insecurity qualifies it to be regarded as conflict-ridden and at war. Apart from the Boko Haram sect, there are other sources of violent deaths, which include intracommunity conflicts, herders-farmers' conflicts, clashes between security agencies and socio



cultural and religious groups and other criminal activities, especially ransom kidnappings. Another major threat to national security with serious implications for food security is the menace of Fulani herdsmen. A further breakdown showed that fatalities resulting from conflicts between Fulani herders and farmers in 2016 alone was about 2,500 persons. The various conflicts have also created internal displacement, resulting in their contributions to food production lost as they are not in any position to continue with their occupation of farming (Ahmed, Yola & Daba 2021).

SUSTAINABLE ECONOMIC DEVELOPMENT

Sustainable socio-economic development is the ability of the present generation to devise a means of improving and using depletable resources such that future generations will not suffer more than the present ones. (Tietenberg 2010). He believes that, Sustainability in itself is fairness regarding the treatment of present and future generations and contends that for ethical reason exploitation of resources should not leave future generation worse than the current. Sustainability also requires manage the resources base such that the average quality of life can potentially be shared by all future generation. The sustainability will help to reduce poverty, hunger, starvation, lack, suffering, untimely death, infection and diseases in Nigeria.

FOOD SECURITY AND SUSTAINABLE DEVELOPMENT IN NIGERIA

A strong relationship exists between food security and sustainable developments and it is reciprocal. According to Abdul and Ismail (2019), food security can have a direct impact on economic development. Nutritional intake plays an important role in increasing labour productivity to enhance economic growth and development. Nutrition intake will result in better nutrition and health in human bodies and enhanced decision making capabilities, and will increase economic development for generations to come. They claimed that better childhood nutrition will increase schooling outcomes, ensure better education, and develop labour productivity. They also argued that nutrition based on the Minimum Dietary Energy Requirements (MDER) is very important in determining the level of labour productivity. According to this authors' analysis, if the elasticity of farm output with respect to the MDER of family workers is high, farm output will increase and lead to enhanced sustainable economic Development.

Furthermore, nutrition and poverty have a crucial relationship (Miller, Korenman and Sjaastad, 1994). They found that long-term poverty causes cognitive development problems among young children. This problem is caused by deficiency in nutritional requirements and low birth weight,



both of which can impact children's verbal memory, vocabulary, math and reading achievement which lead to behavioral problems. However, they believed that poor countries that can have sufficient nutrition for developing their bodies can prevent disease, increase productivity and enhance sustainable economic development.

Okotie (2018) stressed that, without stable and long-lasting food security, there will be a continued negative effect on human capital and this will raise government fiscal costs, with negative consequences on government public spending. This also will lead to stagnated economic development in the long term. Thus, food security is central to both short- and long-term economic development and it needs to be a central part in a larger cross-sectoral strategy at the national, regional and global levels. Food security not only carries significant benefits for human health, but also serves as the basis to achieve sustained economic development. For this reason, it is essential that we understand that a food security strategy needs to be seen as more than a single sector issue; it requires a combination of coordinated actions in various sectors. We are talking about actions in finance, agriculture, health and nutrition, infrastructure, and other sectors.

Malnourishment leads to poor health, which individuals fail to provide for their families. If left unaddressed, hunger sets in outcomes that perpetuate malnutrition, reduce ability of adults to work and to give birth to healthy children and erode children's ability to learn and lead productive healthy and happy lives. This truncation of human development undermines a country's potential for economic development for generations to come (Jonson, 2013).

A country with abundant food tends to live a happier way of life. Improves the living standard of people, reduces social ills and improves health condition of people especially the children and vulnerable ones in the society. A sustainable economic development gives hope for a better living for the future generation and creates enabling environment for good governance.

Conclusion

Food is one of the major necessities of human beings required for survival and absolutely it the most important need of all. food security involves not only food availability through storage, and trade but also more importantly food access through domestic or home production. Moreover, food security exists when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life. Several factors contribute to food security in national settings. The key factors include favorable agro-ecological conditions, access to land,



good agricultural policies that ensure sustained public and private investment in the sector, availability of farm inputs in terms of quality and quantity and peaceful atmosphere. If these factors are lacking in states, the likelihood of their meeting their food expectations may be a mirage. Sustainable socio-economic development on the hand is the ability of the present generation to devise a means of improving and using depletable resources such that future generations will not suffer more than the present ones. Sustainability will help to reduce poverty, hunger, starvation, lack, suffering, untimely death, infection and diseases in Nigeria. There exists a strong relationship between food security and sustainable developments. Nutrition intake will result in better nutrition and health in human bodies and enhanced decision making capabilities, and will increase economic development for generations to come.

Recommendation

Based on the afore presented arguments, the following recommendations were made:

- Government should bring the end of ethnic and religious conflicts which claimed many lives and the destruction of food crops with able men and women staying in refugee camps for two or three years
- Adopting all forms of neoliberal economic policies recommended by the World Bank and IMF for personal profits should be stopped and replaced with the ones that suit our purpose.
- Solving problem of food crises in Nigeria does not depend on government's hands only. Therefore, we need to feed ourselves by going back to land. So those in the cities should equally believe that the problems of food insecurity do not affect only rural dwellers, but rather all Nigerians as a whole. As such we need to put our hands together to rescue the situation.
- Availability of good infrastructure is important for the achievement of food security, especially in rural areas. So government should provide good infrastructural facilities, for example availability of good transport system will lead to economic and social development, which will bring about reduction in poverty, hunger, and increase in food security and production.

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RURAL-URBAN MIGRATION AND UNEMPLOYMENT IN NIGERIA

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ABSTRACT

The rate of rural-urban migration is increasing especially in developing countries where there is a clear disparity between rural and urban centers in terms of social service and infrastructures. This trend in itself is a driving force to urbanization, economic growth, and development but it also comes with accompanying challenges. These challenges include issues of food scarcity, water supply, sanitation, and most importantly employment and unemployment. This study will therefore focus on the problem of unemployment that occurs as a result of the expansion of cities in Nigerian urban areas with an emphasis on the specific relationship between population, government expenditure on education, industry, and construction and unemployment in Nigeria, whether it is a positive or negative relationship. It will also help the Nigerian government evaluate the level of unemployment in the economy by finding solutions to the problems. The study would give an insight into the trade-off between increase in urban dwellers and unemployment. The recommendation(s) of this work will assist individuals, firms, and the government. The ex-post facto research method was used, and Secondary Data was collected from the CBN Statistical Bulletin and National Bureau of Statistics and critically analyzed. The effects of rural-urban migration include economic effects, environmental effects, health, and social effects. Forms of rural-urban migration and the conceptual theoretical framework are based on urban bias theory. It is recommended that the government should design policies that will prevent this migration of the grassroot masses. This will reduce if not eliminate the state unemployment problem. The government also should invest more in human capital via an increase in investment in education as well as an increase in investment in construction and industry as a means of providing more jobs in the face of the rising unemployment rate in urban cities.

Keywords: Rural, Urban, Migration, Modernization, Development, Employment and Unemployment



Introduction

Rural-urban migration denotes the movement of people from rural areas concerned chiefly with agriculture to another large urban area whose activities are primarily centered on government, trade, manufacturing, or allied interests. The Nigerian state has had its fair share of rural-urban migration due to the dearth of needed infrastructural facilities in the rural areas and alleged prospects of a better life in the urban areas. Such movements contribute to and worsen the unemployment situation in urban centers. Cities such as Lagos, Port Harcourt, Kaduna, Enugu, Benin, and Warri among others remain chosen destinations for the young Nigerian labor force. The influx into the urban centers leads to population explosion and unintended consequences. Unmitigated rural-urban migration increases urban unemployment to a critical level, creating a whole set of challenges often seen as manifested in social problems. Besides shortages of basic amenities in the urban centers due to population explosion on account of rural-urban migration, urban unemployment leads to poverty and high inequality levels. Internal migration and net migration to urban areas, in particular, drive the urbanization of a country's population. Rapid overall population growth often overlaps with rapid urbanization, creating especially fast urban population growth. Tacoli & Statterthwaite (2015)

According to Tacoli (1998), urban dwellers are thought to engage primarily in industrial production and services. In censuses and other statistical exercises, the urban population is usually defined by residents in settlements above or below a certain size. Urban areas are seen as places with a relative abundance of blue-collar jobs and urban dwellers are thought to be more well-deserved, well-fed, and well-exposed to modern civilization than rural dwellers. The location of more service points supplying a variety of services to the urban areas attracts rural dwellers thereby contributing to rural-urban migration. The location of such service supply points for agricultural inputs and consumer goods in the rural area will play a crucial role in rural development and thereby reduce rural-urban migration which is the main cause of urban youth unemployment.

The contribution of migration to urban population growth is roughly equal to the share of the urbanization rate in the urban population growth rate. Thus, from 2000 to 2010 slightly less than half of the world's urban population growth can be ascribed to migration. Moreover, migration only accounts for about one-third of urban population growth in sub-Saharan Africa, the world region with by far the highest urban population growth rate (4% a year).



Unemployment, on the other hand, is generally seen as a macroeconomic problem as well as a socio-economic problem that arises as a result of insufficient and non-availability of jobs to correspond with the growing population. Those who are employed sometimes live with the fear of being unemployed due to job insecurity and retrenchment of workers. The term unemployment could be used with any of the factors of production which is idle and not being utilized properly for production. However, regarding labor, there is unemployment if it is not possible to find jobs for all those who are eligible and able to work (Anyawuocha 1993).

In the study of unemployment in Africa, Okonkwo (2005) identified three (3) causes of unemployment, the educational system, the choice of technology which can either be labor-intensive or capital-intensive, and inadequate attention to agriculture. The International Labor Force Organization (ILO) defines unemployment as the proportion of the labor force that was available for but did not work for at least one hour in the week preceding the survey period. National Bureau of Statistics (N.B.S). Nigeria defines unemployment as the proportion of the labor force that is available for work but did not work for at least thirty-nine (39) hours in the week preceding the survey period. Unemployment brings about economic waste and causes human suffering. The socioeconomic effects of unemployment include a fall in national output, an increase in rural-urban migration, waste of human resources, a high rate of dependency ratio, poverty, depression, frustration, all sorts of immoral acts and criminal behavior, prostitution, armed robbery, etc. The social effect of unemployment brings to light the need to proffer possible solutions to salvage our nation Nigeria.

LITERATURE REVIEW

Rural-urban migration is a response to factors that affect the desirability of urban life over rural life (such as improved income, education quality, or health services available in the city or negative income shocks in the rural areas). This migration requires two separate conditions, which are the generation of surplus products that sustain people in non-agricultural activities and the achievement of a level of social development that allows large communities to be capable of working successfully alone (Bodo, 2015; Lampard, 1965) Urbanization is defined by demographers as the increasing share of population living in urban areas (Poston and Bouvier, 2010). Urban areas are defined differently in different countries but are generally taken to be settled areas that are more populous and dense than rural settlements, and more suitable for locating administrative facilities and



functions. Significantly more than half the countries providing data on urban population use administrative criteria in their definition, slightly more than half use population-related criteria, and very few use neither (Buettner, 2014; UN DESA, 2012). The administrative and population-based criteria are interrelated since urban administrative status is generally conferred on larger settlements. Most of the population-based cut-offs fall between 1,000 and 5,000 inhabitants, with a few significant outliers. However, there is sufficient variation and this variation is systematic and can affect perceptions of regional over- or under-urbanization. (Uchida and Nelson, 2010).

In a study, “The Effect of Urbanization and Unemployment in Nigeria” Isibor, 2013 examined the relationship between urbanization and unemployment in the development of Nigeria, the implication of urbanization on the development of Nigeria's GDP as well as the implication of unemployment in Nigeria. The results obtained show that as the rate of rural-urban migration increases, the rate of unemployment also increases the two move in the same direction because of the unattractiveness of the rural area which through rural-urban migration pushes up the population of the urban area more than it can accommodate in terms of facilities and job opportunities. This situation of rural-urban migration creates large-scale unemployment among youths which encourages the development of illegal activities and in turn leads to a decline in productivity and development of the economy.

Katrina, 2019 in his work “Links between urbanization and employment in Rwanda” showed that migration has accounted for 37% of national structural change (GDP growth through labor reallocation across employment sectors) and urban population growth is not driven by traditional “push and pull” migration. Although rural-to-urban migration has occurred for decades, the rapid increase in Africa’s urban population in recent years is largely attributed to natural growth, i.e. fertility, not economic pull-inducing migration. The research found that rather than moving to the city because of ‘push’ factors compelling people to leave agriculture, urbanization can be driven by positive ‘pull’ factors that actively draw people to the city. These pull factors include higher wages and good urban jobs, effective urban planning, and high rates of urban investment.

Sanyaolu & Okosun carried out research on “Urbanization” which focused on the causes of urbanization and possible solutions. Findings reveal that the level of urbanization growth is at a geometrical level and the characteristics of urbanization include, structured facilities, residential, employment centers, communication networks, infrastructural facilities, size, density of population,



family, marriage, occupation, class extremes, social heterogeneity, social distance, system of interaction and mobility. The causes of urbanization include; western liberal, Marxist capitalist, and ecological or self-generated. The study opined that the major factors that favored urbanization after the Industrial Revolution, include rural-urban migration, and push and pull factors. The study recommended that the government should design a policy that will prevent this migration of the grassroots masses. This will reduce if not eliminate the state unemployment problem.

Wajiha, 2015 in “How Can Urbanization be the Cause of Unemployment across the World?” showed that the world’s population is increasing and quickly becoming urbanized as people migrate to the cities. This migration the research paper opined is due to the rapid change in industry and development in urban areas which has attracted so many people from rural areas in search of jobs and better living conditions over time. People were happy with urbanization because the general thought was prevailing “More urbanization more jobs” but over time trend was changing and the general rule was not applying anymore. The research paper therefore checked the relationship between urbanization and unemployment keeping other things constant across the globe through cross-country data from 2010. Non-probability sampling technique was used and the relationship was found to be positive. Also, the correlation between the two variables is checked in developed, underdeveloped, and developing countries separately. It was found to be negative for developed countries and positive for the other two categories.

Todaro, 1997 in his work “Urbanization, Unemployment, and Migration in Africa: Theory and Policy” which focused on the conceptual, empirical, and policy-relevant linkages among urbanization, rural-urban migration, and economic development with special emphasis on African urbanization revealed that a more appropriate balance between rural and urban economic and non-economic opportunities appears to be indispensable to ameliorating urban and rural unemployment problems and to slow the pace of rural-urban migration. The main thrust of this activity lies in the integrated development of the rural sector, the spread of small-scale industries throughout the countryside, and the reorientation of economic activity and social investments toward rural areas. In addition, the study showed that the composition or “product mix” of output has obvious effects on the magnitude of employment opportunities because some products (often basic consumer goods) require more labor per unit of output and unit of capital than others. Expansion of these mostly small-scale and labor-intensive industries in both urban and rural areas can be accomplished in two



ways: directly, through government investment and incentives, particularly for activities in the urban informal sector; and indirectly, through income redistribution (either directly or from future growth) to the rural poor, whose structure of consumer demand is both less import-intensive and more labor-intensive than that of the better-off. The study also showed that one of the principal factors inhibiting the success of any long-run program for creating employment in urban industry and rural agriculture is the almost complete technological dependence of African nations on imported (typically labor-saving) machinery and equipment from developed countries. Both domestic and international efforts must be made to reduce this dependence by developing technological research and adaptation capacities in the countries themselves ideally as a cooperative and coordinated regional endeavor. Such efforts might first be linked to the development of small-scale, labor-intensive methods of meeting rural infrastructure needs, including roads, irrigation and drainage systems, and essential health and educational services. In this area, scientific and technological assistance from developed countries and their non-governmental organizations could prove extremely helpful.

Quintana & Vicente Royuela, 2012 conducted a study on “Unemployment and long-run economic growth: The role of income inequality and urbanization” In this work, unemployment and income inequality, and interactions between both, as possible determinants of long-run growth were considered using cross-sectional international data. Analysis was extended to differentiating countries based on their levels of urbanization and results suggest that: while initially high unemployment rates do not seem to be statistically significant to explain long-run growth, they do have a negative and significant effect when interacting with increases in inequality. When unemployment and income inequality were differentiated based on levels of urbanization, increasing inequality harms growth in countries with high levels of urbanization, as well as in countries with low levels of urbanization in which there is high and persistent unemployment. Furthermore, high and persistent unemployment is likely associated with increasing inequalities. There are sensible reasons to expect that this process of high and persistent unemployment, in which inequality increases, hurts subsequent long-run economic growth. While initial high unemployment rates do not seem to be significant for subsequent long-run growth, they do have a significantly negative effect when interacting with increases in income inequality. Unemployment may seriously harm growth not only because it is a waste of resources, but also because it has serious distributional effects: it generates redistributive pressures and subsequent distortions; it depreciates existing human capital and deters its accumulation; it drives people to poverty; it results in liquidity



constraints that limit labor mobility; and finally it erodes individual self-esteem and promotes social dislocation, unrest and conflict.

Unemployment arises whenever people are without jobs and they have actively sought work within the past four weeks as defined by an international labor organization. According to Olatan (2010) causes of unemployment can therefore be analyzed from both the supply and the demand side of the labor market in Nigeria. On the supply side, there is a rapidly growing urban labor force arising from rural-urban migration. The factors are further strengthened in Nigeria by the lack of infrastructure facilities, which makes the rural line unattractive. The factor includes a wider rural-urban differential in factor of urban dwellers are the presumed higher probabilities of securing lucrative employment in the cities.

Unemployment is one of the most disturbing problems confronting most nations of the world today. Unemployment has remained distinguishably high in Nigeria indeed the 1996 International Labor Organization mission to Nigeria observed that” unemployment has remained one of the most intractable problems facing Nigeria since independence in 1960” (Ilo 1996). The misreport said that in the 1960s and 1970s, the average unemployment rate was 2.0% and 4.5% respectively. In the 1980s which international labor organizations rigidly described as the “lost decade”, unemployment continued to rise as economic difficulties plagued the country.

Between 1973 and 1980 oil becomes a major export for Nigeria. The agricultural sector was neglected, and due to poor government attitude towards the sector, youths abandoned it in search of white-collar jobs and fortune in the oil sector. This brought about massive rural-urban migration, of the few that were able to get jobs, some were underemployed. Voluntary unemployment is rare in Nigeria because of the harsh climate which has compelled both husband and wife of an average family to contribute to meet the financial need of their home.

Gibson (1990) noted that during the Nigerian early years of independence in the 1960s and 1970s, young people did not pose a serious social problem which was why unemployed youths were therefore not a major target for government and funding agencies. Since then, however, concerns have been rising over the socio-economic situation of young people and the prospects of creating additional livelihood opportunities for them. Urban youth unemployment is an important dimension of the widespread unemployment which is a major problem facing Nigeria. With a stagnant economy and low economic growth rates, demand for labor has been declining resulting in high



levels of urban youth Unemployment. It is based on the increasing problem posed by unemployment on individuals and the nation at large that the government has been embarking on various policies to control and reduce unemployment but yet has not yielded any positive result, rather it seems to be escalating. Drastic measures must be taken by the government to curtail this problem of unemployment.

Curtain (2000) also noted that in the context of declining growth and economic restructuring, the employment situation in Nigeria has become critical. In particular, the problem of what is generally referred to as youth unemployment has increasingly come to be recognized as one of the serious socio-economic problems currently confronting many developing countries, especially those in Africa.

Objectives of the Study

The main objective of this study is to examine the effect of rural-urban migration on unemployment in Nigeria. This main objective would be broken into the following specific objectives.

(1) To assess the factors driving rural-urban migration in Nigeria, including economic, social, and demographic factors.

(2) To evaluate the impact of rural-urban migration on the unemployment rate in both rural and urban areas of Nigeria.

(3) To explore the role of government policies and interventions in addressing unemployment among rural-urban migrants in Nigeria.

(4) To provide policy recommendations aimed at reducing unemployment and improving the socio-economic well-being of rural-urban migrants in Nigeria.

RESEARCH DESIGN

The study employed the ex-post-facto research design. This research design is suitable because the data for this study is secondary.

VARIABLES IN THE MODEL

Unemployment Rate: Unemployment refers to people above a specified age (usually) not being in paid employment or self-employment but currently available for work during the reference period.



Unemployment is measured by the unemployment rate, which is the number of people who are unemployed as a percentage of the labor force (the total number of people employed added to those unemployed).

Population Density: Population refers to the total number of people or inhabitants in a country or region. Population density refers to the concentration of individuals in a specific geographical area. For this study, the total number of inhabitants of Nigeria was used.

Government Expenditure on Education: Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, morals, beliefs, habits, and personal development. Educational methods include teaching, training, storytelling, discussion, and directed research. Government expenditure on education therefore refers to the percentage of the total federal budget spent on education.

Investment in Industry and Construction: The branch of manufacture and trade based on the building, maintaining, and repairing structures. This includes drilling and solid mineral exploration.

MODEL FORMULATION AND SPECIFICATION

Population density, government expenditure on education, and investment in industry and construction are indicators of urbanization hence they are the explanatory variables, while the dependent variable is the unemployment rate. Therefore, the mathematical model is formulated below.

$$\text{UNEMPL} = f(\text{POP}, \text{EDU}, \text{IND}) \dots \dots \dots 1$$

Expressing the above functional relationship in an econometric model, it becomes:

$$\text{UNEMPL} = \beta_0 + \beta_1 \text{POP} + \beta_2 \text{EDU} + \beta_3 \text{IND} + U \dots \dots \dots 2$$

Where:

UNEMPL= Unemployment rate

POP= Population density

EDU= Government expenditure on education

IND= Industry and Construction



U= Stochastic Error Term

B0= Constant term/ Intercept

B1, B2& B3 = Coefficients of the independent variables

This study assessed rural-urban migration and unemployment in Nigeria within the period 1981-2020. To achieve this, the Auto Regressive Distributive Lag (ARDL) technique was employed with the result satisfying economic, statistical, and econometric criteria. The T-test was also used to determine the reliability/statistical significance of each variable's coefficient the absolute t-value of each coefficient was compared with 1.96 and if greater than 1.96, such variable possessing the coefficient is accepted as statistically significant and fit to be used for inferences and forecasting.

The F-test was carried out to check for the joint significance of the independent variables while the R-squared and Adjusted R-squared were used to measure the goodness of fit and to judge the explanatory power of the explanatory variables on the dependent variables. The Durbin-Watson test was carried out to check for the presence of first-order serial correlation using the rule of thumb

The nature of data used for the study is secondary data obtained from secondary sources such as the World Development Index, and National Bureau of Statistics (NBS) publications 2020 editions.

Augmented Dickey-Fuller Unit Root Test was used to capture the stationarity of the variables to avoid spurious regression results. This stationarity test showed a mixed response to the stationarity trend of the time series under investigation. POPUL and GEXPEDUC were stationary at level, that is, in the order of I(0) integration while UNEMPL and INDUS became stationary after first differencing, that is in order of I(1) which satisfies the ARDL conditions.

The ARDL Bound co-integration test was employed to examine the extent to which the time series variables under investigation are co-integrated. From the results, the F-statistics is greater than the lower and upper bound values at the 5% level. Therefore we concluded that there exists a co-integration (long-run relationship) among the variables under investigation.

In the long run, a close examination of the estimated model showed that the results are satisfactory with a high value of the R2 given as 0.991809 implying that a 99% systematic variation or change in the unemployment rate (UNEMP) was explained by government expenditure on education (GEXPEDUC), investments in industry and construction (INDUS) and population density



(POPUL). Only 1% is left unexplained and this is assumed to be captured by the error term or explained by the other variables not captured in the model. The adjusted R2 is given as 0.977065. This means that after adjusting for the degree of freedom, the adjusted R2 explains approximately 97.7% systematic variation in the dependent variable. The F-statistics of 67.26791 and probability value of 0.000000 show that the variables are jointly significant in explaining the dependent variable. The Durbin-Watson values of 2.562011 show the absence of serial correlation or autocorrelation in the model since the D.W. stats. is greater than 2.

Having established a long-run relationship among the variables used in the model using the ARDL Bound Test which is a prerequisite condition for running an error correction mechanism, we estimated an error correction model which represents the long-run and short-run relationship between manufacturing output and its explanatory variables. The ECM also captures the speed of adjustment from the short-run equilibrium to the long-run steady state. The estimated error correction coefficient of -0.73043 (0.0000) was significant and has the correct sign. Approximately 73% of disequilibria from the previous year's shock converge back to the long-run equilibrium in the current year.

Summary, Conclusion, and Recommendation

The conventional econometric approach of series examination on the problem of unit root or whether the series are stationary or not was carried out and the result shows a mixed order of integration among the variables, which calls for the application of the autoregressive and distributed lag model in analyzing the data.

From our findings, we discovered that there is a long-run relationship between the variables based on the bound testing result. In the short run, the explanatory variables were significant with the correct sign showing disequilibrium from previous year's shock coverage back to the long run equilibrium in the current year. The estimated model met both condition of cointegration as the coefficient of adjustment has the right sign and statistically significant at 5% level. In summary the selected variables have both short- and long-term effects on unemployment in Nigeria when taken together.



The estimated model has a good fit and is generally significant as revealed by the computed coefficient of determination and f-statistics. Furthermore, the diagnostic analysis also affirmed all the assumption of the classical least square of normality, stability, and no serial correlation.

From the result, we discovered that an increase in government expenditure on education will reduce unemployment rate in both urban and rural areas in Nigeria. The implication of this result is that if the government spends more on education from primary up to tertiary level, people will be conscious of there due to the increase in human capital that they have acquired through education and when there are no more white-collar jobs as we can see today, they will channel the knowledge they acquire from education into entrepreneurial activities by engaging into small and medium enterprise which will reduce unemployment rate in Nigeria.

Also, investment in industry and construction also tends to reduce unemployment as we can see from the result but this was not significant during the period of review. And the implication is that if the public and the private sector engage in capital projects by constructing good roads and creating more firms and industries, especially in rural areas it will reduce unemployment as well as rural migration.

Conclusion

From the above findings, we conclude that unemployment in Nigeria is a problem that complements theoretical postulation of both the Modernization and Urban-bias theories of urbanization. Rural-Urban Migration, though it creates unemployment as a result of congestion of people, also solves its problem of unemployment as urbanization continues and its indicators improve.

There is no gain saying that unemployment has some economic benefits but a situation where it mitigates macroeconomic objective of an economy calls for some degree of caution in managing the economy for the benefit of all. In this study, we can conclude that an increase in the expenditure on education as well as private and public increase of investment on industry and construction will help to a great extent in curtailing the trend in unemployment in Nigeria.



Recommendations

We therefore recommend the following:

That government should increase its expenditure on education as this will automatically increase the human capital in the economy and reduce unemployment.

Private and public investments in industry and construction should be encouraged as more industries means more jobs.

There should be synergy between the public and private sector in fighting the issue of unemployment.

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TENANT'S PERCEPTION OF PUBLIC HOUSING RENT IN ABEOKUTA METROPOLIS

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Abstract

One of the most effective ways to address the issue of housing shortages and provide low-income families with a better living environment is through public rental housing. It has been used in many countries to provide affordable housing to the citizens. This study examines the tenant's perception of public housing rent in Abeokuta metropolis using a descriptive study design. Using a theoretical framework based on housing price theory, the study uses a convenient sampling of 150 tenants of public rental housing in Abeokuta. To facilitate quantitative descriptive analysis, the study uses close ended questionnaires. The results are summarized in tables using response counts and percentages. It was revealed that more than half (53.3%) of the respondents are females, more married people patronize public rental housing (29.3%), family sizes of public rentals occupier is mainly 2-4 (22.0%). On monthly income levels, the largest percentage of the respondents earn between ₦51,000 - ₦80,000 (31.1%). Majority (84.7%) of the respondents surveyed were living in 3bedroom apartments. Majority of the tenants (64.7%) agreed that the rent is just right while only 35.3% claimed the rent is not affordable. Based on the facts that majority of the public housing tenants in Abeokuta metropolis consider the rent as affordable, the study recommends expansion of public rental housing in Ogun state to give more residence opportunities to affordable housing. The provision should also be extended to non-public servants in the states.

Keywords: Public rental housing; Tenant's rent perception; Affordable housing; Abeokuta Metropolis

1. Introduction

Housing is a complex topic and term both in research and linguistics. It is multi-faceted in nature and linguistically ambiguous. Housing can mean many things to different people and its definition is contingent on the geographical setting, the prevailing political ideology and the context and purpose the definition is to serve. The word "housing" is linguistically ambiguous because it denotes



both a noun and a verb. Thus, any definition of housing is either a noun or a verb but in chunk of literature, it seems housing as a noun is widely used. It appears that there is no one definition of housing in literature. So in defining housing, various schools of thoughts have differed in their definition of housing. Housing emanates from the fundamental material needs of man and political ideologies shape the way the political systems respond to this need of man. Several studies have however been undertaken especially in developing economies in defining housing as it takes different position through global events.

Providing adequate housing is a fundamental component of human settlement and plays a vital role in the development of a society. It contributes to the quality of life and the protection of the environment. It also helps generate wealth and employment. The desire for affordable and adequate housing has strong links to the safety and well-being of communities and individuals. Despite the various efforts being made to provide these types of housing to most people, a large number of people in developing countries still need access to them at affordable prices. In developing countries, most urban residents have to live in appalling housing conditions that violate their human dignity and are considered to be an affront to their well-being. This has led to the issue of inadequate housing being a persistent concern of governments and the public. One of the most effective ways to address the issue of housing shortages and provide low-income families with a better living environment is through public rental housing (Kalu, Agbarakwe, & Anowor, 2014). This type of housing is commonly used in developing countries to provide affordable and adequate housing. Towards exploring rental housing in tackling the housing inadequacy, a lot of research has been conducted on the various aspects of public rental housing. According to Izuwah, (2019), housing has been regarded as a core component of a country's development indicators and a vital factor in the overall standard of living. The housing inadequacy is a major challenge faced by many countries around the world. Although Nigeria is known to have a housing deficit, other countries also have issues similar to this (Moore, 2019; Babalola, et. al., 2020; Akande, 2021; Akande, Yusuf & Sham, 2023; Akande, et. al., 2024; Cangelli, et. al., 2024; Chen, Hou and Li, 2024; Dearfield, Ulfers, Horn and Bernat, 2024). This study examines the tenant's perception of public housing rent in Abeokuta metropolis using a descriptive study design.



2. Literature Review and Theoretical Framework

2.1 Literature Review

Public rental housing has different alternative terminology in different countries and institutions. Most common terminologies include public housing, social housing, social rental housing, State-owned rental dwellings, subsidised housing, non-profit housing, social interest housing and Municipal housing. In Australia, social housing is subsidised rental housing provided below the market rents, generally no more than 30% of a tenant's gross income, by not-for-profit, non-government or government organisations to assist people who are unable to access suitable accommodation in the private rental market. In Bulgaria, social housing is a comprehensive term for affordable homes and public housing in the rental market, which are subsidised by the state, municipalities or housing associations. These dwellings are prioritised for people in need (OECD, 2020; OECD 2021; OECD, 2022).

Abdulahi (2021) investigated the role of social welfare in enhancing access to housing among the middle and low-income earners to ascertain the extent to which the frameworks for housing delivery in Nigeria advance the welfare of the poor using the Social Democratic theory. He concluded that access to housing can only be democratized for all classes of income groups when the principle of social welfare constitute the foundation of the framework for housing delivery and also discovered among others; that social welfare orientation plays crucial roles in the creation of universal access to housing in several advanced countries around the world, and the lack of social welfare principle in the frameworks for housing delivery in Nigeria is to a large extent responsible for the ever-widening housing gap in the country.

In 2016, Tan conducted a study on housing PAPs in Selangor and Kuala Lumpur. The study analyzed the response of the willingness to pay to changes in the home structure attributes, control variables, and neighboring state attributes. The results of the study revealed that the developers of housing projects need to create an environment that is conducive to a sustainable environment in order to attract and retain home buyers. This study also suggested that the government should develop a vision and provide guidelines that are designed to support a livable environment. The results of the study revealed that there is no single solution to the housing policy formulation process. It also found that there are no accepted global standards that address the needs of the local population HABITAT (2006). According to the UN-HABITAT (2006), the proper housing policy



should address the multiple constraints that affect the supply and demand of housing. It should also encourage the growth of productive activities and increase the effective demand. In addition to addressing these, it should ensure that the interaction of demand and supply does not disadvantage any groups. The study also found that the formulation of a comprehensive housing policy is very important to ensure that the various housing options are made available to the people who need them.

Public housing is regarded as a welfare program that aims to take care of the needs of its residents. However, the activities of these organisations are becoming blurred. For instance, commercial and non-profit activities are now overlapping in the operations of public housing enterprises. The findings of these studies revealed that inter-landlord rivalry is associated with the advancement of a social enterprise. It is believed that this relationship may be stronger when the program has been implemented on a more systemic level. In the study conducted by Apparicio and Seguin (2006) regarding the accessibility of services and facilities in public housing units in Montreal, Canada. They utilized the Geographic Information System (GIS) to analyze the locations of these facilities and residents. The study was carried out using secondary data collected through the population census and household surveys.

Studies on public housing finance systems have been a major section of the literature. This field was initially established during the 1980s when governments worldwide were looking for ways to reduce the amount of money they spend on social provisioning (Bovaird and Loffler, 2003). Due to the decline in investment in the public housing sector, research on the various sources of finance (Mitlin, 2007; 2008) for this type of project has started to focus on alternative sources of funding. Some of these include donor agencies and private sector organisations. In the UK, the government provides financial support to the public housing system for low-income and poor families. This is done through the financial support provided by social landlords (Keats et al, 2008). In Nigeria, previous studies by (Nubi, 2000; 2001; Ajanlekoko, 2001) revealed that the lack of funding is the main issue that prevents the country from achieving its goals in providing quality public housing. These studies suggested that the government should re-engineer the system to improve its efficiency.

Public housing is also different from one another due to the varying types of structures it has. For instance, a competitive market structure involves a competition between the market and social



landlords. This concept is applied to the housing markets of England and the Netherlands (Lennartz, 2014). The regulatory approaches and the similarities between the different types of private rental products are also apparent in both England and the Netherlands. In England, social landlords are required to follow a strict set of regulations regarding the types of rents they can charge and the rights of their tenants. Unlike public housing, private landlords are not required to follow the same regulations regarding the types of rents they can charge and the rights of their tenants. They are able to provide their tenants with more flexible options (Lennartz, 2014).

In the Netherlands, the dwelling is the subject of property rights and rent setting. A deregulated segment is a type of housing that is subject to the same regulations as a heavily regulated one. This means that all landlords in this type of market are following the same rules. The ability and willingness to pay are also different from those in the social sector. A deregulated segment is a type of housing that is regulated by the same rules and regulations that apply to private landlords. This allows them to operate without the need for regulations. In the social sector, a waiting list system is also implemented.

According to a study conducted by Donner (2000), there are five types of structures or tenures that have decreasing ownership rights. These include single-family dwellings, co-ownership, financing with a mortgage loan, entitling to all the attributes of ownership, and multi-family dwellings. Multi-family dwellings are common property types, which are typically owned by a housing cooperative. They are also commonly financed with a capital share and have social functions. Shared ownership is where the tenants are given a portion of the ownership. On the other hand, non-ownership is where the occupants have no right to dispose of the property and pay rent.

The different types of tenures used in the housing market are categorized into three main categories: homeownership, cooperative, and rental. Homeownership provides the occupants with exclusive rights regarding the disposal of their property. In addition to this, co-ownership and full-ownership rights are also included in the ownership rights of different types of housing. For-sale housing is often referred to as the opposite of for-rent housing. Unlike for-rent housing, cooperative housing provides its members with exclusive rights over a particular flat in a multi-family building. This type of organisation helps its members in finding public housing subsidies. A cooperative housing organisation usually has a group agreement that sets the agenda for its various activities, such as the



selection of new members and the maintenance of its properties. Like condominium co-ownership, cooperative housing also provides its members with ownership rights when the property is sold on an open market.

Non-ownership tenures, such as rental housing, are considered special since they separate the occupants from the owner. It is very challenging regulating the rental market due to the duties and rights of both the tenant and the landlord. Currently, there are no laws that can properly settle the relationship between the two parties.

2.2 Theoretical Framework

The study makes use of the housing price theory that emerged in the 1980s and begins with the assumption that housing satisfaction increases proportionally to cost growth and their causal-consequential relationship (higher costs-greater satisfaction with housing, lower costs-less satisfaction with housing). This theory has both positive and negative sides. The positive side of the theory relies on the fact that the achieved housing satisfaction is to be sustained and in that case the objective justifies the means, that is, if the higher allocated costs mean continual housing satisfaction then the theory is justified. In case the satisfaction with the other components of the quality of life decreases due to the domain of housing, the question is how much the quality of life has increased or decreased overall. For example, a better and more beautiful home, may mean a longer journey to work, which could be a driver of additional stress, a decrease in leisure time and at the same time an increase in costs (due to prolonged transportation). On the other hand, the process may be reverse. Perhaps a better location means shorter travel time, saving leisure time and reducing costs (Stokols and Shumaker, 1982).

Social relations are particularly an important indicator of the quality of life, and they decline with more frequent moving. According to the classical economic theory, there should be equilibrium between the positive effects of moving to a better dwelling unit and the associated costs. The real estate market should take on the fundamental role and increase the real estate prices when the demand is high and vice versa. Therefore, Nakazato, Schimmack and Oishi (2010) concluded that the novelty in cost theory is the assumption that moving does not lead to changes in the quality of life, because housing satisfaction is associated with costs in other life do-mains. In this theory, of particular importance is the direct influence of age, education,



income and other factors on which the possibility of moving to better housing conditions depends. Although the logical assumption would be that more educated individuals have more income and can afford better housing, this does not always have to be the case. There are evidence that individuals of better educational and economic status are not necessarily more satisfied with housing, that is, educational and economic status are not correlated with housing satisfaction. The same can be seen from the aspect of the age structure. The logical sequence would be that individuals who are older can afford better living conditions, that is, those who have acquired certain financial means during their lifetime as compared to the young people who are just beginning their career. But the opposite may also be the case, where a younger individual, for example, inherits a large amount of money and lives in a better dwelling unit than someone with a longer working life (Nakazato, Schimmack and Oishi, 2010; Siljeg, Maric and Cavric, 2018).

3. Methodology

This study employs descriptive survey research design. This enabled the researcher to collect perception information needed and to understand rental housing in Abeokuta metropolis. This involves sampling the opinion of the eligible respondents that can answer the question of interest to the researcher. The study uses a convenient sampling of 150 tenants of public rental housing managed by institutions like Ogun state ministry of housing, Ogun State Housing Corporation (OGSHC) and Ogun State Property Investment Corporation (OPIC). To facilitate quantitative descriptive analysis, the study uses close ended questionnaires. The results are summarized in tables using response counts and percentages.

4. Results

4.1 Socio-Demographic Characteristics of Tenants

The various socio-demographic factors that were used in the study were analyzed to provide the researchers with information about the households in the area. These include the age, gender, marital position, income, education, and residency status. Table 1 provides an overview of the findings related to these variables. Since the households are the sample of this study and represent the majority of the population, it is important to understand their characteristics. For various reasons, women are more likely to provide information to others due to their openness. They also seem to be more accessible than men who would always be busy.



The table shows the distribution of respondents' gender. Although there was a higher expectation for a more male-dominated sample due to the roles that men play in their households, the results indicate that more females participated than males. The study also found out the educational level of the respondents. It is believed that the households' educational status can play a vital role in raising awareness about the housing issue. The results of the study revealed that over half of the respondents had at least a postgraduate degree or HND. The most educated occupants of the households were the ones who administered the questionnaire. This indicates that the residents in these areas were more knowledgeable about the issues related to public housing.

Table 1 indicates that out of the respondents, 30.7% claimed to be between 18 and 30 years old, while 23.3% claimed to be between 31 and 45 years old. Around 23.3% claimed to be between 46 and 59 years old, while 22.7% said they were above 60 years old. The results of the survey revealed that over half of the respondents are women, while 46.7% are men. This means that more females than males are currently using public housing. This makes the data more reliable and revealing as it relates to the subject matter. Table 4.1 indicates that more married individuals are currently using public housing. Single tenants are at 25.3%, followed by widows at 20.7%, and divorced individuals at 24.7%. This shows that a significant portion of these tenants are married. Table 4.1 shows that the family sizes range from 1, 2 to 4, 5 to 7, 8 to 10, 10 and above with 14.0%, 22.0%, 31.3%, 19.3% and 13.3% as the emphasized percentages.

Over 50% of the respondents stated that they are permanent residents of Abeokuta. This shows that the area is becoming a preferred destination for people from other states of Nigeria due to the various economic activities going on in the country. The monthly income levels of the respondents are highest in the range of ₦51,000 to ₦80,000, followed by ₦81,000 to ₦120,000, and ₦120,000 to ₦150,000 with 21.3%, 19.3% and 11.3% in a relative manner. This means that the majority of people in Abeokuta can afford to pay for their rent. This figure shows the level of income that people can afford to provide for their needs in the area. According to Table 4.1, the respondents' distribution was based on the type of accommodation they were living in. 84.7% of them were residing in three-bedroom apartments.

**Table 1: Distribution of Respondents by Socio-Demographic Characteristics**

Category	Variable	No. of respondents	Percent of respondents
Gender	Male	70	46.7
	Female	80	53.3
	Total	150	100.0
Age	18-30 years	46	30.7
	31-45 years	35	23.3
	46-59 years	35	23.3
	60 years and above	44	22.7
	Total	150	100.0
Marital Status	Single	38	25.3
	Married	44	29.3
	Divorced	37	24.7
	Widowed	31	20.7
	Total	150	100.0
Educational Qualification	OND	46	30.7
	NCE	13	8.7
	HND	12	8.0
	B.Sc	35	23.3
	Masters	29	19.3
	Ph.D	15	10.0
	Total	150	100.0
Household Size (Persons)	1	21	14.0
	2 -4	33	22.0
	5 - 7	47	31.3
	8 -10	29	19.3
	Above 10	20	13.3



	Total	150	100.0
Monthly Income	Below ₦20,000	13	8.7
	₦20,000 - ₦50,000	47	31.1
	₦51,000 - ₦80,000	12	8.0
	₦81,000 - ₦120,000	32	21.3
	₦120,000 - ₦150,000	29	19.3
	Above ₦150,000	17	11.3
	Total	150	100.0
Residency	Yes	80	53.3
	No	70	46.7
	Total	150	100.0
Type of Accommodation	1 bedroom	00.0	00.0
	2 bedroom	23	15.3
	3 bedroom	127	84.7
	4 bedroom	00.0	00.0
	More than 4 bedroom	00.0	0.00
	Total	150	100.0

Source: Authors' Computation

4.2 Tenants' Perception of Rents

The distribution of tenant perception is shown in Table 2. The number of years lived in the apartment indicated that most of the households that live in apartments have been there for at least five years. Most households have resided in the same apartment for over five years within the estate. This is evidenced by the prevalence of the 49.3 and 35.3 percentage of people who have resided in the apartment for a period of one to five years and over 5 years respectively. However, it's also revealed that around 15.3% of them have lived in the same residence for less than one year.

Table 4.2: Distribution of Tenant Perception

Category	Variable	No. of respondents	Percent of respondents
Number of Years Lived in the Apartment	Under 1 Year	23	15.3
	1-5 Years	74	49.3
	Over 5 Years	<u>53</u>	<u>35.3</u>
		150	100
Perception of Housing Rent by Tenants	Just right	97	64.7
	Not affordable	<u>53</u>	<u>35.3</u>
		150	100
Renting Condition by respondents.	Stringent	20	13.1
	Less stringent	71	47.3
	Not stringent	<u>59</u>	<u>39.6</u>
		150	100
Renting Security	Secure	23	15.3
	Not secure	<u>127</u>	<u>84.7</u>
		150	100
Objection to Rent Increment	Yes	74	49.2
	No	53	35.3
	Tried but failed	<u>23</u>	<u>15.5</u>
		150	100

Source: Authors' Computation

The question on renting security consider if the respondents feel secured in the apartment occupied by them in the housing estate. The result indicates that, in most cases, the tenants do not feel secured or they feel that they could be sent out of the house on short notice. Only 15.3 percent of the respondents said they feel secured in their apartments. The scenario is quite depressing where about 84.7 percent are feeling unsecured in their apartments. Therefore, it creates a lot of concern for the residents living in housing estates. Majority of the tenants (64.7%) agreed that the rent is just right while only 35.3% claimed the rent is not affordable.



House Rent is one of the important preconditions of housing. The statistics on objection to house rent check if the respondents have made an official objection to rent increment or not in the public housing in Abeokuta metropolis. The results of the study revealed that about 49.2 percentage of the people who live in public housing communities in Abeokuta have not objected to the increase in their house rent at any point. 35.3 percentage of people have objected the increment but they did not succeed. In spite of this, about 15.5% of the respondents noted that they have made multiple objections to the rent increase. It seems that the residents of public housing communities are more comfortable with the current rent in the city.

5. Conclusion and Recommendations

This study was carried out among households in public rental housing estates in Abeokuta metropolis with a sample of 150 respondents. Results were presented and discussed using descriptive analysis of percentages and frequency distribution for demographic variables of the respondents and their responses to each item on the research instrument. It was revealed that more than half (53.3%) of the respondents are females, more married people patronize public rental housing (29.3%), family sizes of public rentals occupier is mainly 2-4 (22.0%). On monthly income levels, the largest percentage of the respondents earn between ₦51,000 - ₦80,000 (31.1%). Majority (84.7%) of the respondents surveyed were living in 3bedroom apartments. Majority of the tenants (64.7%) agreed that the rent is just right while only 35.3% claimed the rent is not affordable.

Based on the facts that majority of the public housing tenants in Abeokuta metropolis consider the rent as affordable, the study recommends expansion of public rental housing in Ogun state to give more residence opportunities to affordable housing. The provision should also be extended to non-public servants in the states.

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EXCHANGE RATE FLUCTUATIONS AND INFLATION RATES IN WEST AFRICA

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Abstract

In West African countries, the economic instability caused by inflationary pressure has prompted some study concerns about the primary reasons driving up inflation rates. Previous research has looked at the relationship between the exchange rate and inflation without taking into account the differences in outcomes between Anglophone and Francophone nations. In an attempt to fill a gap in previous research, this study examined the relationship between exchange rate and inflation rate in 15 West African countries in the short and long run over a 31-year period from 1990 to 2020. For result dependability, both linear Autoregressive Distributed lag (ARDL) and non-linear ARDL estimation techniques were used. World Bank Development Indicators provided panel data for all variables. ARCH modeling was used to produce volatility. The ARDL model results showed that the prior inflation rate contributed roughly 7% to the region's current price instability, whereas exchange rate fluctuations influenced inflation rate by 0.005% in the short run but had no effect in the long run.. As a result, the study advised that the floating exchange rate regime be maintained, and that monetary authorities in this region pursue contractionary monetary policy. Monetary authorities in the region should also maintain single-digit inflation rates and adopt a single currency to stabilize cross-border trade and cut inflation rates that are accompanied by differences in exchange rates across countries.

Keywords: Exchange Rate, Inflation Rate, Monetary Policy, ARDL, Volatility and Growth Rate

I. Introduction

Since the First World War in 1914, attention has been given to the factors and management of exchange rates in various economies (Naghdi & Kaghazian, 2015; Senadza & Diaba, 2018). The concept of exchange rates can be traced back to the study of money and its forms. Unlike the barter system, money serves as a unit of account and is created for easy exchange of goods and services. Initially, silver and gold were considered as forms of money to conduct business transactions. After the extinction of the barter system, paper money was recognized as valuable in the trading process. The industrial revolution and the independence of European nations in the 18th and 19th centuries, respectively, led to the need for a more formalized system of payment and international settlement. This led to the availability of convertible currencies and the use of exchange rates to evaluate prices of goods and services (Owolabi & Adegbite, 2017). Exchange rates provide a means of exchanging one currency for another according to the agreed-upon regimes and policies of the countries involved (Osho & Efuntade, 2019).



Exchange rate fluctuations are known to be sharp movements in the exchange rate between two currencies, which can affect both developing and developed countries. The fluctuations could experience an upward swing (appreciation) or a downward swing (depreciation) relative to other countries, and this could trigger central banks and monetary authorities to maintain exchange rates from oscillating too wide from the equilibrium to ensure a stable business environment for firms (Nelson, 2018). However, not all countries have the economic strength to manage their currencies differently to safeguard their balance of payment and reserves through trade flows, and the concept of floating remains a significant policy in these countries (Ehsani, Khanalipour & Abbasi, 2009).

The dissimilarity in exchange rate systems and their effects on inflation rates in different countries shows how monetary authorities determine exchange rates in an economy (Ehsani, Khanalipour & Abbasi, 2009). Strong economies such as China, Saudi Arabia, and Japan use floating exchange rate policies to manage their exchange rates and stabilize their value against other developed countries, while weak countries and low-income economies such as Panama, Hong Kong, and some Sub-Saharan African countries face economic difficulties enjoying the benefits of floating exchange rate policies (IMF, 2020). This sometimes exerts economic hardship on these countries, as price levels in their respective countries are inflated due to unstable exchange rates and the inability to maintain stable macroeconomic policies and stabilize the currency value. African countries, in particular, have faced high percentages of inflation rates for more than five decades, with the least being 15% experienced in the last two decades (Greene, 1989; IMF, 2020).

Statement of the Problem

In the West African region, the current account balance is being exacerbated by imports exceeding exports. This is particularly concerning as consumer goods are the primary imports, which domestic firms are unable to produce. This dependence on imports is harmful to the economy. External factors, such as increasing commodity prices, are expected due to positive economic prospects in developed nations. Meanwhile, West African countries are grappling with the depreciation of their domestic currency, a result of a low volume of tradable goods, which violates the conditions set out in the Marshall-Lerner exchange rate theory. Despite their efforts, the governments have been unable to resolve these issues due to inadequate policy development, leading to a surge in inflation rates that is more damaging than beneficial (Khundrakpam and Jain, 2012; Mishra, Montiel, and Sengupta, 2016).

Although some studies in developing nations like India and Brazil have revealed that the monetary transmission mechanism is weak in controlling inflationary pressure, with monetary authorities struggling to influence borrowing costs and currency value, the exchange rate remains a crucial variable considered by the authorities (Das, 2015; Sengupta, 2014; Catão, Pagan, and Laxton, 2008; Ghosh and Rajan, 2009). However, the complementarity of government spending on the inflation rate was not taken into account in these studies. Ogundipe and Samuel (2013) contend that the influx of money, as well as external factors like the exchange rate, plays a significant role in determining the price level in an economy. Chuba (2015) argues that the increase in inflation rate is



not necessarily caused by the country's currency exchange rate; instead, it is due to the increase in commodity prices, which results in a surge in money supply. The main objective therefore encapsulate the examination of the factors that trigger inflation in West African countries, with a particular emphasis on the critical role of exchange rate fluctuations.

2. Literature Review

Conceptual Review

Exchange Rate

Oftentimes, trade encourages exchange of two or more currencies of different countries. Exchange rate serves as a basic economic instrument used to correct misalignment in an economy. So, it is necessary to achieve exchange rate stability for a country to continue growth and development. The cost of a country's currency in relation to another country's currency is known as the exchange rate (Rohmanda, Suhadak & Topowijono, 2014, Eneji, Nanwul, Eneji, Anga and Dickson, 2018). Okorontah (2016) sees exchange rate as an important macroeconomic tool to achieve economic objectives such as stability of price level, rate of employment formation, investment decisions, economic growth and development, as well as resource allocation. Exchange rate posited direct influence on the influx of capital from rich countries into poor countries (Mordi, 2006). Adaramola (2016) corroborates that exchange rate affects export and thus becomes bedrock for the economic performance globally.

Currency Devaluation

Devaluation of currency is usually viewed as an appropriate response to macroeconomic shocks that affect a country's competitiveness, nominal prices and wages (Korinek & Serven, 2016). The exchange rate policies of West African countries are controversial and sensitive due to their required structural transformation such as; imports reduction or risen exports which may be termed as nominal exchange rate depreciation; whereas such adjustments may result in fluctuation in foreign exchange and affect exports negatively within the short period (Thi Thuy & Thi Thuy, 2019). The arrangements of foreign exchange can be divided into three broad categories which include (i) agreement in relation to fix rate (ii) arrangements on flexible rate, (iii) consensus on benchmarking the flexibility. Each arrangement takes different methods to which countries participate and influence their foreign exchange markets. The central bank may intervene in the markets while fixing exchange rate against other countries' currencies. However, it may completely abstain from the market intervention of foreign exchange when adopting the choice of float rate of exchange. A country may choose to manage their exchange rates based on their desire for flexibility (Thi Thuy & Thi Thuy, 2019). Hence, the different arrangement or regimes of foreign exchange rate are discussed in detail below.



Inflation

Inflation refers to the persistent rise in the general price level of goods and services in an economy over a period of time. There are two types of inflation, namely demand-pull inflation and cost-push inflation. Demand-pull inflation occurs when there is an increase in the demand for goods and services, leading to an increase in the general price level. On the other hand, cost-push inflation occurs when there is an increase in the production cost of goods and services, leading to an increase in their prices (Mankiw, 2021).

2.2 Theoretical Review

Theory of Quantity Theory of Money

One of the prominent theories of inflation is the Quantity Theory of Money. According to this theory, inflation is caused by an increase in the supply of money in the economy. The relationship between the supply of money and the price level is expressed in the equation $MV = PT$, where M represents the money supply, V represents the velocity of money, P represents the price level, and T stands for the total output of goods and services in the economy. In recent research, many studies have explored the validity of the Quantity Theory of Money in different countries and time periods.

Implications of the Quantity Theory of Money:

The Quantity Theory of Money has significant implications for inflation. According to this theory, an increase in the supply of money leads to a corresponding increase in the price level in the long run. Therefore, if a central bank increases the money supply without a corresponding increase in the output of goods and services, it will result in inflation. On the other hand, if the output of goods and services increases in proportion to the increase in money supply, there will be no change in the price level. This implies that controlling the money supply is a crucial policy tool for managing inflation.

Theory of Purchasing Power Parity (PPP)

One of the widely studied theories of exchange rate is the Purchasing Power Parity (PPP) theory. According to this theory, the exchange rate between two currencies should be equal to the ratio of the price levels of a basket of goods in the two countries. In other words, the exchange rate should adjust to equalize the purchasing power of the two currencies. Recent studies have explored the validity of the PPP theory in different countries and time periods.

Implications of the Purchasing Power Parity Theory:

Similarly, the implications of the Purchasing Power Parity theory for exchange rates are significant. According to PPP, the exchange rate should adjust to equalize the purchasing power of two currencies. This implies that if the price level in one country increases relative to another, the exchange rate should adjust to reflect this change. Therefore, if there is inflation in one country, it should lead to a depreciation of its currency relative to the currency of the country with a lower inflation rate. The PPP theory has important implications for international trade, as it suggests that



exchange rates should reflect the relative prices of goods and services between countries. In summary, the Quantity Theory of Money and Purchasing Power Parity theory have significant implications for the management of inflation and exchange rates, respectively. Policymakers can use these theories to guide their decisions and formulate effective monetary and exchange rate policies.

2.3 Empirical Review

Inflation and exchange rate have been widely studied in the literature, with many authors examining the relationship between the two variables. One recent study by Kim, Kim, and Lee (2021) investigates the impact of inflation on the exchange rate in Korea using a vector autoregression (VAR) model. Their findings suggest that inflation has a significant negative effect on the exchange rate in the short run, but this effect disappears in the long run. The authors recommend policymakers to consider the short-run impact of inflation on the exchange rate when making monetary policy decisions. Another study by Akbar and Shahzad (2021) examines the relationship between inflation and exchange rate in Pakistan using an autoregressive distributed lag (ARDL) model. Their findings suggest that there is a significant positive relationship between inflation and exchange rate in the short and long run. The authors recommend policymakers to focus on controlling inflation as a means of stabilizing the exchange rate. A study by Tiba (2021) investigates the impact of inflation on exchange rate in Egypt using a multivariate regression model.

The findings indicate that inflation has a significant positive effect on the exchange rate in the short run, but this effect disappears in the long run. The author recommends policymakers to focus on controlling inflation as a means of stabilizing the exchange rate and suggests the use of fiscal policy measures to control inflation. Furthermore, Tiwari and Sahoo (2021) examines the relationship between inflation and exchange rate in India using a vector error correction model. Their findings suggest that there is a significant positive relationship between inflation and exchange rate in the short and long run. The authors recommend policymakers to focus on controlling inflation as a means of stabilizing the exchange rate and suggest the use of monetary policy measures to control inflation. In conclusion, the literature suggests that inflation and exchange rate are closely related, with inflation having a significant impact on the exchange rate in both the short and long run.

3. Methodology

The analysis is based on the Autoregressive Distributed Lag (ARDL) cointegration approach developed by Pesaran and Shin (1995) and Pesaran et al (1996b). They demonstrated the applicability of the ARDL bound procedure with its better features and ability to estimate I(0) and I(1) series. Annual time series data from 1990 to 2020 were collected from World Development Indicators (WDI) for estimation.

Model Specification

This study models after the existing assumptions of Classical and Monetarist views on inflation rate /price level as a monetary phenomenon. Also, it adopts the model of Dornbush (1987), Agenor and



Montiel (1996); Brooks, (2002) and Monfared and Akin (2017) as the basis for this assumption. The monetarist and classical model of the causes of inflation is given in the following manner as a simplified version:

$$P = M + X' \quad 1$$

Where P is the price level, M is the money supply and X' is a vector of other variables to be included in the model as proposed by monetary and fiscal economists. Further, this study assumes that prices adjust to excess money supply and other factors in the general market. It is on the basis of this assumption that it is possible to invert the mechanism for transmitting money of which exchange rate policy is an aspect and money supply as price equation:

$$P = f(M, REER) \quad 2$$

Where $REER$ is real exchange rate, therefore, it is important to note that a change in exchange rate due to the fact that monetary authorities' policies will affect the price level. In order to model the argument of the study that there are some important fiscal and monetary indicators that jointly influences the fluctuation of exchange rate to cause inflation in the West African countries. Therefore, equation 2 is further expanded to accommodate variables like unemployment rate, trade openness; balance of payments and economic growth to represent the influence of macroeconomic variables while Interest rate and money supply represent monetary variables and Public Debt, Government Spending and Taxation to represent fiscal policy indicators. Thus the baseline equation is:

$$INF = f(EXR, EXRv) \quad (3)$$

Where EXR is the real exchange rate and $EXRv$ is exchange rate volatility which is derived through ARCH model. The inclusion of MOP which is monetary policy instruments indicates the implications of policies of monetary authorities to manage the economy which indirectly influence the rate of inflation through exchange rate.

$$INF = f(EXR, EXRv, MOP) \quad (4)$$

$$INF = f(EXR, EXRv, MSP, INTR,) \quad (5)$$

The argument for fiscal policy in the study, which stated that government excessive spending, could result in inflation and pursuit of higher and sustainable revenue is presented and further explained with the model. Also, government borrowing further bloated debt burden and increased government's servicing of past debt and worsen the deficit. It is assumed that government spending, tax revenue and public debt contributed to the sparing rate of inflation in West African countries.

$$INF = f(EXR, EXRv, FP) \quad (6)$$

$$INF = f(EXR, EXRv, PD, TAR, GSP) \quad (7)$$

In addition, the assumptions that macroeconomics instability contributed to inflation model is presented with the following functional models:

$$INF = f(EXR, EXRv, MAEV) \quad (8)$$

$$INF = f(EXR, EXRv, UNEM, TROP, BOP, GDPGR, PPI, VAD) \quad (9)$$

Hence, the variables are included in the general form.

$$INF = f(EXR, MSP, UEMP, TROP, BOP, GDPGR, INTR, PPI, VAD, PD, GSP, TAR) \quad (10)$$

The econometric and empirical form of the model is specified as follows;

$$INF = \alpha + \beta_1 EXR + \beta_2 MSP + \beta_3 UEMP + \beta_4 TROP + \beta_5 BOP + \beta_6 GDPGR + \beta_7 INTR + \beta_8 PPI + \beta_9 VAD + \beta_{10} PD + \beta_{11} GSP + \beta_{12} TAR + \beta_{13} EXRv + \mu \quad (11)$$

Due to the nature of this study the equation 11 will be transformed into panel model in equation 12

$$Inf_{it} = \alpha + \beta_1 EXR_{it} + \beta_2 MSP_{it} + \beta_3 UEMP_{it} + \beta_4 TROP_{it} + \beta_5 BOP_{it} + \beta_6 GDPGR_{it} + \beta_7 INTR_{it} + \beta_8 PPI_{it} + \beta_9 VAD_{it} + \beta_{10} PD_{it} + \beta_{11} PD_{it} + \beta_{12} TAR_{it} + \beta_{13} EXRv_{it} + v_{it} + u_t \quad (12)$$

Where, INF is inflation rate, *EXR* represents Exchange Rate, MSP stands for Money Supply, UEMP stands for Unemployment rate, TROP represents Trade Openness, BOP stands for Balance of Payments, GDPGR = Gross Domestic Product Growth Rate, INTR = Interest Rate, PPI is Producer Price Index (raw material cost), VAD stands for Value Added of the sector, PD stands for Public Debt, GSP = Government Spending, TAR = Tax Revenue, EXRv = Exchange Rate Volatility, α = is the constant, $\beta_1 - \beta_{13}$ = coefficients to be estimated, i = Country, t = Time, v_{it} = the individual residual which is the random characteristic of unit observation or individual specific effect, u_t = error term across time.

Estimation Technique

Due to the nature of data, the study employs various descriptive analyses such as mean table and graphical representations of variables. The baseline regression is estimated using multiple linear regression models to identify the relationship between exchange rate fluctuations and inflation rate. Because of the seasonal variation of the exchange rate and the stationarity analysis, the study adopted Panel ARDL method of analysis, and bound test to determine the long run relationship with Panel-ECM for the shortrun adjustment. The reason for adopting Panel ARDL is that all the variables are not likely to behave in the same manner which might negate the condition of using Ordinary Least Square method. Also, in order to incorporate I(0) and I(1), Psarian, Shin, and Smith (2001) develop Bound testing to analyze the relationship. One of the gaps where this study has bridged is the determination of Pass-through effect of exchange rate fluctuations on inflation rate. To solve this problem, the study employed nonlinear ARDL. The granger causality was considered to solve the problem of causal relationship among the adopted variables. Furthermore, the volatility of the exchange rate was determined through ARCH model.

4.1.1. Descriptive Statistics

Table 4.1.1 presents descriptive statistics for the analyzed variables. The table describes the trend of the variables using mean, median, standard deviation, skewness, kurtosis, and J-B probability.

During the analysis period, the balance of payment variable had the highest mean and median values, possibly due to high transaction volumes between West African countries. The growth rate variable followed, indicating a period of positive growth in the region. Government spending had the highest median value, indicating a significant spending pattern during the period. The highest standard deviation was observed for the growth rate variable, indicating significant fluctuations that may have been due to Nigeria's nominal economic growth rate. All skewness coefficients were negative, except for exchange rate, economic growth, public debt, and unemployment rate. Economic growth was highly leptokurtic during the period. All kurtosis coefficients had positive values. The probability values for all variables were less than the standardized 5% level, indicating normal distribution.

Table 4.1.1 Descriptive Statistics

<i>Variable</i>	<i>BOP</i>	<i>EXR</i>	<i>GDPGR</i>	<i>GSP</i>	<i>INF</i>	<i>INR</i>	<i>MSP</i>	<i>PD</i>	<i>PPI</i>	<i>TROP</i>	<i>UEMP</i>	<i>VAD</i>
<i>Mean</i>	11.06	3.63	4.15	3.31	0.97	-1.77	2.51	2.9	2.43	2.73	1.19	1.61
<i>Median</i>	11.97	3.54	1.46	4.42	1.42	1.73	3.11	3.42	2.54	3.03	1.51	2.11
<i>Std dev.</i>	9.32	3.56	26.26	2.28	4.73	21.91	1.69	2.19	1.73	1.88	1.78	1.66
<i>Skew</i>	-0.04	0.22	1.08	-0.92	-0.65	-1.07	-0.07	0.22	-0.12	-0.54	0.05	-0.15
<i>Kurt</i>	1.43	1.91	3.84	1.9	3	3.78	1.62	2.02	1.63	1.79	1.89	1.84
<i>J-Prob.</i>	0.7	0.82	0.46	0.51	0.78	0.47	0.76	0.85	0.76	0.68	0.83	0.81

Source: Author's computation, 2024.

Correlation Matrix

Table 4.1.2 shows the correlations matrix of the variables considered. The importance of this post estimation technique is to measure the level of association among all the variables; however, the correlation does not mean causation in absolute term. It helps to discover the existence of co-linearity and multi-co-linearity in the model and identify any problematic variable. A quick look at the result depicts that there is absence of multi-co-linearity among the variables because the value attached to each variable is less than 70 percent.

Table 4.1.2. Correlation Matrix

<i>Variables</i>	<i>INF</i>	<i>GSP</i>	<i>GDPGR</i>	<i>EXR</i>	<i>BOP</i>	<i>INR</i>	<i>MSP</i>	<i>PD</i>	<i>PPI</i>	<i>TROP</i>	<i>UEMP</i>	<i>VAD</i>
<i>INF</i>	1.00											
<i>GSP</i>	-0.31	1.00										
<i>GDPGR</i>	-0.1	-0.07	1.00									
<i>EXR</i>	0.1	0.36	-0.01	1.00								
<i>BOP</i>	-0.01	-0.2	0.1	-0.04	1.00							

<i>INR</i>	-0.31	0.18	-0.03	0.02	-0.11	1.00						
<i>MSP</i>	-0.26	0.41	-0.15	-0.11	-0.11	0.15	1.00					
<i>PD</i>	0.22	0.13	-0.3	-0.07	-0.16	0.03	0.23	1.00				
<i>PPI</i>	-0.32	0.24	0.14	0.04	0.06	0.09	0.14	-0.32	1.00			
<i>TROP</i>	-0.28	0.51	0	0.05	-0.08	0.11	0.68	0.23	0.24	1.00		
<i>UEMP</i>	-0.1	0.3	-0.25	-0.17	-0.06	0.28	0.49	0.43	-0.02	0.38	1.00	
<i>VAD</i>	0.23	-0.44	-0.05	-0.4	0.05	-0.35	-0.24	0.04	-0.23	-0.37	-0.19	1.00

Source: Author's computation, 2024

Panel Unit Root Test

Table 4.1.3 is the panel unit root test of variables. This is necessary, so as to avoid spurious results arising from estimations. Tests of the panel unit root are based on the type and structure of data employed in which case whether the data would be balanced or unbalanced. In the current situation, the data set is unbalanced due to inevitable missing observations. Due to this issue, the study employed both the ADF and Phillips Perron test methods which are sufficient for the test of stationarity. If we had balanced data set, then, employing these two test methods would have yielded misleading results. Tests of the panel unit results for variables showed that balance of payment, exchange rate, GDP growth rate, inflation rate, interest rate, crude oil prices and trade openness are stationary at their level, $I(0)$, using the ADF and Phillips Perron test procedures. However, money supply, external debt stock, crude oil price, unemployment and value added tax are stationary at their first difference level, $I(1)$. Gross national expenditure remains stationary in its level form using the panel ADF test method while it is stationary in its first difference level using the Phillip Perron test method. The fact that the variables are stationary at both levels and first difference levels calls for the use of the Autoregressive Distributed Lag Estimation technique.

Table 4.1.3: Panel Unit root test

<i>Variable</i>	<i>Test Eqn.</i>	<i>Test Method</i>	<i>Prob.</i>	<i>Decision</i>	<i>OI</i>	<i>N(crossec)</i>	<i>N(obs)</i>
<i>BOP</i>	Ind. Effects	ADF –Fisher	0.00***	Stationary	$I(0)$	16	298
		PP-Fisher	0.00***	Stationary	$I(0)$	17	326
<i>EXR</i>	Ind. Effects	ADF –Fisher	0.00***	Stationary	$I(0)$	17	459
		PP-Fisher	0.00***	Stationary	$I(0)$	17	477
<i>GDPGR</i>	Ind. Effects	ADF -Fisher	0.01***	Stationary	$I(0)$	17	451

		PP-Fisher	0.02***	Stationary		451	468
<i>GSP</i>	Ind. Effects	ADF -Fisher	0.00***	Stationary	I(1)	15	395
		PP-Fisher	0.00***	Stationary	I(0)	16	431
<i>INF</i>	Ind. Effects	ADF -Fisher	0.00***	Stationary	I(0)	17	411
		PP-Fisher	0.00***	Stationary	I(0)	17	428
<i>INR</i>	Ind. Effects	ADF -Fisher	0.00***	Stationary	I(0)	16	16
		PP-Fisher	0.00***	Stationary	I(0)	16	256
<i>MSP</i>	Ind. Effects	ADF -Fisher	0.00***	Stationary	I(1)	17	406
		PP-Fisher	0.00***	Stationary	I(1)	17	426
<i>PD</i>	Ind. Effects	ADF -Fisher	0.00***	Stationary	I(1)	17	17
		PP-Fisher	0.00***	Stationary	I(1)	435	462
<i>PP</i>	Ind. Effects	ADF -Fisher, PP-Fisher	0.00***	Stationary	I(1)	17	17
			0.00***		I(1)	445	462
<i>TROP</i>	Ind. Effects	ADF -Fisher, PP-Fisher	0.00***	Stationary	I(0)	16	16
			0.00***		I(0)	432	448
<i>UEMP</i>	Ind. Effects	ADF -Fisher, PP-Fisher	0.00***	Stationary	I(1)	17	17
			0.00***		I(1)	429	446
<i>VAD</i>	Ind. Effects	ADF -Fisher, PP-Fisher	0.00***	Stationary	I(1)	17	17
			0.00***		I(1)	392	410

Source: Author's computation, 2024.

Note: Levels of significance are: * $p < 0.10$, ** $p < 0.05$ and *** $p < 0.01$ respectively.

Panel Co-integration

The condition to test for Panel data analysis was developed by Pedroni, (1999) to test the long run relationship. The test has seven estimators to be considered for the acceptance of co-integration

based on 5percent level of significance. Therefore, in the table 4.1.4 since the majority of the estimation p-value is less than 5percent significance level, it was concluded that the model has longrun relationship.

Table 4.1.4 Co-integration Analysis (Pedroni Test) Sample:

Statistics	<i>Statistic</i>	<i>Probability</i>	<i>Weighted Statistic</i>	<i>Prob.</i>
<i>statistic on Panel V</i>	-5.852	1.0000	-5.618211	1.0000
<i>Statistic on Panel rho</i>	2.783508	0.9973	2.543029	0.9945
<i>Statistic on Panel PP</i>	-5.2657***	0.0000	-8.099137***	0.0000
<i>Panel ADF-Statistic</i>	-3.4978***	0.0002	-1.176775	0.1196
			<i>Individual ARE coefficient</i>	
	<u>Value</u>	<u>Probability</u>		
<i>Grho-Statistic group</i>	4.376892	1.0000		
<i>PP-Statistic group</i>	-11.069***	0.0000		
<i>ADF-Statistic group</i>	-4.6733***	0.0000		

Source: Author's computation, 2024.

Note: Levels of significance are: *p<0.10, **p<0.05 and ***p<0.01 respectively.

IV. Empirical Findings

Relationship between Exchange Rate Fluctuation and Inflation Rate in West Africa

Table 4.2.1, describes the short run coefficients of explanatory variables in the inflation equation. In the short run, the lags of inflation up to the fourth lag relate positively with current inflation rate but the relationship is significant for the first and the third lags. By implication rising consumer prices appear to follow similar trend within the short run in the region. This means that there is persistent inflation in the model. However, the third lag inflation impacted much more compared to other inflation lags. Precisely, 1% increase in the third lag brought about a significant increase of about 0.33% in the current inflation rate. Thus, inflation has been a fundamental issue, and it is one of the growth-drags as experienced by the region. As expected, we also found negative effects of the growth rate of GDP per capita and interest rate on inflation rate of the West African region countries.

Interest rate impacts for the first and second lags are in opposite direction. The first lag of interest rate showed a positive impact implying that a rising interest rate was likely to reduce investment and resulted in short supply, hence rising average price levels. Crude oil prices in its first lag impacted positively on inflation rate. Traditionally, rising oil prices triggers increase in commodity prices including cost of capital. In the longrun coefficients, it was found out that exchange rate volatility, balance of payment, growth rate and interest rate negatively impacted inflation rate. It was recorded that the degree of changes is 0.05, 0.06, 0.39 and 0.004 in inflation rate. This implies that a shift from the equilibrium level will cause a reduction in inflation through interest rates intensifying and growing in the pace of economic growth. However, producer price index that was proxy with crude oil prices was found to be positive. This connotes that a slight change in the price of crude oil will increase the cost of production of both foreign producer and local producer which imminently increase the price of goods and services. It is indicated that the inflation will be increased by 0.04 units. The adjusted coefficient of determination shows that about 43% in the inflation rate variation was taken care of by the explanatory variables; exchange rate volatility, balance of payment, Rates of inflation in their various forms, including the inflation rate itself, interest rates, crude oil prices, and GDP growth. As a result, the outcomes depend on how many explanatory variables were used in the model. The likelihood F statistic demonstrates the model's suitability, and the Durbin Watson value demonstrates the model's low degree of auto-correlation.

Post estimation Tests

Inverse root

Figure 4.1 shows the graph of AR inverse root of the model. The graph below shows all the polynomial roots as captured within the unit circle. This connotes that the model is stable and reliable.

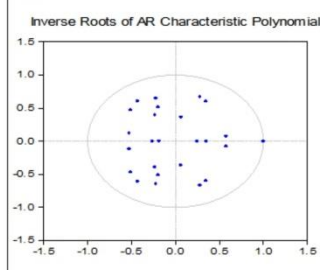


Figure 4.1 Inverse Roots

Stability tests

In order to check for the stability of the model, the study adopted the proposed CUSUM test by Borensztein et al. (1998). Figure 4.2 indicates that the estimated line falls within the 5percent level of significance. This means that the model is reliable and stable for the period under study.

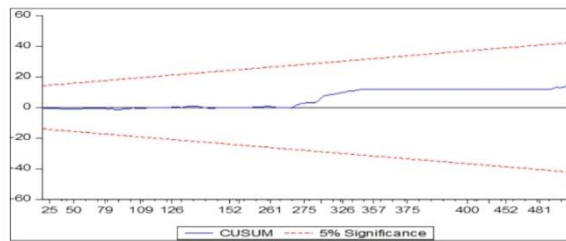


Fig.4.2 Stability CUSUM Test .

V. Conclusion and recommendation

This study examines the relationship between exchange rate volatility and inflation rates in West African countries from 1990 to 2020. The study used the Irvin Fisher's money supply theoretical framework and employed Autoregressive Distributed Lag (ARDL) and Non-linear ARDL methods to determine short-term and long-term effects. The study found that inflation is influenced by previous years' inflation rates, exchange rate volatility, and producer price index. GDP growth rate was found to be negatively related to inflation in the short-term and did not contribute to inflationary pressure in the long-term. In the Francophone and Anglophone countries, the study found that money supply and economic growth rate did not contribute to inflation, while producer price index, trade openness, and exchange rate did. In the long-term, high fiscal deficit and exchange rate volatility significantly influenced inflation. Money supply, interest rate, and GDP growth rate did not contribute to inflation rate in the long-term but can be useful in controlling inflation. Depreciation of the exchange rate did not lead to inflation in the long-run, while an appreciating or negative exchange rate reduces inflation in the near-term but raises domestic prices in the long-term.

The recommendations, based on the findings from this study are as follows: Policy makers, government, and monetary authorities should prioritize the restoration of price stability to ameliorate the adverse effects of floating exchange rate regimes on production activities. Devaluation policies in different West African countries should be reviewed to ensure that price stability is restored. The study strongly supports the theoretical opinion that exchange rate volatility leads to price instability, and the maintenance of floating exchange rate regimes should be supported with high productivity. The government should ease up the process and provide direct supply chains for farm produce to be exported without damaging the consumption level of the domestic economy. The growth of money has a direct influence on inflation and price level, and it is recommended that monetary authorities should employ the tool of increasing interest rates to reduce the lending of the formal financial sector and the amount of money in circulation. While the above recommendation could cause policy contraction, policy makers are expected to maintain single-digit inflation rates while increasing interest rates within a minimal rate above inflation rate to maintain price stability and enhance productivity.

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***BANKING REFORMS, FINANCIAL STABILITY AND ECONOMIC
GROWTH IN NIGERIA***

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Abstract

This work examined banking reforms, financial stability and economic growth in Nigeria. The objectives of the study are to assess the effect of recent banking reforms in on economic growth and also determine the contribution of financial stability on economic growth in Nigeria. WDI data was collected from 1980 to 2023 using ARDL method of analysis after the pre estimation result. The result of the findings revealed that bank capital is though weak but positively related to growth rate of gross domestic product while domestic credit to private sector is negatively related to the growth rate of gross domestic product by 0.016 and -0.185 respectively. the study fails to reject the hypothesis that banking reforms has no effect on economic growth in Nigeria while it accepts that of financial stability. The study recommends that government should formulate policies that will encourage banks to lend more to the productive sector (real sector) while regulatory framework be strictly enforced by the Central bank of Nigeria (CBN). Secondly risks mitigating laws that could promote business establishment in all the sectors of the economy be enacted by the National Assembly.

Keywords: Banking reform, Financial stability, Economic growth, Bank capital, ARDL method

1. Introduction

Nigeria in the recent years can be a judged to have recorded significant improvement in its banking system with digital transformation in the Nigerian banking sector that led to the introduction of mobile banking and Apps, online banking, and digital payments to mention but few. This is through series of reforms directed at fostering financial stability and sustainable economic growth. Those reforms have been instrumental to reshaping the landscape of the Nigerian banking industry,



addressing systemic vulnerabilities, and enhancing the sector's resilience to external shocks. Ajayi and Ojo (2018) opined that banking reforms implemented by the Central Bank of Nigeria (CBN) were aimed at addressing various challenges facing the Nigerian banking sector, including weak corporate governance, insider abuses, non-performing loans, and regulatory arbitrage.

One of the pivotal reforms introduced in Nigeria's banking sector is the recapitalization requirement imposed by the CBN. In response to the global financial crisis of 2008 and to strengthen the country banking system, the CBN mandated banks to increase their minimum capital base. This measure aimed to bolster the financial soundness of banks, enhance their capacity to absorb risks and improve their ability to support economic activities through increased lending (Ogbeide & Okoro, 2019).

Moreover, the implementation of risk-based supervision frameworks has been another crucial aspect of banking reforms in Nigeria. By adopting risk-based supervision, the regulatory authorities can better assess and mitigate risk within the banking sector, thereby promoting stability and safeguarding depositors' funds (Adegbaju, 2017). Furthermore, the introduction of innovative policy such as the cashless policy and the Bank Verification Number (BVN) system has played a significant role in enhancing transparency, reducing financial fraud, and promoting financial inclusion in Nigeria (Olokoyo, 2018).

Those reforms have not only strengthened the resilience of Nigeria's banking sector but have also contributed to the broader economic development agenda. By fostering a stable and efficient financial system, these reforms have facilitated greater access to credit for businesses, thereby stimulating investment, job creation, and overall economic growth (Nwachukwu & Asiegbu, 2020).

However, the Nigeria banking sector before now is characterised with numerous challenges which includes and not limited to inefficiencies, poor capital structure, weak corporate governance, insider abuses, accumulated non-performing loans, regulatory arbitrage, low levels of financial inclusion, susceptibility to economic shocks to mention but few. These problems impede financial stability and hinder economic growth. Based on these problems, the Nigerian banking industry witnessed various forms of reforms from 1956 to present time. The essence of those reforms was to fortify the banking system in order to meet the realities and changes in line with the international best practices and protect depositors' funds. According to Ogunleye and Akinbode (2017) bank nationalisation will enable government to have better control over the operations and activities of banks thereby preventing financial crises and ensure safety of depositors' funds. From another perspective, Aluko



and Akomolafe (2019) argued that centralization of bank control allows for better coordination and implementation of government monetary policy. However, corporate governance issue and non-performing loan were part of challenges that still persist till date (Adegaju & Joshua, 2017). Therefore, it is imperative to investigate the impact of banking reforms in Nigeria as a catalyst for enhancing financial stability and foster economic growth.

As a result of the forgoing, the main objective of this study is to examine banking reforms, financial stability and economic growth in Nigeria while specific objectives are to assess the effect banking reforms in Nigeria on economic growth and determine the contribution of financial stability on economic growth and development in Nigeria. The study hypothesized in the null form that banking reforms in Nigeria has no significant effect on economic growth in Nigeria and also that banking reforms has no significant effect on the economic growth and development in Nigeria. However, banking reforms in Nigeria are imperative to foster financial stability and drives economic growth.

According to Ewubare, and Merenini, (2019) implementing reforms strengthens regulatory frameworks, reduces systemic risks and enhances investor confidence. These measures are crucial in mitigating financial crisis and sustaining long – term economic growth. A review of literature as at the time of conducting this research revealed that few study had been performed to examine the possible influence of banking reforms on economic growth in Nigeria. The experience in both crisis regimes revealed that macro-economic performance is vulnerable in the face of financial instability and there seems to be an untested connection between banking reforms, financial stability and economic growth in Nigeria. It is in this view that this crucial research work was embark. This paper intends to enhance efforts of the CBN in developing and promoting stability in the Nigeria financial system (NFS) so as to design the implementation of effective policies that would improve a sustainable economic growth. The rest of this paper is structure as thus; following the introduction, is the literature review, theoretical review, methodology, results and implication of findings, summary, conclusion and recommendations.

2.0 Literature review

2.1 Conceptual Review

In shaping the financial landscape of the country, the Nigerian banking reforms have been very crucial, meant to enhance stability, efficiency and inclusiveness in the banking sector. Reforms in Nigeria evolved over the year in response to both internal and external challenges while guided by



various policy frameworks and regulatory measures. Through initiatives such as recapitalizations, regulatory enhancements, and the introduction new financial instruments, the banking reforms in Nigeria have been designed to enhance financial stability and fostering economic growth.

A significant reform in Nigeria was banks consolidation exercise of 2004, which was meant to strengthen capital base of banks and enhance their resilience to shocks in whatever forms. By this reform banks were restructured and forced to reduce in number through merger and acquisitions. Leading to a more robust and competitive banking sector in the country.

Also, the introduction of cashless policy in 2012 was to reduce the dominance of cash transactions in the economy, enhance efficiency in the payment system, and curb financial crimes (Frank, & Binaebi, 2019). The banking sector reform agenda of CBN in 2009 focused on enhancing regulatory oversight, improving corporate governance and promoting financial inclusion in Nigeria (Orok, Ocheni, & Okoi, (2019)).

In addition, the establishment of the Asset Management Corporation of Nigeria (AMCON) in 2010 have been an important step at resolving toxic asset or non- performing loans and strengthening the banking sector's stability. The enhanced resilience of banks to financial shocks is made possible by the adoption of risk – based supervision of the CBN (Adeusi & Solarin, 2017). This approach emphasis that allocation of regulatory resources be based on the level of risk through the assessment of banks risks' profiles.

The focal point of reforms now in Nigeria, is the recent push for digital transformation in the banking sector, with the initiatives such as the licensing of payment Service Banks (PSB) to enable financial services reach underserved communities in the country (Ogbo, & Onwe, 2020). Also, the adoption of fintech solutions and the promotion of open banking frameworks have contributed to fostering innovation and competition in the sector (Osagioduwa, Solomon, & Fumilayo, 2022).

Reforms have contributed to increased investor confidence, improved access to credit, and enhanced financial intermediation, thereby supporting economic growth despite multifaceted approach aimed at enhancing stability, efficiency, and inclusiveness which has been the characteristic of banking sector reforms in Nigeria.

2.2 Theoretical review



The main theory for banking reforms in Nigeria is rooted in the proposition that enhancing financial stability through regulatory changes can foster economic growth. This theory was propounded by scholars and policy makers over the years, with notable contributions from experts such as Calomiris and Haber that emphasise the importance of institutional reforms in banking system to promote economic development (Calomiris & Haber, 2014). The theory suggests that implementing banking reforms, such as strengthening regulatory frameworks, enhancing supervision, and promoting financial inclusion, can create a more stable financial system capable of supporting sustainable economic growth.

Supporters of the theory includes policy makers, international organisations like the World Bank and IMF, as well as academic researchers who have argue that a sound banking system is essential for channelling savings into productive investments facilitating credit access for businesses, and promoting overall economic development (Ojo, 2011). However, critics to the theory pointed out the potential challenges and unintended consequences associated with banking reforms such as the risk of over – regulation stifling innovation and market competition, or the possibility of reforms exacerbating inequality by favouring large financial institutions over the smaller ones (Uchendu, 2017).

However, the ongoing debates and critics highlighted the need for careful implementation and continuous evaluation of reform measures to ensure their effectiveness and alignment with broader development agenda.

2.3 Empirical Review

Babajide, Ishola, Adekunle, Achugamonu, & Bosede, (2021) adopted Granger causality test and vector error correction model to analyse the relationship impact of financial sector reforms on economic development in Nigeria from 1980 to 2017. Negative long-run relationship between financial sector reform variables and human development index (HDI), except for owners' equity was the result of the study finding while positive short-run dynamics between total savings to GDP and HDI was also observed in the study's result. The study concluded that some other influences in the economy could be responsible for the recent improvements in HDI and not the financial sector's reforms. A more inclusive reform agenda that will focus on economic development rather than economic growth was the study recommendation.



Onaolapo & Ajose, (2021) study banking sector development and economic growth in Nigeria (1981 – 2016). The study adopted ARDLM to analysed secondary data sourced from the Central bank of Nigeria Statistical Bulletin and World Development Indicators from 1981 to 2016. In the long – run, results of the study showed positive impact of money supply and liquid liability on RGDP and Domestic credit negatively influence RGDP while in the short- run, both Domestic credit and Money supply had positive impact and liquid liability impact was not established. To stimulate economic growth, the Nigeria, government should formulate policies that will encourage banks to lend more to the productive sector (real sector).

Inim *et al.*, (2019) investigates the impact of banking reforms in Nigeria on the stability of banking sector. The study adopted panel data regression technique to analyse secondary data that were source from CBN Annual Reports and Statistical Bulletins as well as the Annual and Performance Reports of sampled banks. The period covered by the study was from 2005 to 2017. The result of the study showed that banking reforms in Nigeria has positive influence on the stability of banking sector. Also as expected, non – performing loans was observed to be though insignificant but negatively impacted on the total deposits.

Markjackson, (2021) adopted time series data spanning from 2004 to 2018 that was collated and estimated using the ordinary least square technique, to examined the effect of banking sector reforms on private sector growth in Nigeria. The results of the study indicate a positive and significant effect of credit to real sector on private sector growth in Nigeria and a negative and insignificant effect of total deposit liabilities on private sector growth in Nigeria. The study concludes that banking sector reforms significantly contribute to the growth of private sector in Nigeria. Recommendations of the study are that regulatory authority of banks should enhance their lending capacity through relaxing of legal limitation to their lending operations and also banks should focus on the vast majority of unbanked economic in the country for deposit mobilization drive.

Rahman, Khan, & Charfeddine, (2020) adopted Markov regime-switching model to investigate the impact of the financial sector reforms in Pakistan on economic growth from 1972 shows that financial liberalization relatively strongly affects real GDP growth in the high growth regime while transition probabilities establish an inordinate episode at the low growth regime. While labor force and government expenditure exerted negative effect on economic growth, trade openness and

physical capital stock had a positive impact. For better functioning of financial sector development in Pakistan, several economic policies were proposed and discussed.

3.0 Materials and Methods

3.1 Model specification:

Data for the study were sourced from World Bank Indicators. The study is modeled in line with the work of Njang, Omini, Bekun, & Adedoyin, 2020, and Amaegberi & Krokeyi, (2023) as follows:

$$GDP = f(CF) \quad (1)$$

$$GDP = f(BCAP, DCPS,) \quad (2)$$

Adding other control variables equation 2 is written as

$$GDP = \beta_0 + \beta_1 GDP + \beta_2 BCAP + \beta_3 DCPS + \beta_4 IRS + \beta_5 INR + \beta_6 OER + \beta_7 FDI \quad (3)$$

Taking the lag of the dependent variables and writing in econometric form equation 3 is transformed to

$$GDP = \beta_0 + \beta_1 GDP_{-1} + \beta_2 BCAP + \beta_3 DCPS + \beta_4 IRS + \beta_5 INR + \beta_6 OER + \beta_7 FDI + \mu_t \quad (4)$$

Taking the Sum of the variables equation 4 is written as

$$GDP = \beta_0 + \beta_1 \sum GDP_{-1} + \beta_2 \sum BCAP_{-1} + \beta_3 \sum DCPS_{-1} + \beta_4 \sum IRS_{-1} + \beta_5 \sum INR_{-1} + \beta_6 \sum OER_{-1} + \beta_7 \sum FDI_{-1} + \mu_t \quad (5)$$

Where: GDP = Gross Domestic Product Growth Rate (Annual %); BCAP = Bank Capital, Claim on Central Government, % of GDP; DCPS = M₂ Broad Money Supply also as a percentage of GDP (M₂/GDP); IRS = Interest rate spread (Lending minus Deposit Rates, %)

INR = Inflation, consumer Price (Annual %); OER = Official Exchange Rate (LUC per US\$ Period Average); FDI = Foreign Direct Investment; μ = error term; β_0 = Constant.

4.0 Results and Discussions.

Table 4.1 CORRELATION MATRIC

VAR	GDPGR	DCPS	BCAP	IRS	INR	OER	FDI
GDPGR	1.000						
DCPS	-0.059	1.000					
BCAP	-0.300	-0.410	1.000				
IRS	-0.153	0.282	-0.325	1.000			
INR	-0.048	-0.305	0.489	0.016	1.000		
OER	-0.340	0.620	-0.058	0.379	-0.237	1.000	
FDI	0.447	0.502	-0.763	0.322	-0.330	0.163	1.000

Source: Authors' Computation (2024).

There exist negative correlation of (-0.340) between OER and GDPGR, indicating that an increase in GDPGR is associated with falls in OER of the economy. This implies that a unit increase in GDPGR will attract 34% fall in OER in the economy. While a positive and weak correlation exist between FDI and GDPGR, indicated that an increase in FDI leads to increase in GDPGR of the economy. Also a negative correlation exist between DCPS and GDPGR which means an increase in DCPS leads to decrease in GDPGR and there also exist a negative correlation between BCAP and GDPGR. An increase in BCAP leads to decrease in GDPGR.

However, there is no threat of multicollinearity amongst variables used for the study as depicted in the correlation matrix. The coefficient of correlation amongst variables had moderate and low correlation with few having weak correlation which does not constitute any serious threat of multicollinearity amongst the variables.

Table 4.2 UNIT ROOT TEST

VAR	@ Level		@ first different		OOI
	F-STAT	PROB	F-STAT	PROB	
GDPGR	-3.332	0.190	-9.217	0.000	0
DCPS	-2.257	0.190	-5.749	0.000	1
BCAP	-2.045	0.268	-4.997	0.000	1
IRS	-2.349	0.162	-6.627	0.000	1
INR	-3.172	0.029	-6.134	0.000	0
OER	3.347	1.000	-4.123	0.002	1
FDI	-1.327	0.608	-9.419	0.000	1

Source: Authors' computation via e-view 13(2024).

Table 4.3 shows that the study variables stationary at mixed differences. The mixed stationary properties of the variables suggest the application of bond test and Autoregressive distribution lag (ARDL) methodologies for the long – run test.

Table 4.3. LONG RUN BOUNDS TEST

3.1965030

F-statistic

	10%		5%		1%	
Sample Siz	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
40	2.152	3.296	2.523	3.829	3.402	5.031
45	2.131	3.223	2.504	3.723	3.383	4.832
Asymptoti	1.92	2.89	2.17	3.21	2.73	3.9

* I (0) and I (1) are respectively the stationary and non-stationary bounds.

The bounds test for the long – run result of ARDL revealed that F – statistics with 3.1965 is less than values at level and also the integrated value at 1st difference which indicate that the variables in the model has no long – run relationship.

Table 4.4. SHORT RUN ANALYSIS (ARDL)

VAR	COEFF	STD. ERR	T-STAT	PROB
GDPGR (-1)	0.711	0.259	2.744	0.010
DCPS	-0.185	0.156	-1.184	0.245
BCAP	0.016	0.114	0.141	0.889
IRS	-0.212	0.153	-1.393	0.173
INR	-0.006	0.027	-0.214	0.832
OER	0.0003	0.005	0.060	0.953
FDI	1.268	0.823	1.542	0.132
ECT(-1)	-6.556	0.247	-2.253	0.031
C	3.392	1.895	1.790	0.082
R. SQUARE	0.529		MEAN DEP	4.779
ADJ R SQUARE	0.418		S. D DEP	2.834
S.E	2.162		DURBIN WATSON ST	2.200
F – STAT	4.772			
PROB	0.0005			

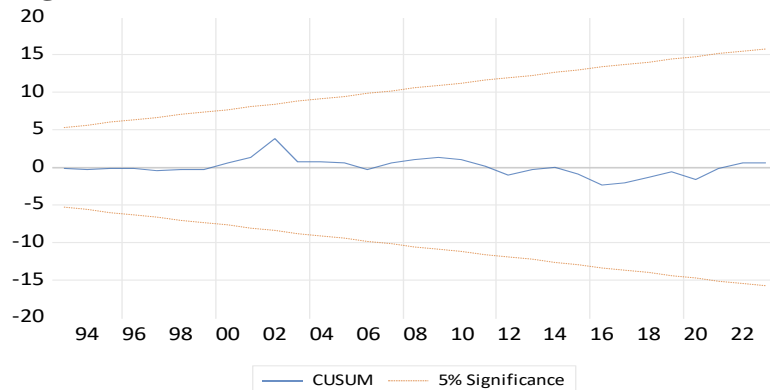
Source: Authors' Computation (2024).

The short run analysis result of the ARDL of the study, indicates that dependent variable, Gross domestic product (GDP) is weak and positively related to BCAP and negatively related to DCPS.

However, both were not statistically significant in the analysis. For every one unit increase in Gross domestic product in the economy, BCAP will increase by 0.016 and statistically not significant while DCPS with a decrease of -0.185 and statistically not significant.

On statistical ground, the R-squared and adjusted R-squared increase by 52.9% variation in gross domestic product, is explained by all the independent variables of the model and that if other variables outside the model that have influence on gross domestic product are considered, the included variables in the model will explain 41.8% variation. The F – statistics show robustness of the model at 1% while Durbin Watson statistics shows that the model do not have autocorrelation.

Fig.4.1. CUSUM TEST



Source: Authors' Computation (2024).

Cusum test is the plot of stability test for the model. Having the blue lines in between the red lines indicates that it is within the 5% critical bounds because of the two lines that bounded the trend curve. This implies that the model do not experience structural instability during the study's period.

5.0 Summary, Conclusion and Recommendations

The study examined effects of banking reform, financial stability and economic growth in Nigeria. The objectives of the study are to assess the effect recent banking reforms in Nigeria on economic growth and determine the contribution of financial stability on economic growth and development in Nigeria. WDI data was collected from 1980 to 2023 using ARDL method of analysis. The result of the findings showed that bank capital is though weak but positively related to gross domestic product while domestic credit to private sector is negatively related to gross domestic product by 0.016 and -0.185 respectively. This result opposes the work of Babajide, *et al.*, (2021). It could perhaps be as a result of policy gap or policy inconsistency or weak regulatory frameworks. Results of this study suggest that relevant policy is required to stimulate economic growth in Nigeria, therefore the study fail to reject the hypothesis that banking reforms has no effect on economic growth in Nigeria while it accepts that of financial stability. The study recommends that government should formulate policies that will encourage banks to lend more to the productive sector (real sector) while regulatory framework be strictly enforced by the CBN. Secondly risks mitigating laws that could promote business establishment in all the sectors of the economy be enacted by the National Assembly.



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INVESTMENT IN INFRASTRUCTURE AND PER CAPITA INCOME IN NIGERIA

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ABSTRACT

Investment in infrastructure and per capita income are interrelated. Effective and efficient investment in infrastructure is therefore paramount to uphold macroeconomic stability and promote sustainable growth. This study examined the impact of investment in infrastructure on per capita income using variables such as investment in health infrastructure, investment in road and construction infrastructure, investment in education infrastructure, investment in transport and communication infrastructure, and per capita income treated as the dependent variable. The Vector Error Correction Model (VECM) was used for analysis. This study reveals that investment in health infrastructure, road, and construction infrastructure has a positive relationship with per capita income. This emphasizes that effective and efficient investment in health infrastructure and road and construction investment significantly influences per capita income. In light of these findings, it is recommended that investments should be made heavily on health infrastructure and road and construction infrastructure as this would increase the per capita income of Nigerians. It is also important to ensure monitoring on transport and communication and education infrastructure. This would ultimately lead to the advancement of these sectors and improved standard of living of Nigerians.

Keywords: investment, education, healthcare, infrastructure, capita income



INTRODUCTION

Infrastructure investment has long been recognized as a fundamental driver of economic growth and development worldwide. The provision of robust infrastructure networks, encompassing transportation, energy, water, telecommunications, and social infrastructure, lays the foundation for fostering productivity, enhancing connectivity, and improving the quality of life for citizens (Sawada, 2015). It is a catalyst for industrialization which ultimately could lead to increased livelihoods in an economy. Investment in infrastructure is indispensable for fostering holistic development and ensuring the well-being of societies. The theoretical exposition by Keynes (1936) revealed that without adequate infrastructure in key sectors such as telecommunications, transportation, energy, healthcare, housing, and education, achieving optimal living standards and sustainable development in any dimension remains daunting. Investing directly in infrastructure yields manifold benefits, including the provision of essential production facilities, reduction of trade transaction costs, and creation of employment opportunities, thereby generating positive externalities for society (Ogunlana, Yaqub & Alhassan, 2016).

Over the past few decades, Nigeria has made significant efforts to invest in infrastructure across various sectors including transportation, energy, water, telecommunications, and social infrastructure such as healthcare and education. However, challenges such as inadequate funding, poor maintenance, and corruption have hampered the effectiveness of these investments. Despite these challenges, investment in infrastructure remains a critical determinant for improved growth in Nigeria. Improved transportation networks have facilitated the movement of goods and people, thereby reducing transaction costs and stimulating economic activity.

In terms of statistics, per capita income has increased from N228 billion in 1990 to N340 billion (about 49% increase) in 2021. On the other hand, investment in health infrastructure has increased from N500,000 in 1990 to N423 million in 2022 (over 800% increase) (World Bank, 2022). This clearly reveals that the increase in investment in infrastructure is not synonymous with that of per capita income. Again, standard of living has remained low evidenced by high multidimensional rates and inequality index. The National Bureau of Statistics (2022) revealed that over 63 percent of Nigerians are multidimensionally poor.



From the foregoing, this study seeks to empirically examine the impact of investment on per capita income in Nigeria between 1990 and 2022. The subsequent sections of this paper are structured as follows: section 2 presents the review of conceptual, and empirical literature; while section 3 explains the methodology and theoretical framework that was used. Section 4 presents and discusses the results of the analysis and section 5 concludes the study by providing relevant recommendations.

LITERATURE REVIEW

At the core of the relationship between infrastructural investment and per capita income lies the neoclassical growth theory, which posits that capital accumulation, including investments in physical infrastructure, contributes to economic expansion and rising incomes over time. Building upon this framework, endogenous growth theories emphasize the role of infrastructure in fostering technological progress, enhancing productivity, and sustaining long-term economic growth. Adequate infrastructure, such as transportation networks, energy systems, and communication technologies, reduces production costs, improves resource allocation, and enhances market efficiency, leading to increased productivity levels and economic output (Keynes, 1936).

Various studies have been conducted to study the relationship between investment in infrastructure and economic growth in Nigeria. The results of this study vary from one to the other; owing to the difference in methodologies, time frame & variables displayed in the models. For instance, Enya and Ezeali (2021) examined the relationship between public investment in infrastructure and economic growth of Nigeria using variables such as Real Gross Domestic Product (RGDP), Public Investment in Education (PIED), and other independent variables. Data was gotten from the CBN Statistical Bulletin from the years 1980 to 2020. The analysis (Ordinary Least Square Regression) showed that the logged public investment in transportation had a negative relationship with the Real Gross Domestic Product. On the other hand, public investment in technology, and other variables had a positive relationship with the Real Gross Domestic Product. The study thereafter recommended that there is need to improve public investment in technology, and education in the best interest of the country, especially in the face of increased diversification of the economy.

Olanma and Collins (2022) examined the relationship between government spending on economic infrastructure and economic growth in Nigeria from 1989 to 2018. The Real Gross Domestic Product was the dependent variable, while government spending on transport and communication,



government spending on power at time, and employment rate were adopted as the independent variables. The autoregressive distributed lag bounds method to co-integration was used to ascertain the relationship between the dependent and independent variables. The results showed that government spending on power had a negative, albeit insignificant effect on the Real GDP of Nigeria. However, government spending on transport and communication showed a positive relationship in the short-run but negative relationship in the long-run. The study further recommended that in order for Nigeria to achieve infrastructure development success, it is important that the government redirect excessive revenue in the to pivotal sectors of the economy with a view to monitoring the implementation after disbursing funds to the affected ones. In addition, Kolawole (2020) asserted that government capital expenditure, private sector credit, and increased level of GDP led to infrastructural development.

Babatunde (2018) examined the relationship between Government spending on infrastructure and Economic Growth in Nigeria. This study employed both primary and secondary modes of data. The secondary data consisted of reported annual spending on selected infrastructure and annual Gross Domestic Product from 1980 to 2016. For the primary data, responses from a sample of 242 respondents were focused upon. The data treatments used for the secondary data are unit root and co- integration tests using Augmented Dickey–Fuller and Phillip–Perron model, Weighted least square was used to test the sample of 37-year annual time series using vector error correction model. The study findings reveal that government expenditures on transport and communication, education, and health infrastructure exert substantial positive impacts on economic growth in Nigeria. This is also in line with the findings of Olanma and Collins (2022). Conversely, investment in agriculture and natural resources infrastructure exhibits a significant negative association with economic growth. This study recommended that there is a need to improve government spending on agriculture and natural resources infrastructure in the best interest of citizens.

Moreover, similar to the study by Babatunde (2018), Okoli *et al.* (2023) investigated the effect of government spending on economic growth in Nigeria. Hirschman’s approach was used to analyze annual data from 1970-2020. Data was sourced from the CBN Statistical Bulletin to examine government spending in the transport, communication, health, education, and utilities sectors. An autoregressive distributed lag model was employed, and the results showed a positive but non-significant short-term effect of communication and utility sector spending on Nigeria’s economic



growth. However, it showed that there was a negative but non-significant short-term effect of transportation, health, and education sector spending on Nigeria's economic growth. The study proposed the need for Nigeria to rather look inwards to utilize its abundant natural endowments in the petroleum and agricultural sectors so that government spending in these sectors can enable the country achieve infrastructural development which will in turn positively impact on economic growth.

Owolabi-Merus (2015) investigates the infrastructural development and economic growth nexus in Nigeria. This study employs the use of Ordinary Least Squares and Granger Causality techniques. Analyzing annual data from 1983 to 2013, data for this study was obtained from the World Bank's Africa Development Indicators. The study reveals that infrastructural development (proxied by GFCF) has a positive and statistically significant impact on Nigeria's economic growth (proxied by GDP). The research recommends that it will be worthwhile for the Nigerian government and policymakers to implement policies geared towards the development of infrastructure. This would result in increasing economic efficiency, productivity and also attract potential FDI inflow into the country.

METHODOLOGY

This study is built on the Endogenous Growth Theory (EGT). Romer formulated the endogenous growth theory, highlighting that technological advancements stem from the endeavors of researchers and entrepreneurs, motivated by economic incentives. Fundings and initiatives can significantly impact the endeavours of entrepreneurs which would consequently shape the economy's growth in the long term (Jones, 2019). Datasets were generated from various issues of the National Bureau of Statistics and the World Bank. The following variables were used for analysis:

Independent variables:

Investment in Health Infrastructure (INHI)

Investment in Education Infrastructure (INEI)

Investment in Road & Construction Infrastructure (IRCI)

Investment in Transport & Communication Infrastructure (INTC).

The dependent variable: Per Capital Income (PCI).

The unit root testing shows that the variables are of order I(1) and co-integration is seen among the variables, therefore implying a long-run relationship. The Vector Error Correction Model (VECM) as specified by Engle and Granger (1987) was therefore used for analysis.

The functional model is specified as follows:

$$I PCI = f (INHI, INEI, IRCI, INTC) \quad \text{Eqn 1}$$

The vecm is specified as:

$$\Delta X_t = \mu + \sum_{i=1}^{\rho-1} \Gamma_i \Delta X_{t-i} + \Pi X_{t-i} + \varepsilon_t \quad \text{Eqn 2}$$

Where:

X_t represents the (nx1) column vector of ρ variables;

μ represents the (nx1) vector of constant terms;

Γ and Π represent coefficient matrices;

Δ is a difference operator

DATA PRESENTATION AND DISCUSSION OF FINDINGS

The trend analysis in Figure 1 shows that there have been fluctuations in the INEI, INHI, INRC and INTC trends over the period (1990-2022). However, the PCI appears to have only slight fluctuations. For instance, PCI reduced between 1990 and 2002 and increased significantly between 2002 and 2016. There was a drop again from N363 billion in 2016 to N346 billion in 2022.

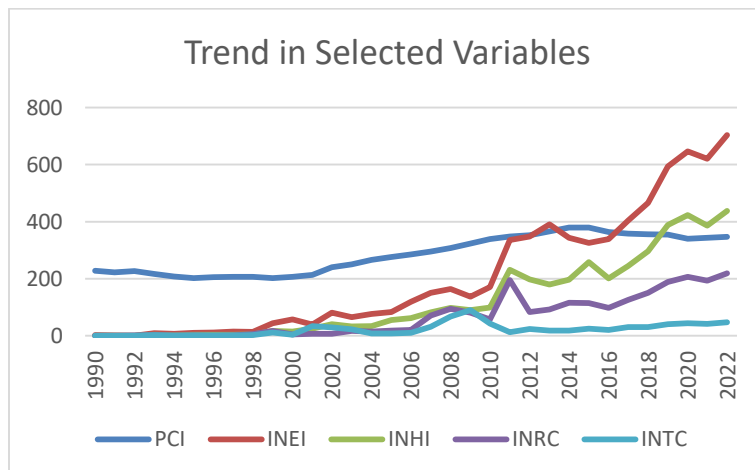


Figure 1: Trend Analysis of Selected Variables

For INTC, there was a marginal change in the values between 1990 and 1998. However, in 1999, investment in transport and communication infrastructure significantly increased to N11.12 million N42 million in 2010. Between 2010 and 2022, the values fluctuated and then stood at N47.24 million in 2022. The INEI and INRC followed similar patterns over the period. However, between 2012 and 2014, there was a reduction in INHI while an increase was recorded in INEI.

Table 1: Unit Root Result

Variables	ADF statistics	Critical Values	Order of Integration
PCI	-2.968478	-2.960411	1(1)
INEI	-4.52284	-2.96041	I(1)
INHI	-6.19784	-2.96041	1(1)
INRC	-6.59147	-2.96397	I(1)
INTC	-4.55885	-2.96041	I(1)

Source: Authors' Computation

The result of the unit root test using Augmented Dickey-Fuller (ADF) is presented in Table 1. The result shows the presence of unit root at first difference. This shows that the existence of short-run equilibrium. The Johansen Cointegration was thereafter carried out to establish the existence of long-run equilibrium.

Table 2: Johansen Cointegration Test

Hypothesized			0.05	
No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	Prob.**
None *	0.855025	125.9952	69.81889	0.0000
At most 1 *	0.800679	68.0594	47.85613	0.0002
At most 2	0.339843	19.67423	29.79707	0.4452
At most 3	0.213786	7.215918	15.49471	0.5527
At most 4	3.89E-06	0.000117	3.841466	0.9928

Source: Authors' Computation

The table above shows that two cointegrating equations are present. Therefore, the existence of long-run relationship is valid. As a result, the Vector Error Correction (VECM) analysis was carried out.



Table 3: Vector Error Correction Model Results

Cointegrating Eq:	CointEq1				
LPCI(-1)	1				
INEI(-1)	-0.124358				
	(-0.01368)				
INHI(-1)	0.147715				
	(-0.01842)				
INRC(-1)	0.129058				
	-0.01655				
INTC(-1)	-0.207816				
	(-0.02114)				
C	-9.395037				
Error Correction:	D(LPCI)	D(INEI)	D(INHI)	D(INRC)	D(INTC)
CointEq1	-0.0141	-15.005	-16.16	-6.5557	2.49372
Std error	-0.0043	-8.2862	-5.727	-5.5089	-2.8279
t-Stat	[-3.25661]	[-1.81087]	[-2.82172]	[-1.19001]	[0.88182]
D(LPCI(-1))	0.09787	-585.6	-530.05	-325.72	156.134
Std error	-0.2109	-402.7	-278.33	-267.73	-137.44
t-Stat	[0.46409]	[-1.45416]	[-1.90441]	[-1.21658]	[1.13606]
D(LPCI(-2))	-0.2098	-487.45	-549.53	-105.32	-65.804
Std error	-0.2189	-418.07	-288.95	-277.94	-142.68
t-test	[-0.95836]	[-1.16597]	[-1.90184]	[-0.37893]	[-0.46120]
D(INEI(-1))	-0.0008	-0.6579	-0.7712	-0.1063	0.22659
Std error	-0.0003	-0.6358	-0.4394	-0.4227	-0.217
t-Stat	[-2.28912]	[-1.03485]	[-1.75510]	[-0.25141]	[1.04427]
D(INEI(-2))	-0.0005	-0.9347	-0.5597	-0.2335	0.09236
Std error	-0.0003	-0.5442	-0.3761	-0.3618	-0.1857
t-Stat	[-1.76996]	[-1.71755]	[-1.48802]	[-0.64525]	[0.49728]
D(INHI(-1))	0.00082	1.36854	1.01816	0.46153	-0.4736
Std error	-0.0005	-0.8578	-0.5929	-0.5703	-0.2928
t-Stat	[1.82794]	[1.59543]	[1.71738]	[0.80930]	[-1.61764]
D(INHI(-2))	0.00093	0.96773	0.49035	0.07645	-0.1386
Std error	-0.0004	-0.795	-0.5495	-0.5285	-0.2713
t-Stat	[2.23995]	[1.21727]	[0.89241]	[0.14464]	[-0.51081]
D(INRC(-1))	0.00113	0.816	1.25986	-0.1685	0.13089
Std error	-0.0004	-0.8064	-0.5573	-0.5361	-0.2752
t-Stat	[2.66402]	[1.01193]	[2.26054]	[-0.31422]	[0.47560]



D(INRC(-2))	0.0002	0.77516	0.72296	0.16008	0.04931
Std error	-0.0003	-0.5357	-0.3702	-0.3561	-0.1828
t-Stat	[0.71439]	[1.44710]	[1.95278]	[0.44949]	[0.26974]
D(INTC(-1))	-0.0007	-2.5093	-2.6989	-1.3185	0.44395
Std error	-0.0006	-1.0589	-0.7319	-0.704	-0.3614
t-Stat	[-1.23330]	[-2.36967]	[-3.68758]	[-1.87287]	[1.22845]
D(INTC(-2))	-0.0023	-1.7287	-1.398	0.12555	0.03241
Std error	-0.0007	-1.3725	-0.9486	-0.9125	-0.4684
t-Stat	[-3.13605]	[-1.25956]	[-1.47380]	[0.13759]	[0.06920]
C	0.01401	36.3019	30.2845	15.1854	-0.285
Std error	-0.007	-13.366	-9.2377	-8.886	-4.5615
t-Stat	[2.00120]	[2.71604]	[3.27835]	[1.70891]	[-0.06248]
R-squared	0.72738	0.35583	0.5552	0.58316	0.38891
Adj. R-squared	0.56078	-0.0378	0.28338	0.32842	0.01546
Sum sq. resids	0.01025	37366.8	17849.7	16516.3	4352.22
S.E. equation	0.02386	45.5624	31.4905	30.2915	15.5496
F-statistic	4.36602	0.9039	2.04254	2.28927	1.0414
Log likelihood	77.1611	-149.48	-138.4	-137.23	-117.23
Akaike AIC	-4.3441	10.7652	10.0264	9.94879	8.61512
Schwarz SC	-3.7836	11.3257	10.5869	10.5093	9.1756
Mean dependent	0.01408	23.423	14.579	7.24433	1.55633
S.D. dependent	0.036	44.7243	37.1994	36.9635	15.6712

Source: Authors' Computation

The coefficients under the Error Correction term represent the speed of adjustment towards the equilibrium. In both the short run and long run, there exists a negative relationship between the investment in education infrastructure and per capita income. This implies that a unit increase in education infrastructure will cause per capita income to reduce by 0.007 percent. While this impact may not be significant, it is not beneficial to improved standard of living in the economy. Also, investment in transport and communication infrastructure showed a negative impact on PCI. This negative impact could be as a result of misappropriation which would hinder investment in these infrastructural amenities to have a negative impact on PCI. On the other hand, investment in health, and road and construction infrastructure show a positive relationship with PCI in both the short run and long run. Francis *et al.* (2023) and McPake *et al.* (2023) also found a positive relationship between investment in health and economic growth. On another hand, Olanma and Collins (2022)



found a positive relationship between transport and communication and real GDP, while this study found a positive relationship in both the short run and long run.

The coefficient of determination is 0.73 and showed that 73% of the variation in per capita income is explained by the Investment in health infrastructure, investment in education infrastructure, investment in road and construction infrastructure, and investment in transport and communication infrastructure. Other variables not included in the model account for the remaining 27%. The error correction term is negative and significant showing that disequilibrium in the previous periods is adjusted for at 1.4% annually.

CONCLUSION AND RECOMMENDATIONS

This study investigated the impact of infrastructure investment on the standard of living, measured by per capita income, in Nigeria. Utilizing the Vector Error Correction Model for analysis, the research revealed a long-term relationship among the variables under examination. Results revealed that investment in education and transport/communication infrastructure had a negative effect on per capita income, while investment in health and road/construction infrastructure positively influenced per capita income.

In light of these findings, it is imperative to emphasize the importance of prudent fund management to ensure optimal utilization, thereby fostering improvements in the standard of living. Additionally, given the positive impact of health and road/construction infrastructure investment on per capita income, there is a pressing need for increased allocation of resources towards these sectors in Nigeria. This strategic investment approach can significantly contribute to enhancing the overall well-being and prosperity of the populace.



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TERRORISM AND INSECURITY IN NIGERIA: A COMPREHENSIVE ANALYSIS

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ABSTRACT

Nigeria has been confronted with a persistent challenge of terrorism and insecurity threats for decades, with various militant groups and insurgent movements destabilizing the nation. This comprehensive project delves into the intricate tapestry of Nigeria's terrorism and security landscape. It seeks to provide a thorough understanding of the root causes, evolving dynamics, and multifarious consequences of terrorism in Nigeria. The research commences by tracing the historical context, mapping the emergence and evolution of terrorism in the region. It then examines the various terrorist groups that have operated in Nigeria, such as Boko Haram, the Niger Delta militants, Islamic State West Africa Province (ISWAP) and others. This analysis includes their ideologies, motivations, and the methods they employ to achieve their objectives. A critical focus of this project is the evaluation of government responses and international interventions in addressing the terrorism challenge. It assesses the effectiveness of counter-terrorism strategies, military operations, and peace building efforts in Nigeria, shedding light on their strengths and weaknesses. Moreover, it investigates the role of neighboring countries and international organizations in assisting Nigeria to combat terrorism. The project also delves into the consequences for national cohesion, human rights, and the displacement of communities affected by violence. Furthermore, it analyzes how terrorism has influenced Nigeria's political landscape, regional stability, and economic development. While addressing the problems, the research also highlights potential solutions and best practices for enhancing security in Nigeria. It discusses the importance of fostering community engagement, and promoting reconciliation and development in conflict-affected regions. The project emphasizes the significance of a holistic approach that combines military, political, and socio-economic strategies in tackling the issue. In summary, this project sources from secondary sources of data like textbooks, journals, articles, internet, amongst others to offer a comprehensive analysis of Nigeria's terrorism and insecurity challenges. It provides valuable insights for policymakers, scholars, and stakeholders by dissecting the historical context, profiling terrorist groups, evaluating counter-terrorism efforts, and assessing the broader impact on Nigeria's society and economy. Ultimately, it underscores the urgency of addressing this multifaceted problem to secure a more stable and prosperous future for Nigeria and its people.

Keywords: Insecurity, Terrorism, Government, Economy, Insurgency, International Organizations

1. INTRODUCTION

The world is a global village characterized by interconnection and information exchange at rapid rates, so as the problems of terrorism and insecurity taken new dimensions of importance as it has become the most dangerous concept in the field of security which has garner lots of attention. This project significantly delves into the context of Nigeria specifically, a nation that has struggled and is struggling with complex challenges



of terrorism and security. As the world continues to witness more changes and prominence in terrorism, potential threats and vulnerabilities, studying and understanding the terrorism and security experiences in Nigeria becomes crucial not only for its own citizens but also for the global community. Terrorism is the use of calculated use of violent actions in order to inculcate fear or to force government to act. Terrorism can also be seen as using violence or threat to obtain a political objective. Terrorism has become a horror that features unprecedented and unpredictable threats in the domestic and international space which has kept governments of developed and developing countries on high alert. The phenomenon has become one of the most complex and complicated phenomena in the modern and contemporary world (Stibli, 2010). Today's wave of terrorism poses a greater threat than ever before. It has caused significant harm to individuals and societies in areas of loss of lives and property, economic loss by diverting Foreign Direct Investment (FDI) from target countries to other non-target countries as a large part of the government resources and revenue meant for development purposes are channeled into security sector. Nigeria society is getting more and more insecure, more people are getting into various forms of crimes and terrorism and they are getting more desperate, ruthless and sophisticated. After the independence, the act of terrorist activity varies from the Movement for the Emancipation of the Niger Delta (MEND) group, Oodua People Congress (OPC) group, Movement for Actualization of the Sovereign State of Biafra (MASSOB) group, Islamic State West Africa Province (ISWAP), Boko Haram, amongst others. In Nigeria today, new forms of crimes have been introduced and are emerging to be common. These include, kidnapping for ransom, pipeline vandalization, ritual killings, armed robbery and ethnic clashes. According to Ezeah and Osayi (2014), one of the trendy terrorist group in Nigeria is Boko Haram, a terrorist sect whose activities has threatened the foundation of the country. Similar to this, is the activities of the herdsmen whose actions threatened the unity of Nigeria. Thus, the activities of both Boko Haram and herdsmen presently make Nigerians live their lives in fear without knowing when Boko Haram suicide bombers and the secret killings of herdsmen will come their way. The ease and degree with which suicide bombers and herdsmen carry out their act shows that Nigeria government is not on top of the game in terms of security to stop the reoccurrence of these dreadful attacks. For instance, the abduction of one hundred and ten female students in Dapchi government girl's secondary school in Borno state by Boko Haram and the killing of seventy three people in Benue state in one day by herdsmen are clear instances that the Nigerian government security agents are not doing enough to stop these attacks which compromises the security of lives and properties of her citizens, as this scenario plays out in most other organized terrorist related crimes such as banks robberies and kidnappings (Ezeah and Osayi, 2014). The study of terrorism and insecurity in Nigeria is of great importance due to the country's persistent struggle with various forms of terrorism and its impact on national security. Nigeria, located in West Africa, has faced numerous security challenges in recent years, including the activities of extremist groups such as Boko Haram and the Islamic State West Africa Province (ISWAP). These groups have carried out a series of devastating attacks, resulting in the loss of thousands of lives, widespread displacement of individuals, and significant socio-economic disruptions. One of the prominent terrorist groups in Nigeria; Boko Haram was founded in the early 2000s in northeastern Nigeria. Boko Haram, whose name roughly translates to "Western education is forbidden," initially focused on opposing Western influence and education. Over time, the group transformed into a violent extremist organization, carrying out large-scale attacks, suicide bombings, and abductions, particularly targeting schools, religious institutions, and security forces. Boko Haram's activities have had far-reaching impacts, particularly in the northeastern states of Borno, Yobe, and Adamawa, where the group has established a stronghold. The violence perpetrated by Boko Haram has resulted in the displacement of millions of people and created a severe humanitarian crisis in the region. Furthermore, the group has expanded its activities beyond Nigeria's borders, posing a regional threat and garnering international attention. In addition to Boko Haram another significant terrorist group in Nigeria is the Islamic State West Africa Province (ISWAP) as mentioned previously. This splinter group emerged in 2016 after a leadership dispute within Boko Haram. ISWAP has carried out numerous attacks, focusing on military



targets, and has also engaged in kidnapping for ransom, arms smuggling, and other criminal activities to finance its operations. Nigeria, a diverse nation with a population of over 200 million people, has experienced a complex history shaped by various factors such as colonialism, ethno-religious tensions, economic disparities, and political instability. The emergence of terrorism in the country has further increased these challenges, posing a significant threat to Nigeria's security and stability. The Nigerian government, in collaboration with regional and international partners, has taken various measures to address the terrorism and security challenges in the country. These efforts include military operations, counterterrorism strategies, initiatives for radicalization and rehabilitation, as well as regional cooperation through organizations such as the Multinational Joint Task Force (MNJTF). Understanding the complexities of Nigeria's terrorism and security situation is crucial for formulating effective counterterrorism policies, promoting peace building efforts, protecting human rights, and ensuring the safety and well-being of Nigerian citizens. This research project aims to delve deeper into these issues, analyzing the root causes of terrorism in Nigeria, examining the impact on national security, and exploring potential strategies for mitigating the threats posed by extremist groups.

2. LITERATURE REVIEW

Terrorism as a concept is one whose impact is unparalleled in history as it became trendy topic in the international community since the 11 September 2001 attacks on the United States of America. Afterwards, there have been several carefully planned and effected attacks on various, countries, foreign embassies, and governments in almost all parts of the world (Herdi & Rusyd, 2021). It has become a worry to both the domestic and international politics with severe implications on the peace, security, and good governance of a state. Terrorism has ruined the peaceful relationships that existed among nations in the international system as well as intergroup relations in the domestic politics (Adu and Osadola, 2022). Terrorism is so defined that it seems to have come to stay in Nigeria. The frightening rate at which innocent citizens and public infrastructures in Nigeria are being attacked either by unknown Islamist radical group, or politically hatched unknown or faceless groups has become headline news both in local and international media for a long time, with damaging effects on Nigeria's image, as noted by Onuoha (2011). For instance, on July 2009, the country witnessed a grave and significant anti-government uprising of the Boko Haram and the aftermath of the revolt concludes that over 3,500 people were internally displaced, more than 1,264 children orphaned, and over 392 women widowed. In addition, 28 policemen, five prison warders and an undisclosed number of soldiers, were killed. Properties destroyed includes but are not limited to 48 buildings, three primary schools, more than 12 churches and a magistrate court. Precisely a year after on the 7th day of September 2010, members of the sect again organized a prison break in Bauchi prison to free its members who had been confined following the 2009 revolt. Over 700 inmates of the prisons including the sect members escaped from the prison. In addition, over five people including a soldier, a policeman, two prison warders and a civilian were killed during the attack. The perpetual bombings rate in the last few years in Nigeria has become burdensome. The 50th Independence Day (1 October 2010) twin bomb blasts near the Eagle Square in Abuja that killed at least twelve people and injured several dozen others, the bomb blasts and killings in Jos and Maiduguri on Christmas Eve (Thursday, 27 December 2010) and the explosion on New Year Eve at the Mami market near the Mogadishu Barracks in Abuja, which claimed more than 109 innocent lives within a month (Onuoha, 2011) are good examples. Since then, Nigeria has witnessed more deadly bomb blast, many which are suicide bombings targeted at police stations, police posts, army barracks, churches and mosques as well as government buildings such as the US Embassy attack. Nigerian security systems seem to have also been compromised such that they have now been left in a struggling state. Allegations that some security agents are on the pay roll of the terrorists given their role during the reported attacks have increased. Many times, witnesses talk of individuals, not just in the soldiers or police, participating in the terrorism, they point their attackers from the security personnel who are supposed to protect them. Sometimes, these security



personnel take side with the terrorist and provide escape route for them. Incidents like these have been reported from places as far apart as Jos, Abuja and Damaturu among others. In Jos, a senior soldier who is a military commander, is said to have sabotaged the efforts to repel the terrorists during one of such attack in a community and he was allowed to escape from custody by the security personnel attached to him on a routine mission to search his house. Most of the security personnel who compromise their position either do so for tribal, political, sentimental, selfish or religious reasons that proves we are not yet a nation (Ezeah, P.C. and Osayi, K.K. 2012). Cline and Alexander (1987) cited in Oviasogie (2013) defined terrorism as a deliberate use of violence by sovereign states or national groups assisted by other sovereign states in order to achieve strategic and political objectives thereby violating the law. In terms of various and specific strategies, terrorists globally have adopted the following as means of executing their diabolical attacks: arson genocide by gunfire, suicide bombing, use of improvised explosives, high-jacking of aircraft, ship, etc. kidnapping/abduction, media propaganda and advocacy, jail break, forceful recruitment of combatant – especially children, etc. The New Hampshire Department of Safety suggests 8 signs of terrorism which include the following:

- Surveillance – Someone recording or monitoring activities. This may include the use of cameras, note taking, drawing diagrams, indications on maps, or using binoculars or other vision-enhancing devices to monitor the actions of individuals or groups of people.
- Induction – It is process of producing or attempting to gain information or reactions about military operations, capabilities, or people. Elicitation attempts may be made the use of mail, e-mail, telephone, or can be done in person. This could also include eavesdropping or friendly conversation.
- Tests of Security – This involves the attempts to measure reactions to security breaches, attempts to penetrate physical security barriers, or monitor procedures in order to assess strengths and weaknesses of the security of an organization..
- Funding – Suspicious transactions involving large cash payments, deposits, or withdrawals are common signs of terrorist funding. Collection for charity donations, solicitation for funds and criminal activity are also warning signs.
- Supplies – Possession, purchase or stealing of explosives, armed weapons and ammunition. This also includes acquiring military uniforms, ammunitions, decals, flight manuals, passes or badges (or the equipment to manufacture such items) and any other controlled items that can make their diabolic mission successful.
- Impersonation – People who don't seem to belong in the workplace, neighborhood, business establishment, or anywhere else. This includes suspicious border crossings; the impersonation of law enforcement, military personnel, or company employees is also a sign of the presence of terrorists with aims of terrorism attack in view.
- Rehearsal – Putting people in position and moving them around according to their plan without actually committing the terrorist act. An element of this activity could also include mapping out routes and determining the timing of traffic lights and flow, it also involves studying the routine of the individuals they want to carry out their attack on. .
- Deployment – This involves the movement of troops and supplies or equipment into position to commit the act. This is the person's last chance to alert authorities before the terrorist act occurs. In order to draw attention to terrorism in Nigeria, it is important to conceptualize it within an African context. Although the AU does not need to maintain terrorist organizations list in Africa, its Convention on the Prevention and Combating Terrorism article 1 (3) defines terrorism as any act which is a violation of the criminal laws of a State Party and which may endanger the life, physical integrity or freedom of individuals or groups, or cause serious injury or death to any person, any number or group of persons which may causes or contribute damage to public or private property, natural resources, environmental and cultural heritage. Violence is intended to: i) Induce any government body, institution, the general public or any sect, to do or abstain from doing any act, or to adopt or abandon a particular standpoint or to act according to certain principles, generally based on the dictates of the terrorists. ii) Disrupt any public service, the disruption of any essential service to the public to create a public emergency. iii) Create general insurrection in a state. The AU is clear on the following conceptualization: i) Activities that qualify one group or the other as a terrorist group. ii) Activities that qualify as terrorist activities. In the same vein, the UN's convention on trans-nationality of terrorists' activities holds important place in any discussion of terrorism in Nigeria. It is



worthy for us to note that the economic implications of the growing wave of Boko Haram terrorism can be viewed and measured from different perspectives. The cost can be direct, indirect, short and long term. For instance, the destruction of infrastructure and property and the loss of productivity level among workers is direct while the military expenditure by the government in fighting the group is indirect. This is because the level of security expenditure has been exhausted leaving a negative impact on the other critical sectors such as health, education and roads respectively. In an updated Nigeria Terrorism Index data that was recently updated on December of 2015 by GTI revealed that Nigeria's balance of trade moved from #1971787.70million from the previous # 1921270 million. Her export dropped from #68808480million from the previous #772218.80 million. Also Nigeria's import reduced from #586048million to #483292.30 million. Nigeria's Foreign Direct Investment (FDI) dropped from the previous #732.49million to #642.87 million. Her external debt soared from previously #9464.11 to #10316.82 million respectively. These data support the thesis that the Boko Haram activities have hampered socio-economic efforts in Nigeria. According to World Bank (2009), the effect of terrorism has been more dramatic in Nigeria where it has been estimated that FDI flows dropped \$6.1 billion in 2010 due to Boko Haram's acts of terrorism. This represents a decline of almost 30 per cent from the previous fiscal year. As developing economies or fragile states are generally more volatile, investment comes at a higher risk. As a result, terrorism in high risk countries drastically lowers investment. These acts also increase the security premium, further increasing the cost of economic activity and leading investors to look elsewhere. This is one reason why acts of terror within developing nations have a more drastic effect on FDI than in developed nations. This is the reason why it is necessary to examine the socio-economic impact of Boko Haram Terrorism in Nigeria (Ugwu and Eme 2019).

3. CONCEPTUAL ANALYSIS

Terrorism

Terrorism can be traced far back to the first century to the Roman Empire and it depends on how broad the root, practice, cause and how violent the conflict of a group of people is before they can be termed terrorist practicing terrorism. The term terrorism was first used by the English during the French revolution reign of terror led by Jacobins who employed the use of force, violence and mass executions to compel obedience from the citizens and intimidate enemies and the use of the term continued till the mid-19th century was associated only with governmental groups, with time the term was associated with non-governmental groups. The 2020 report of the global terrorism ranks Nigeria as the 3rd country prominent in frequent large scale terrorism trends and patterns among 163 countries where terrorism resides and has maintained that position since 2015. The African Union (AU) defines terrorism as any act which violates the criminal law of a state which may endanger lives, cause serious injury or death to any individual or group of people or may cause damage to either public or private properties, natural resources or any actions that can damage the environmental or cultural heritage of the society. Terrorism has been described as the criminal acts with the intention of causing terror to the public be it a group of people or individually for either political, religious, ideological, self-fish interests or for any other nature of reasons which might seem justifiable but under no condition are the reasons justifiable. The US Department of Defense defines terrorism as 'the calculated use of unlawful violence or threat to intimidate or coerce the government society in the pursuit of political, religious or ideological goals'. It is important to note that in this definition there are three key terms – violence, fear and intimidation and each term poses terror to its victims. P. Wilkinson defines terrorism from other types of violence in the following ways: 'terrorism creates an atmosphere of fear and directed at a wider range of unaware people i.e. violence violates norms regulating disputes and protest' 'violence is used to influence the political behavior of government or specific social groups'. Wilkinson further provides different types of terrorist groups: Ethno-nationalistic groups, the ideological terrorist groups and the religious-political groups. Nigeria currently is faced with severe threat of terrorism especially in the Northern-Eastern



part of Nigeria as the concurrent rise of terrorism has lasted for more than 10 years which indulges and allows the citizens abhor the feeling of fear and instability. The attacks includes but are not limited to the destruction of churches, schools, mosques, and other public and private institutions.

Human Security

Security can be conceptualized as the knowledge and attitude members of a society possess regarding the protection of their lives and properties. Being security aware means that one understands that there is a probability of a potential deliberate or unintentional attack on an individual or people to steal, damage, or obtain information that will be detrimental to the community and therefore being on the lookout for any signs of danger. The focus of security is centered on cultural, behavioral and attitudinal dispositions of societal members towards the protection of their lives and properties (Ezeah, P.C. and Osayi, K.K. 2012). Security is broadly viewed as freedom from danger or threats to an individual or a nation. It is the ability to protect and defend oneself be it as an individual or a nation, its cherished values and legitimate interests and the improvements of wellbeing. Security could take different forms, there is human security, national security, and so on. National security implies the state ability to implement and use coercive measures to deal with situation of crisis, nationally or internationally. Human security involves protecting the citizens from hunger, disease, poverty, unemployment, natural disasters, etc. However, all these can only take place where there is peace and stability within the polity. According to the United Nation Development programme 1994, human security could be defined as protection from unseen and harmful disruptions in the daily activities, at homes, offices or communities. That is, security is the state of being safe and secure from danger, it could also be protection from chronic threats such as hunger, diseases and death. Security is commonly associated with the mitigation of threat to the survival of individuals or groups. Thus, security can be equated with freedom from present and future danger, harm or anxiety. In countries where appropriate development paradigm is in place and practiced, the citizens enjoy high standard of living demonstrated by the willingness of government to provide the basic necessities of life in terms of jobs, water, electricity, affordable housing, foods, roads among others. Under these conditions, there could be national human security. Where there is security, there is likely to be absence of fear, threat, anxiety, tension and apprehension over loss of lives or loved ones, liberty, property, goals and values, among others. From the preceding developments, it is clear that security is vital for development in any human community. The word security has to do with freedom from danger, anxiety and fear; a situation that shows that a state is not exposed to internal insurrection or external attack. In the broader sense, security is seen as the struggle to secure the most basic necessities of life such as food, fuel, medicine and shelter. Human security may be threatened by any social unrest resulting from the absences of such facilities. National security is an accumulated cluster of security interests of all individuals, communities, ethnic groups and political entities to guarantee safety and security, prosperity of individuals and institutes within a nation. It is the requirement for maintaining the survival of any nation through the use of economic, diplomacy, power projection and political power (Caleb 2021).

4. THE ROOT CAUSES OF TERRORISM IN NIGERIA

The root causes of terrorism in Nigeria are complex and interconnected, involving various social, economic, and political factors. Some key root causes include:

Socioeconomic Inequality: Widespread poverty, lack of economic opportunities, and income disparities contribute to grievances that can be exploited by terrorist groups for recruitment. Addressing socioeconomic issues is crucial for reducing the appeal of extremist ideologies.

Ethnic and Religious Tensions: Nigeria's diverse population comprises numerous ethnic and religious groups. Historical tensions, competition for resources, and religious differences can escalate into conflicts that terrorist organizations exploit for recruitment and support.



Governance Issues: Corruption, weak governance, and ineffective institutions erode public trust and exacerbate social unrest. Addressing these issues is essential for building a stable and resilient society less susceptible to radicalization.

Political Instability: Periods of political instability provide fertile ground for the growth of terrorism. Weak governance structures, contested elections, and power struggles can create an environment conducive to extremist activities.

Human Rights Violations: Instances of human rights abuses by security forces can alienate communities and fuel resentment, providing a recruitment pool for terrorist organizations. Upholding human rights and accountability is crucial for countering terrorism.

Marginalization of Minorities: The perceived marginalization of certain ethnic or religious groups can lead to feelings of injustice and alienation. Terrorist groups may exploit these grievances to gain support and recruits from marginalized communities.

Regional Disparities: Economic and developmental imbalances between different regions of Nigeria contribute to a sense of inequality.

Addressing regional disparities is essential for fostering national unity and reducing the appeal of extremist ideologies. Addressing terrorism in Nigeria requires a comprehensive approach that addresses these root causes, encompassing social, economic, and political dimensions to promote stability, inclusivity, and resilience against radicalization but if the issue is left unattended to it causes impacts like destruction of health infrastructures, commercial dwindle, educational dwindle, agricultural dwindle, food insecurity and of course terrorism poses challenges to the security systems.

5. CHALLENGES FACED BY THE SECURITY SYSTEMS IN NIGERIA

The security system in Nigeria faces several challenges that impact its effectiveness in maintaining law and order. Some key challenges include:

Insurgency and Terrorism: The presence of terrorist groups like Boko Haram poses a significant security threat. Insurgent activities in certain regions contribute to instability, making it challenging for security forces to maintain control.

Ethnic and Religious Tensions: Nigeria's diversity is a strength, but it also brings challenges. Ethnic and religious tensions occasionally escalate into violence, straining the capacity of security forces to manage conflicts and maintain peace.

Corruption: Corruption within the security apparatus can undermine its capabilities and erode public trust. The diversion of funds, nepotism, and bribery can compromise the effectiveness of security institutions and hinder their ability to combat crime and terrorism.

Inadequate Resources: Insufficient funding, outdated equipment, and a lack of training for security personnel limit their ability to respond effectively to emerging threats. Adequate investment in resources is essential to enhance the overall capacity of the security system.

Poor Border Security: Porous borders make it challenging to control the movement of people, goods, and illicit activities. Ineffective border security contributes to the infiltration of criminal elements and the spread of terrorism.



Human Rights Concerns: Allegations of human rights abuses by security forces can strain relationships with communities and hinder cooperation in addressing security challenges. Ensuring respect for human rights is crucial for building trust and collaboration.

Inadequate Intelligence Gathering: Intelligence plays a crucial role in preventing and responding to security threats. Inadequate intelligence gathering and sharing mechanisms can impede the ability of security agencies to anticipate and counteract emerging risks.

Political Interference: Political interference in security matters can compromise the autonomy of security agencies. This interference may hinder their ability to act impartially and effectively in maintaining law and order.

Addressing these challenges requires a holistic approach, involving reforms in governance, increased investment in security infrastructure, anti-corruption measures, and efforts to build trust between security forces and the communities they serve.

6. GOVERNMENT COUNTER-TERRORISM AND SECURITY STRATEGIES IN RESPONSE TO TERRORISM IN NIGERIA

The Nigerian government has implemented various counterterrorism strategies to address the threat of terrorism in the country, particularly from groups like Boko Haram. Some of these strategies include: Military Operations. The government has deployed its military forces to combat terrorist groups, conduct raids, and dismantle their strongholds. Operations like Operation Lafiya Dole have been carried out in the northeast region, targeting Boko Haram and its affiliates.

International Cooperation. Nigeria has collaborated with regional and international partners, such as the African Union, ECOWAS, and the United Nations, to share intelligence, resources, and expertise in counterterrorism efforts.

Community Engagement. The government has initiated programs to engage local communities in counterterrorism efforts. This involves building trust, encouraging cooperation, and gathering information about terrorist activities.

Counterinsurgency Strategies. Nigeria has employed counterinsurgency tactics to win hearts and minds, including providing social services, economic development, and rehabilitation programs in areas affected by terrorism.

Legislative Measures. The government has enacted laws and policies to strengthen its legal framework for counterterrorism, enhance intelligence gathering, and prosecute terrorists and their supporters.

Border Security. Nigeria has enhanced border security measures to prevent the infiltration of terrorists and the smuggling of weapons and supplies across its borders.

Counter finance Measures. Efforts have been made to disrupt the funding sources of terrorist groups through financial investigations, anti-money laundering measures, and international cooperation to track and freeze assets.

De-radicalization and Rehabilitation. The government has established programs to rehabilitate and reintegrate former terrorists and their sympathizers into society, offering vocational training, counseling, and ideological reorientation.

Overall, these strategies aim to address the multifaceted nature of terrorism in Nigeria by combining military, diplomatic, legal, and socio-economic approaches to counter the threat effectiveness



7. THE ROLES AND PERCEPTIONS OF TERRORISM BY THE MEDIA

The media plays a crucial role in shaping public perception and understanding of terrorism in Nigeria. Here are some of the key roles and perceptions:

Information Dissemination. The media serves as a primary source of information about terrorist attacks, their perpetrators, and their impact on society. Through news reports, the media informs the public about the latest developments in the fight against terrorism.

Awareness and Sensitization. Media coverage raises awareness about the existence and threat of terrorism in Nigeria. By highlighting the consequences of terrorist activities, the media sensitizes the public to the importance of vigilance, security measures, and community resilience.

Agenda Setting. The media influences public opinion by determining which terrorist incidents receive attention and how they are framed. Through selective reporting and editorial decisions, the media can shape the public's perception of the severity and significance of terrorism in Nigeria.

Fear Amplification. Media coverage of terrorist attacks can sometimes amplify fear and anxiety among the population. Sensationalized reporting, graphic images, and alarming headlines may contribute to a sense of insecurity and vulnerability, potentially exacerbating social tensions.

Advocacy and Accountability. Journalists play a vital role in holding the government and security forces accountable for their responses to terrorism. Investigative reporting and critical analysis can uncover failures in counterterrorism strategies, human rights abuses, and corruption within security agencies.

Propaganda and Radicalization. Terrorist groups often exploit the media to disseminate their propaganda, recruit new members, and advance their ideological agenda. The media's coverage of terrorist activities can inadvertently serve as a platform for spreading extremist messages and inciting violence.

Conflict Framing. The media's framing of terrorism in Nigeria can influence public perceptions of the underlying causes and dynamics of the conflict. Depending on how terrorism is portrayed—as a religious, political, or socio-economic issue—the media can shape public attitudes towards potential solutions and responses.

Overall, the media's portrayal of terrorism in Nigeria can have profound effects on public opinion, government policies, and societal responses to the threat. It is essential for journalists to maintain objectivity, accuracy, and ethical standards in their reporting to ensure a balanced and informed public discourse on this critical issue.

8. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, terrorism and insecurity pose significant challenges to Nigeria's stability, development, and the well-being of its citizens. The threat of terrorism, particularly from groups like Boko Haram and other extremist organizations, continues to undermine security and hinder socio-economic progress in the country. Addressing these challenges requires a comprehensive and multifaceted approach that encompasses various aspects of governance, security, socio-economic development, and community engagement.

After much research and examination, I have come to the understanding that addressing terrorism and insecurity in Nigeria requires a multifaceted approach that encompasses various aspects of governance, security, socio-economic development, and community engagement which means strengthening the security forces, regional cooperation, address root causes and Ideologies of terrorism, community engagement, counter radicalization, strengthen legal framework and having international support to combat terrorism.



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HUMAN CAPITAL DEVELOPMENT AND MACROECONOMIC ENVIRONMENT IN NIGERIAN ECONOMY

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Abstract

This paper addressed the significance of human capital development on Nigerian macroeconomic environment from 1990 to 2023. Efficient human capital development and a stable macroeconomic environment are central to economic growth and development. An efficient human capital development in terms of education in the current time might be a desirable macroeconomic environment stimulant to shrinking knowledge gaps and labour wastage causality for national and labour developments. However, when human capital development strategy is not recognized and synchronized in a manner to address the prevailing gaps and macroeconomic development causalities, it becomes a menace to the entire economy. The human capital development strategy in Nigeria has been a long time threat in stabilizing macroeconomic environment volatility which often affected by stochastic factors such as civil unrest, power tussle and gapa syndrome and this calls for attention. In this study, we have adopted both descriptive and empirical procedures to determine the actual relationship between human capital development and Nigerian macroeconomic environment. Education is proxy with school enrollments in secondary and tertiary levels. Five macroeconomic variables were carefully chosen based on theoretical and empirical facts and they include GDP growth, unemployment, inflation rate, interest rate and exchange rates to represent Nigeria macroeconomic environment. Findings reveal disconnection between human capital development and macroeconomic environment in Nigeria and this has considerable caused diminution in the rate at which sustainable economic growth could be achieved. Subject to the findings, policy implications are drawn from this study for all stakeholders to make our human capital development strategy champion economic growth and development like that of Asia tigers.

Keywords: Human Capital, Development, Macroeconomic Environment, Nigeria

1. Introduction

Using human capital development to transform human capital and work environment in an attempt to achieve economic growth and development has been a major challenge facing policy makers and human capital developers in Nigeria for too long. Maku et al. (2019) cited and reaffirmed this statement in the works of (CBN, 2000; Omolara and Timothy, 2014; Çaliskan, 2015; Pelinescu, 2015 Dauda, 2016; Idenyi et al, 2016; and Raheem, Isah, & Adedeji, 2016). This phenomenon as also being an issue in almost developing nations because efficient human capital development and a stable macroeconomic environment are fundamental indicators and determinants of a sustainable economic growth. This is because they set the path way to sustain inclusive growth that will



invariably lead to poverty reduction and better living standards. (World Bank, 2020a and b). The precedence of every economy is to attain both decent work environment and economic development target having attained sustainable economic growth over a long time.

Human capital development (HCD) is therefore, all-encompassing and it is influenced by both domestic and the global world environment variables. The United Nations Development Goals 2016, the UNDP, 2016 and 2020a & b World Bank's (WB) reports, subscribed to the need of human capital development as the substantial setbacks on Sustainable Development Goal 8, aimed at promoting sustainable economic growth, employment and decent work for all in recent years in the African economies. This is because human capital development had been the 'miracle strategy' for knowledge economies like Middle East and North Africa (MENA) region, and United Arab Emirates (UAE) have used in lessening knowledge gaps causality for their developments. (UNCTAD, 2020). No doubt that, it appears over a long time that HCD is a pivot for the prosperity of economic growth and development in achieving progress in macroeconomic objectives. Most of developing countries in the world including Nigeria were insensitive and left behind on the Human Development Index (HDI) (Gumede, 2018). Unfavorable HDI trend appears noticeable in the Nigerian economy in the last few years. For instance, in 2022, Nigeria was ranked 161 position out of 193 countries in Africa by United Nations Development 2024 reports and 14 position out of 16 West African nations with a value 0.548 HDI and a change of 0.006 from the value of 2021.

In the same vain, an accelerated trend in unemployment growth rate and brain drain seems visible and resultant effect have stimulated clear ambiguity in the management of macroeconomic variables and decline in productivity. A general perception among the open-minded public is that Nigerian work environment suffer significantly from some socio-economic challenges like unemployment, poverty, crimes (kidnapping, armed robbery and yahoo plus), low savings and income inequality, health care especially the issue of COVID-19 and high mortality, over dependency and insufficient infrastructure, debt overhang, excessive inflation and exchange rates. The consequent faced is malfunctioning of macroeconomic environment cum acute brain drain popularly termed as 'GAPA syndrome (Dauda, 2016; WB, 2020; Africa Development Bank, 2020).

Excessive unemployment, inflation, interest and exchange rates are symptom based of macroeconomic instability where efficient human capital development produces little or no effect on economic progress. This is harmful to Nigeria sustainability growth as the country appears to



wallow in abject poverty both in everyday and annual outlooks, this has been attributed in ADB (2020) economic outlook, to the low educational quality, mismatches in education, skills and poor technological know-how among others and therefore, to raise a significant human capital becomes a great challenge. Although, many studies and scholars like Sen, Joseph Stiglitz, Paul Collier and Todaro have looked into the human capital development and macroeconomic in different dimensions, there is no one that has create a suitable and reliable human capital development capable of regenerating safety work environment in Nigeria where individual member can chaos, freedom from servitude and self- esteem (Todaro and Smith, 2010).

Several actions like education trust fund, skills acquisition programme and employment opportunities have been embarked governments and NGO at various levels to accelerate human capital development gains. It appears most of these have yielded trivial result or outcome. And of what significant can HCD modify and reform present macroeconomic environment in Nigeria? This study is set out to answer this question and address this gap, find out the reason why HCD seems not to stabilize macroeconomic environment volatility which often affected by stochastic factors such as civil unrest and power tussle. Sometimes, it is insurgency, kidnapping or invasion by foreign or external miscreants. When education/schooling is horribly affected by these evil vices, HCD becomes almost practically impossible.

2. Literature Review

2.1 Conceptual Review:

Human capital development refers to way of fulfilling the potentials of people by enlarging their capabilities, skills, knowledge, productivity, creativity, enabling them to participate actively in socioeconomic development. Human Development Index (HDI) has three components, they include education, longevity and income per capita. And they are represented with literacy rates (LIR), life expectancy ratio (LER) and income per capita (IRC) respectively. Investments in education and health are core ingredients of human capital development that determine the character and pace of economic and social development. The essence of human capital development in Nigeria is justified by the endogenous growth theory and ensuring that the workforce is continuously adapted for, and upgraded to meet the new challenges of its total environment Yesufu (2000). By implication, those already on the job require retraining, reorientation or adaptation to meet the new challenges. This is



because Nigeria requires healthy and highly skilled and educated labour to utilize capital and technology more effectively where the macroeconomic environment is apparently conducive (World Health Organization, 2010; World Bank, 2021). Investment in the education of healthy population lead to high labour productivity, innovation and technological advancement that are vital for nourishing long-term economic growth and stability in macroeconomic performance. Furthermore, skills training programs address mismatches between labour supply and demand, particularly in sectors experiencing skills shortages and ‘GAPA syndrome’. This is because healthy population (households) are protected from the financial burden of illness, high mortality rates, and improved overall well-being by reducing absenteeism due to illness or death at work place.

Macroeconomic environment reflects the overall health of the economy measures with macroeconomic indicators. Though they are numerous, the study only choose the 5 core variables which including GDP growth, unemployment rate, inflation rate, interest rate and exchange rates to represent Nigeria macroeconomic environment. Their stability is perquisite to the workability of HCD in achieving economic growth and development. This is because their adjustments and management, can influence the availability of credit for investments in human capital development. By implication, either positive or negative variations in these macroeconomic factors may significantly influence HCD efforts in Nigeria, affecting access to education, healthcare services. Positive GDP growth is synonymous with increased government revenues, which can be allocated towards investments in HCD (education and healthcare). Conversely, economic downturns or stagnant growth may lead to budget constraints and reduced funding for human capital initiatives. As well high unemployment rates can hinder HCD by limiting opportunities for skills acquisition and employment thereby given raise to youth unemployment, which can eventually lead to social and economic challenges, including increased poverty and crime rates (International Labour Organization, 2020). Investing in human capital development becomes crucial in addressing unemployment and enhancing GDP growth. For example, initiatives that promote entrepreneurship and vocational training can equip individuals with the skills needed to access employment opportunities or start their own businesses, contributing to both economic growth and human capital development (African Development Bank Group, 2020).

Inflation and exchange rates fluctuations can easily erode the purchasing power of households through cost thereby make access and affordability of education and healthcare services and



facilities difficult for governments to provide essential services for workforce development. At the same time, families may prioritize basic necessities over investments in education and healthcare, leading to lower school enrollment and increased dropout rates and gapa syndrome, particularly among vulnerable populations because of their inability to access educational materials, medical equipment, and pharmaceuticals. This implies that policy interventions to stabilize inflation exchange rates or manage them can influence the cost-effectiveness of human capital development investments (African Development Bank Group, 2020). In the nut shell, need to consider the potential impacts of macroeconomic policy decisions on the affordability and accessibility of human capital development in terms of education and healthcare services, as well as their implications for economic stability.

2.2 Theoretical Review:

Theoretical facts about human capital development and macroeconomic environment (growth) are discussed by the classical economists. They laid emphasis on the rate of investment as the key determinant of growth. They assert that Investment is a function of the profit's share in the national income (Anyanwu and Oaikhenan, 1995), and the higher the overall level of profits, the higher the investment and hence the higher the growth of an economy. In other words, they claim that if real GDP rose above the subsistence level of income it would cause the population to increase and bring real GDP back to subsistence level. Alternatively, if the real GDP fell below this subsistence level, part of the population would die off and real income would rise back to the subsistence level. However, the major defect of their theory is that they totally ignored the role of technical progress in growth process.

The neo-classical economists hold the view that the economy output is a function of larger inputs of capital and labour (all physical inputs). They excluded human capital development variables such as human health, skills, knowledge from the growth equation of an economy. The bottom line of neo-classical theory is that human capital development variables are essentially classified as the exogenous variables. Their basic assumptions includes constant returns to scale, diminishing marginal productivity of capital, exogenously determined technical progress and substitutability between capital and labour. But failed to explain why countries with little capital and labour grew



faster than countries with abundance of these resources, particularly in most fast-developing economies like the case of the East.

Another theory that tried to link human capital development and macroeconomic environment (growth) is endogenous growth theory. They emphasized the role of human capital and technological innovation in driving long-term economic growth. They replaced the Solow long run steady state of zero per capita growth, and bring long-run growth back by incorporating human capital accumulation, technological innovation, and knowledge spill overs as endogenous drivers of economic growth. To them, investments in human capital development, such as education and research, lead to technological progress and productivity gains, may, in turn, stimulate economic expansion and improve living standards. That is, in our analysis, theory provides insights into the dynamic relationship between human capital development and macroeconomic performance by suggesting that policies aimed at promoting human capital accumulation and innovation can foster sustained economic development and reduce dependency on external factors. Consequently, education, healthcare, and skills training play critical role in fostering innovation, competitiveness, and sustainable development (Osei et al., 2021).

2.3 Empirical Review:

There are quantum numbers of empirical research on human capital development and the economic growth unfortunately, empirical studies related to the linkages between human capital development and the macroeconomic environment are very few and scanty. In Nigeria, the issue on the link between human capital development and the macroeconomic environment demands so much attention that new research are required. Perhaps, some of the current research like our own would offer significant solution to their link.

Oluwatobi & Oluranti (2011), Jaiyeoba (2015), and Idenyi et al., (2016) showed that a positive relationship exists between recurrent government expenditure on human capital development and the level of real output, while capital expenditure is negatively related to the level of real output.

Amassoma and Nwosa (2011) investigated the causal nexus between human capital Investment and economic growth in Nigeria for sustainable development in Africa at large between 1970 and 2009. They used a Vector Error Correction (VEC) and pairwise granger causality techniques. Their Vector Auto regression (VAR) model and pairwise estimate results show that there was no causality



between human capital development and economic growth. Similarly, the study recognized that government needs to reckon with the issue of labour mismatch in order to accelerate and sustain economic growth. Adelakun (2011) examined human capital development and economic growth using OLS technique and discovered that a positive relationship exist between government expenditure on education and health with the pattern of enrolment in primary, secondary, and tertiary institutions in enhancing economic growth in the long run.

Kanayo (2013) showed that investment in human capital in the form of education and capacity building at the primary and secondary levels impact significantly on economic growth, while capital expenditure on education was insignificant to the growth process. Muhammad Abdul Wahab and Ahmed, (2013) empirically investigate the relationship between human capital development and economic growth in Pakistan using co-integration and error correction techniques. The study finds that expenditure on education has significant and long run positive impact. It also find out that primary school enrolment and secondary school enrolment have positive and negative impacts respectively in both the short-run and long-run.

Mehrara and Pegkas (2014) examined the potential impact of the different educational levels on economic growth in Greece over the period 1960–2009. Co-integration and error-correction models is used to investigate the link between educational levels and economic growth. The investigation shows that secondary and higher education have a statistically significant positive impact on growth, while primary education contributed negatively to economic growth. Jaiyeola (2015) identifies that secondary and tertiary institution enrolments are statistically and positively related to economic growth, while education expenditure and primary school enrolment have negative relationships with economic growth when he used OLS and co-integration techniques. The study by Adeyemi and Ogunsola (2016) used time series data spanning from 1980 to 2012 and ARDL co-integration analysis. They discovered a positive long-run relationship among secondary school enrolment, public expenditure on education, life expectancy rate, and economic growth, but it is statistically insignificant and a negative long-run relationship among primary school enrolment, tertiary school enrolment and public expenditure on health and economic growth. Obialor (2017) examines the effect of human capital investment on the economic growth of three Sub-Sahara African countries of Nigeria, South Africa and Ghana; data were analyzed using cointegration technique and Vector



Error Correction Model (VECM). His findings established that human capital development has positive and significant relationship on economic growth. His finding is consistent with the endogenous growth model theory that improvement in human capital expands productivity.

Keji (2021) employed vector autoregressive and Johansen techniques to study the nexus between human capital and economic growth in Nigeria between 1981 and 2017. He found out that human capital indicators like students' enrolment rate, labour participation rate and total labour force are significant with a long-run effects on economic growth. The study of Ayeni & Akeju (2023) investigated the interactions of human capital, capital goods import and economic growth using a panel of 13 West African countries comprises of 7 low income and 6 low-middle income countries for the period of 1980-2018. They discovered that human capital input in terms of knowhow and skill arising from the low levels are inadequate in these countries because less gain came from equipment investment and other imported investment. And that countries of the low-middle income that exhibit a comparatively higher human capital (1.45 on the average) benefited more from imported capital stock and other importations than countries of the low income with very low human capital (1.27 on the average).

The series of literature reveal so far give insight into various views about the effect human capital development on the economic growth. Most of the authors agreed that human capital development and secondary and tertiary institution enrolments are positively correlated with economic growth. However, critical effect of human capital development on macroeconomic environment such as GDP growth, unemployment, inflation and exchange rates have not adequately been examined. In addition, most research that are based on Nigeria omitted the peculiarity of unemployment, inflation and exchange rates trend and their volatilities and how these might be corrected with human capital development. This research work will carry out a more painstaking empirical analysis that may yield improved results over previous research. Figure 2.1 below shows human capital index and key macroeconomic indicators such as unemployment, inflation and exchange rates for Nigeria.

3. Methodology

We adopt dynamic ordinary least square (DOLS) method to estimate the study's regression coefficients. Estimation is based on short run and long run impact of human capital development on macroeconomics environment in Nigeria from 1990 - 2023. Human capital development is



denoted by Tertiary School Enrollment (TSR). We assumed that Tertiary School Enrollment (TSR) give a broader measure of HCD in any country and majority of workforce fall within these classifications and more so, it represents a critical basic measurement of education. In addition to GDP growth (GDP_G) other explanatory variables include, unemployment rate (UEMP), interest rate (INTR), interest rate (INTR), inflation rates (INFR), and export rate (EXPR). GDP growth (GDP_G) represents income per capital. Tertiary School Enrollment (TSR) appears better than literacy rate and human development index because there is no statistical data for literacy rate and variations exist in the composition of human development indices (that is 4 indices were used from 2010 to 2013 and 6 indices were used for its computation). In this study, we assumed these key variables can affect the human capital development. Since we are dealing with time series data, we would carry out unit root and co-integration tests. Running regression with time series without testing for structural breaks may generate spurious regression results (Yule, 1927; Pesaran and Shin, 1999). The relations between human capital development and independent variables are expressed as:

$$TSE = f(GDP_G + UEMP + INTR + INFR + EXPR) \quad (1)$$

Apriori expectation: - + + - +

The variables are as defined in section 3. Annual GDP growth (GDP_G) and inflation rates are expected to have negative relationship with human capital development indicators (TSE). Unemployment rate (UEMP), interest rate (INTR) and export rate (EXPR) are all expected to be related positively with change in human capital development indicators (SEE, TSE, and LER).

The study's theoretical framework rests on one of the basic theories of human capital development on human capital. In this study, we embrace Endogenous conception that is, long-run growth in terms of human capital accumulation, technological innovation, and knowledge spill overs as endogenous drivers of economic growth. (Samuelson and Solow, 1960). This concept believes that macroeconomic objective is driven by accumulation stock of technological innovation, and knowledge spill overs leading to stable macroeconomic environment for GDP growth, unemployment rate, interest rate, inflation rates and export rate which manifest in the form of rapid rise in macroeconomic substances like living standard, employment, and inflation rates which are key to health and welfare of the economy.

Subsequent to Shuaibu and Oladayo (2016) with a little modification, we apply both parametric and non-parametric methods to give quantitative analysis of this study. We start with descriptive statistical method and end it with the ordinary least squares (OLS) to achieve robustness in the study. However, our model differs from previous authors by considering time factor and only one out of three components of human capital development index is examined. Most previous authors stopped analysis in year 2019. The recent ones (Dauda & Iwegbu, (2022), Ayeni & Akeju (2023) appear to have omitted some relevant variables in their model. We observed time series data from 1990-2023 and dynamic OLS is employed as the estimation technique. By “dynamic” time factor is considered whereby we capture the effects of lag independent variables. The OLS short run and long run regression equations are stated in equations (2) and (3) respectively:

$$\Delta TSE_t = \beta_0 + \beta_1 \sum GDP_{G(t-1)} + \beta_2 \sum UEMP_{(t-2)} + \beta_3 \sum INTR_{(t-3)} + \beta_4 \sum INFR_{(t-4)} + \beta_5 \sum EXPR_{(t-5)} + ec_{t-1} \quad (2)$$

$$TSE_t = \beta_0 + \beta_1 \sum \Delta GDP_{G(t-1)} + \beta_2 \sum \Delta UEMP_{(t-2)} + \beta_3 \sum \Delta INTR_{(t-3)} + \beta_4 \sum \Delta INFR_{(t-4)} + \beta_5 \sum \Delta EXPR_{(t-5)} + \mu_{t-1} \quad (3)$$

Where Δ represents change, for instance, ΔTSE_t denotes change in tertiary school enrollments in a particular year as a result of changes in the explanatory variables, while TSE_t represents value of human capital development in the long run as a result of changes in explanatory variables and when adjustment has been made in, ΔTSE_t and $\beta_0 - \beta_5$ are coefficients to be estimated, ec_{t-1} , μ_{t-1} is the long run error correction term or determining factors that might affect human capital development indicators in the long run which the independent variables might not explained.

4. Regression Results

In this section, we present the regression results, its interpretation and discussion. The presentation begins with examination of the contemporaneous relationship between one variable and another. To avoid spurious regression outcomes (Yule, 1926, Engle and Granger, 1987, Pesaran and Pesaran, 1997) often associated with time series data, unit root test was carried out. In addition, to determine the existence of long run relationship among the variables, a co-integration test was performed.

4.1 Descriptive Statistics Results

Table 1: Summary of Descriptive Analysis of the Human Capital Development and Macroeconomic Environment.

TSE	GDPG	UEMP	INTR	INFR	EXPR
-----	------	------	------	------	------



Mean	10.09349	4.243529	4.907647	7.577162	17.66946	20.69609
Median	10.05056	4.215000	3.830000	7.532461	12.80061	21.00436
Maximum	17.40359	15.33000	9.010000	11.06417	72.83550	36.02327
Minimum	4.977150	-2.040000	3.590000	3.268333	5.388008	8.829530
Std. Dev.	3.761119	3.907155	2.005012	1.592426	15.92217	6.899237
Skewness	0.187896	0.501915	1.278321	-0.077033	2.283617	0.132393
Kurtosis	2.115021	3.483434	2.725538	3.662764	7.166007	2.313836
Jarque-Bera Probability	1.309578 0.519552	1.758629 0.415067	9.366636 0.009248	0.655906 0.720397	54.13825 0.000000	0.766322 0.681703
Observations	34	34	34	34	34	34

Source: Author's Computation

Table 1 shows summary of statistics of the variables used to analyze the effect of human capital development on macroeconomic environment in Nigeria. It can be observed that average GDP growth rate (GDP_G) from 1990 to 2023 is 4%, unemployment rate (UEMP) is 5% while inflation (INFR) and export rates (EXPR) are 18% and 20% respectively. The 4% and 5% annual average year-on-year (GDP_G) and (UEMP) values, persistent for a period of 34 years in Nigeria is a record too low. This highlights one of the reasons for poor human development in reactivating macroeconomic in Nigeria. Human capital development not counterbalanced by proportionate increase in growth rate (GDP_G) and unemployment rate (UEMP) will implicitly prolong the illusion of macroeconomic in Nigeria. The noticeable differences between dependent variable (TSE) and the 2 independent variables (GDP_G & UEMP) shows the extent to which Nigeria take the advantage of human capital development. When inequality rises, with respect to (GDP_G & UEMP), majority of the youths would likely become waste labour. Other statistics measures how our data corresponds or matching with normal distribution. For instance, a kurtosis results shows a platykurtic (< 3.0) value for GP while for other variables, it shows leptokurtic (> 3.0) value. This means

4.2 Augmented Dickey Unit Root Tests

Table 2: The Results of the ADF Test Unit Root Test Results

Variable	ADF		ADF		Integration Order
	t-stat	at Level	t-stat	at 1st Diff	
TSE	0.3522	0.978	-6.0595	0.000	I (1)
GDP_G	-3.7343	0.008			I (0)
UEMP	0.2974	0.975	-4.5244	0.001	I (1)
INTR	-4.0837	0.0603			I (0)



INFR	-2.1641	0.222	-6.58289	0.000	I (1)
EXPR	-2.7199	0.081	-7.4591	0.000	I (1)

Source: Author's Computation (E-views 10)

The Augmented Dickey Fuller test is presented in Table 2. All the variables are integrated of order one except for GDP_G & INTR that are zero. That is all the variables have unit root except for GDP_G & INTR.

4.3 Short Run Error Correction

Table 4: Result of the Short Run Effect (Equation 2)
Dependent Variable = D(GP)

Variable	Co-eff	Std. Error	t-Stat	Prob
C	-0.1663	1.2764	-0.1301	0.8974
TSE (-1)	0.8483	0.1234	6.8756	0.0000
GDPG	-0.0129	0.0568	-0.2264	0.8227
UEMP	0.3341	0.2051	1.62934	0.0116
INTR	-0.0014	0.09175	-0.0155	0.9877
INFR	-0.0164	0.01197	-1.3674	0.1837
EXR	0.0361	0.0307	1.1751	0.2510
ECT(-1)	0.09404	0.1198	0.7847	0.4400

R-Squared 0.967630 *Adjusted R-Squared* 0.9585566 *F-stat* 106.7585 *Pro(F-stat)* 0.00000

Source: Author's Computation (E-views 10)

We present the short run error correction result on human capital development on macroeconomic environment in Nigeria in table 4.3. The coefficient of error term (0.09404) depicts speed adjustment to long run equilibrium. Approximately 94% value represents a high speed of adjustment to equilibrium in the long run. At the current period, human capital development is positively related with macroeconomic environment, that is, as human capital development rises, per capita income also falls or at least the real income value falls. But after some times (one lag period) per capita income rises with increasing inflation rate. This may arise in the wake of labour union demanding wage rise to counterbalance upward movement in general price level which implicitly reduces



affects workers' earnings and welfare. In the short run, unemployment rate (UEMP) is significant at 5% and positively related with TSE. This may be the effect policy reversal and uneven distribution of income. Gross national expenditure is positively and significantly related with GP. According to endogenous theory, government expenditure is necessary to increase aggregate tertiary school enrollment via rise in demand. This technical and technology education will improve job creation and reduce labour waste the economy would recover from macroeconomic depression. GDP_G , INTR and INFR are inversely related to human capital development (TSE) in Nigeria. This means that as value addition appear rising TSE falls, representing insignificant increases, too low to add value to macroeconomic environment.

The R-squared and adjusted are R-squared, approximately 97% and 96% respectively explain a high degree of changes that occur in dependent variables as result of changes in independent variables. In this work, we submitted that the independent variables can determine changes in the dependent variables significant in the short run. The probability f-statistics (0.0000) shows a goodness of fit in the short run. From here, we will proceed to the long run.

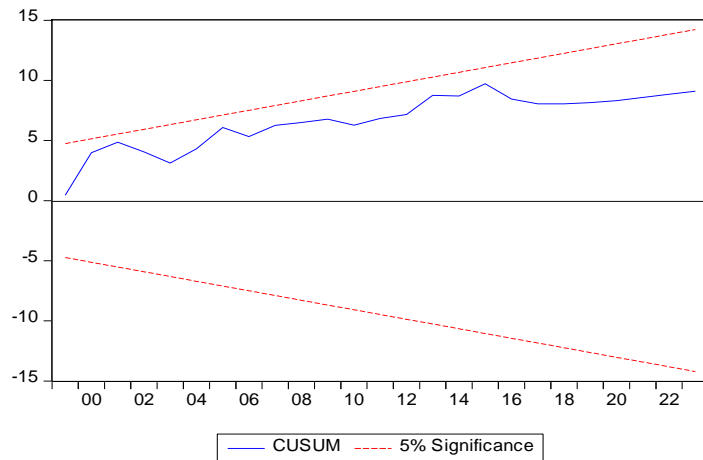
4.4 Long Run Estimation of Coefficients (F- Bounds Test)

Table 5: Result of the Long Run Effect (Equation 3)

F-stat	1.720873
Finite sample n=30,	
10%:	2.334 3.515
5%	2.794 4.148
1%:	3.976 5.691

No long run relationship between human capital development and macroeconomic environment in Nigeria because F-stat 1.720873 *does* not fall with the significant level at 5%. It appears that the kind of human capital development we embraced in Nigeria can stabilize macroeconomic environment in the long run.

4.5 CUSUM (Diagnostic Tests)



This is a goodness of fit and best linear unbiased estimation. The stability tests depicts stability of the variables being used for regression. This suggests that if human capital development is increased it can stabilize macroeconomic environment in the long run.

5. Conclusion and Recommendations

This study focused on the effect of human capital development in stabilizing macroeconomic environment in Nigeria. Observation period covered 1990 to 2023. The human capital development (TSE) has not real drive macroeconomic environment in Nigeria in creating jobs and stabilizing INF and through mass productivity that will propel inclusive growth which can be sustained over a long period .In fact, the social crime and massive brain drain that mask the Nigeria environment can be abated. This has been addressed by the government, of Nigeria. Different authors have also treated the topic in relation to the link between human capital development and macroeconomic environment. As a research topic, they offered several solutions which, in practice, appeared ineffective. This study attempted to re-examine the connection between human capital development and macroeconomic environment.. In the empirical findings, it was discovered that long run connection between human capital development and macroeconomic environment in Nigeria, is worse. This trend must stop in order to reduce poverty and waste labourforce and maintain a sound level of economic growth and development. We also found that government expenditure is very important to Nigerian human capital development to stimulate aggregate productivity that will make the country to bridge the development gap. We suggest that Nigerian government needs to be more proactive in the management of human capital development. Performing these responsibilities with



absolute commitment will enhance macroeconomic environment and we can be able to benefit from proper implementation of human capital development as it happens in Asia countries.

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***FUEL SUBSIDY, EXCHANGE RATE AND ECONOMIC DEVELOPMENT
IN NIGERIA: 1990-2022***

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Abstract

The study investigated the impact of fuel subsidy and exchange rate on economic development in Nigeria between 1990 and 2022. The study examined the relationship among fuel subsidy, exchange rate and economic development within the period under review.

The study utilized the Error Correction Model (ECM) and granger causality test to determine the effect of fuel subsidy and exchange rate on economic development and to test the direction of causality among variables respectively.

The study found out that fuel subsidy has insignificant negative effect on economic development and that exchange rate has insignificant positive effect within the period under review. The study also found out that There is no causality among fuel subsidy, exchange rate and economic development.

The study concluded that fuel subsidy has insignificant negative effect on economic development, and exchange rate exhibit an insignificant positive effect. Based on Granger causality, there is no causality among fuel subsidy, exchange rate and economic development. The study hereby recommend that Since fuel subsidies have negative effect on economic development, Nigerian government could consider gradually phasing out of these subsidies. Instead, reallocating the funds saved from subsidy removal towards more productive sectors such as education, healthcare, infrastructure, and social welfare programs could yield greater benefits for overall economic



development and that Nigerian government should continue to implement measures to manage exchange rate fluctuations, such as adopting prudent monetary and fiscal policies, building foreign exchange reserves, and encouraging foreign direct investment.

1. Introduction

The Nigerian economy has been subsidized in various ways for many years and areas subsidized includes fuel, education, electricity and so on. A subsidy is defined as any measure that keeps prices for a good or product below market level for consumers or producers (Adenikinju, 2017). Subsidies can take different forms like grants, tax reduction or exemption, price control, and so forth. Others affect prices or costs indirectly, such as regulations that skew the market in favour of a particular fuel, government-sponsored technology, or research and development (R&D) (Alozie, 2009). In Nigeria, the federal government operated fuel subsidy with the aim of making petroleum products available with a view to cushioning the effect of actual market prices of the product on the general populace (Eyiuche, 2012). The federal government during the military era was of the opinion that the cost of production, transportation of fuel will be so much a heavy burden for the poor masses of Nigeria to bear alone and therefore decided to pay part of the total amount of fuel cost for every Nigerian in order to make the product available and affordable. This is actually what is referred to as fuel subsidy, that is, the government paying part of the total amount of fuel cost.

One of the most extensively discussed topics in Nigeria today are exchange rates and their continual changes. The exchange rate reflects the ratio at which one currency can be exchanged for another, i.e., the price difference between the two currencies. It is the exchange rate between a foreign currency and the currency of the home country. It also specifies the value of one currency in terms of another. Exchange rate is the price of one country's currency in relation to another country currency. It is the required amount of unit of a currency that can buy another currency. The price of one country's currency represented in terms of another currency is known as the exchange rate. It determines the relative prices of domestic and imported commodities, as well as the degree of the external sector's involvement in international commerce. Nigeria is a major oil-producing country, but it often relies on importing refined petroleum products due to inadequate domestic refining capacity. Fluctuations in exchange rates directly impact the cost of importing these products. A weaker local currency may lead to higher import costs, affecting the affordability of fuel and potentially influencing fuel subsidy policies (Adenikinju and Onafowora, 2013). The Nigerian economy has been bedeviled by the challenge of instability in its foreign exchange rate market due



to a high level of volatility (Kelikume and Nwani, 2019; Osabuohien, Obiekwe, Urhie, 2018). This is unsurprising given its importance as a major macroeconomic determinant that may help any country achieve its optimum degree of growth and development through optimal productive capacity, particularly in a country like Nigeria that is heavily reliant on imports.

From policy perspective, economic development can be defined as efforts that seeks to improve the economic well-being and quality of life of a community by creating and/or retaining jobs and supporting or growing incomes and the base. It is a sustained community effort to improve both the local economy and the quality of life by building area's capacity to adapt to economic change (Loveridge and Morse, 2016). Economic development in the context of Nigeria refers to the sustained improvement in various economic indicators, social well-being, and living standards within the country. It involves the enhancement of economic activities, infrastructure, human capital, and overall prosperity. This definition suggests that there is difference between economic development and economic growth. Economic growth represents an increase in jobs and income in the community. It refers to the expansion in economic activity in the state. On the other hand economic development encompasses job and income growth, sustainable increase in the productivity of individuals, businesses and resources to increase the overall wellbeing of citizens and quality of life. In achieving economic development, Salmon Valley Business and Innovation Centre (2017) proposed that in order to bring about development, policies that governments undertake to meet broad economic objectives such as price stability, high employment and sustainable growth which essentially focused on trade should be taken seriously.

The economic rationale for fuel subsidies in Nigeria is deeply rooted in the government's goal of ensuring social welfare and economic stability. Nigeria, as a developing country, grapples with significant poverty levels and income inequality. The majority of its population who resides in rural and urban areas depends on fuel for various economic activities, including transportation, agriculture, and electricity generation (Balogun & Folarin, 2018). As such, any fluctuations in fuel prices directly impact the cost of living and overall economic wellbeing. Maintaining artificially low fuel prices through subsidies is perceived as a means to enhance affordability, particularly for economically vulnerable segments of the population. This affordability is crucial for sustaining economic activities, ensuring access to essential services, and promoting social cohesion (Ogundipe et al., 2020). By subsidizing fuel, the government aims to shield consumers from sudden price hikes,



which could exacerbate poverty and inequality, while also fostering consumer confidence and spending.

Fuel subsidy has been identified as a major drain on the Nigerian economy, with the government spending billions of dollars every year to keep fuel prices low (Ayodele, 2012). This is a significant amount of resources that could have been channeled towards other sectors of the economy, including education, which is critical for human capital development and long-term economic growth (Oyebanji and Alawode, 2015). The persistent challenge of aligning fuel subsidy, exchange rate dynamics, and economic development in Nigeria stems from a combination of policy implementation challenges, global economic vulnerabilities, structural issues, and the absence of a comprehensive and integrated strategy. Addressing these complexities is crucial for fostering sustainable economic development in the country. The issue of fuel subsidy in developing countries has sparked a heated debate among stakeholders globally. This debate involves various stakeholders including government officials, policymakers, economists, environmentalists, energy experts, and citizens of these countries, as well as international organizations and NGOs about the efficiency and equity of government spending as well as the social and economic impact of fuel subsidy in the country. The persistent depreciation in the exchange rate has led to a shortage of foreign exchange for the importation of the essential inputs for the industrial sector which has led to high costs of production in the country. The objective of this study is to examine the relationship among fuel subsidy, exchange rate and economic development in Nigeria within the period under review.

2. Empirical Review

Olufemi and Okunola (2020) examined the impact of fuel subsidy removal on economic growth and inflation in Nigeria using time series data. Their findings suggested that fuel subsidy removal had a significant effect on economic growth and inflation, with the removal leading to increased inflation in the short term but positive effects on economic growth in the long term.

Umoru and Abu (2019) conducted a study to analyze the relationship between fuel subsidy removal, exchange rate depreciation, and economic growth in Nigeria. Their results indicated that fuel subsidy removal and exchange rate depreciation had adverse short-term effects on economic growth but could potentially lead to long-term benefits for the economy.



Alege and Osabohien (2017) investigated the relationship between energy consumption (including fuel subsidy) and economic growth in Nigeria. They found a positive relationship between energy consumption and economic growth, suggesting that policies aimed at promoting energy efficiency and reducing fuel subsidies could contribute to sustainable economic development.

Olaniyi (2019) conducted a time series analysis to examine the effects of exchange rate fluctuations on economic development in Nigeria. The study found that exchange rate fluctuations had a negative impact on economic development, with depreciation of the exchange rate leading to decreased economic growth and increased inflation.

Anyanwu (2017) investigated the impact of exchange rate changes on foreign debt service in Nigeria. The study found that exchange rate fluctuations could significantly affect the country's ability to service foreign debt, highlighting the importance of exchange rate stability for economic development.

Atoyebi, Kadiri, Adekuyo, Ogundeji and Ademola (2012) carried out a research on the impact of fuel subsidy removal on agricultural sector output. The study employed spearman's rank correlation and observed the existence of positive correlation between fuel subsidy removal and prices of agricultural output.

Alasha (2020) examined the relationship between exchange rate fluctuations and its impact on the Nigerian economic growth using exchange rate, interest rate, inflation rate and trade balance as variables and data sourced from the Central Bank of Nigeria statistical bulletin & publications from the National Bureau of statistics. Using the classical least regression model and ordinary least square method (OLS) and other techniques such as the Augmented Dickey Fuller test, Cointegration and Granger Causality test to analyze the data. The findings indicated that inflation rates and exchange rates negatively impacts GDP while interest rates have positive impact on GDP.

3. Methodology

In order to examine the impact of fuel subsidy and exchange rate fluctuation on economic development in Nigeria for the period 1990 to 2022, annual data for the period were collected and employed for the analysis. The data used in the study were collected from secondary sources such as Central Bank of Nigeria (CBN) statistical bulletin which includes oil revenue, exchange rate



inflation rate and interest rate; Nigerian National Petroleum Commission (NNPC) which includes fuel subsidy and petroleum pump price; and World Bank development indicator index.

The model is implicitly specified in line with the study of Chinecherem, Iregbenu and Uju (2015) as well as Iheanachor and Ozegbe (2021) with slight modifications. The model is specified as thus;

$$PCI = f(FSS, PPP, OIR, EXR, IFR, INT) \dots\dots\dots 3.1$$

Econometrically, the equation 3.1 is expressed as thus;

$$PCI_t = f(FSS_t, PPP_t, OIR_t, EXR_t, IFR_t, INT_t) \dots\dots\dots 3.2$$

Econometrically, equations 3.2 is therefore expressed as stated below;

$$PCI_t = \alpha_0 + \beta_1 FSS_t + \beta_2 PPP_t + \beta_3 OIR_t + \beta_4 EXR_t + \beta_5 IFR_t + \beta_6 INT_t + U_t \dots\dots\dots 3.3$$

In Natural logarithmic form, equations 3.3 is specified as follows;

$$\ln PCI_t = \alpha_0 + \beta_1 \ln FSS_t + \beta_2 \ln PPP_t + \beta_3 \ln OIR_t + \beta_4 EXR_t + \beta_5 IFR_t + \beta_6 INT_t + U_t \dots\dots\dots 3.4$$

Where;

PCI = Per capita income, proxy for Economic Development (₦' million)

FSS = Fuel subsidy (₦' billion)

PPP = Average petrol pump price (₦ = \$)

OIR = Oil revenue (₦' billion)

EXR = Exchange rate (₦' hundred)

IFR = Inflation rate (%)

INT = Interest rate (%)

ln = Natural logarithm

α_0 = Intercept

$\beta_1 - \beta_6$ = Parameters to be estimated

U = Error term

t = 1990 – 2022 (33 years)

Due to the nature of variables after performing unit root test, the Error Correction Model (ECM) is specified as thus;

$$\begin{aligned} \Delta \ln pci_t = & \sum_{i=1}^l \omega_i \Delta \ln pci_{t-1} + \sum_{i=1}^l \omega_i \Delta \ln pci_{t-2} + \sum_{i=1}^m \mu_i \Delta \ln fss_{t-1} + \sum_{i=1}^m \mu_i \Delta \ln fss_{t-2} + \\ & \sum_{i=0}^n \Omega_i \Delta \ln ppp_{t-1} + \sum_{i=0}^n \Omega_i \Delta \ln ppp_{t-2} + \sum_{i=1}^o \rho_i \Delta \ln oir_{t-1} + \sum_{i=1}^o \rho_i \Delta \ln oir_{t-2} + \sum_{i=0}^p \vartheta_i \Delta \ln exr_{t-1} + \\ & \sum_{i=0}^p \vartheta_i \Delta \ln exr_{t-2} + \sum_{i=1}^q \pi_i \Delta \ln ifr_{t-1} + \sum_{i=0}^r \sigma_i \Delta \ln ifr_{t-2} + \sum_{i=0}^r \sigma_i \Delta \ln int_{t-1} + \sum_{i=0}^r \sigma_i \Delta \ln int_{t-2} + \lambda ECM_{t-1} + \\ & \varepsilon_t \dots \dots \dots 3.5 \end{aligned}$$

In order to achieve the second objective, the following models were used to test the direction of causality among adopted variables;

$$\ln pci_t = \alpha_1 + \sum_{i=1}^p \gamma_i \ln pci_{t-i} + \sum_{i=1}^p \delta_i \ln fss_{t-i} + \varepsilon_{1t} \dots \dots \dots 3.6$$

$$\ln fss_t = \alpha_1 + \sum_{i=1}^p \gamma_i \ln fss_{t-i} + \sum_{i=1}^p \delta_i \ln pci_{t-i} + \varepsilon_{2t} \dots \dots \dots 3.7$$

$$\ln pci_t = \alpha_1 + \sum_{i=1}^p \gamma_i \ln pci_{t-i} + \sum_{i=1}^p \omega_i \ln exr_{t-i} + \varepsilon_{3t} \dots \dots \dots 3.8$$

$$\ln exr_t = \alpha_1 + \sum_{i=1}^p \gamma_i \ln exr_{t-i} + \sum_{i=1}^p \omega_i \ln pci_{t-i} + \varepsilon_{4t} \dots \dots \dots 3.9$$

$$\ln fss_t = \alpha_1 + \sum_{i=1}^p \gamma_i \ln fss_{t-i} + \sum_{i=1}^p \omega_i \ln exr_{t-i} + \varepsilon_{5t} \dots \dots \dots 3.10$$

$$\ln exr_t = \alpha_1 + \sum_{i=1}^p \gamma_i \ln exr_{t-i} + \sum_{i=1}^p \delta_i \ln fss_{t-i} + \varepsilon_{6t} \dots \dots \dots 3.11$$

4. Results

4.1 Preliminary Analysis

In order to achieve the first objective of this study, it became necessary to establish the order of integration of the variables involved. Determining the order of integration of variables is important for two reasons. One, it is a key determinant of the estimation techniques used in achieving set objectives. Secondly, it helps to determine the transformations that may be necessary to ensure the series are well suited to certain objectives. In order to gain more confidence in the robustness of the findings of this study, the Augmented Dickey Fuller (ADF) and the Philips-Perron (PP) tests were employed to determine the time series properties of the variables in this study.

Table 1 showed the Augmented Dickey-Fuller (ADF) unit root test output for all variables and it was shown that LNPPP and INT were stationary at level, LNFSS, LNOIR, EXR and IFR were stationary at first difference while LNPCI was stationary at second difference.

Table 1: Augmented Dickey-Fuller (ADF) Unit Root Test Output

S/N	VARIABLE	LEVEL	1 ST DIFFERENCE	2 ND DIFFERENCE	REMARK
1.	LNPCI	[-2.537414] (0.1187)	[-1.295301] (0.6154)	[-4.670585] (0.0009)	I ₂
2.	LNPFSS	[-1.821815] (0.3636)	[-7.455725] (0.0000)	[-4.745346] (0.0009)	I ₁
3.	LNPPP	[-5.305866] (0.0001)	[-7.455725] (0.0000)	[-4.745346] (0.0009)	I ₀
4.	LNOIR	[-2.323541] (0.1711)	[-5.216766] (0.0002)	[-6.186493] (0.0000)	I ₁
5.	EXR	[2.380873] (0.9999)	[-3.598512] (0.0117)	[-6.957696] (0.0000)	I ₁
6.	IFR	[-2.155400] (0.2257)	[-4.574180] (0.0010)	[-9.518291] (0.0000)	I ₁
7.	INT	[5.460782] (0.0001)	[-10.99491] (0.0000)	[-3.764052] (0.0094)	I ₀

[] = t-statistics () = Probability

Source: Author's Computation

Table 2 above reported the Phillips-Perron (PP) unit root test output for all variables and it was reported that LNPPP, LNOIR and INT were stationary at level while LNPCI, LNPFSS, EXR and IFR were stationary at first difference.

Table 2: Phillips-Perron Unit Root Test Output

S/N	VARIABLE	LEVEL	1 ST DIFFERENCE	2 ND DIFFERENCE	REMARK
1.	LNPCI	[-1.474896] (0.5332)	[-6.014986] (0.0000)	[-31.91865] (0.0001)	I ₁
2.	LNPFSS	[-1.617170] (0.4625)	[-7.539872] (0.0000)	[-19.97158] (0.0001)	I ₁
3.	LNPPP	[-5.447755] (0.0001)	[-7.291220] (0.0000)	[-24.20318] (0.0001)	I ₀

4.	LNOIR	[-4.647356] (0.0008)	[-5.206327] (0.0002)	[-17.33139] (0.0001)	I ₀
5.	EXR	[2.619310] (1.0000)	[-3.503106] (0.0117)	[-6.957696] (0.0000)	I ₁
6.	IFR	[-2.430624] (0.1417)	[-4.561407] (0.0010)	[-8.608555] (0.0000)	I ₁
7.	INT	[5.519244] (0.0001)	[-13.10692] (0.0000)	[-3.43514] (0.0000)	I ₀

[] = t-statistics () = Probability

Source: Author's Computation

Since there is combination of both I(1) and I(0) variables in the model, the model is hereby subjected to ARDL bound test for cointegration in order to determine the if there exist long run relationship among the variables in the model.

Table 3 showed the bound cointegration test for the model. From the table, the bound co-integration test shows that H₀ no level relationship is quickly rejected as against H₁. With the F-Statistic value of 7.63 being greater than both the upper bound at 5% critical value which is 2.27 and 3.28, thereby pointing to a situation of consistent long run relationship among the variables in the study.

Table 3: Bound Test Output

F-Bounds Test				
Null Hypothesis: No levels Relationship				
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	7.633840	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

Source: Authors' Computation

Table 4 showed the lag length selection criteria output. The lag selection criteria is based on the least selected lag length by different criteria (that is Akaike Information Criterion (AIC), Schwartz Information Criterion (SC) and Hannan-Quinn Information Criterion (HQ)). Based on the above result, the appropriate lag length is Lag 2 which is the least as selected by Schwartz Information Criterion.

Table 4: Lag Length Selection Criteria Output

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1.325892	NA	0.100983	0.537154	0.860958	0.642706
1	6.727451	11.95012*	0.064323	0.082100	0.452161	0.202731
2	8.728508	2.840211	0.060618*	0.017516*	0.433834*	0.153225*

Source: Author's Computation

4.2 Regression Results

Table 5 showed the ECM result of the model. The result showed that a period lag of LNPCI which is 0.48 with probability value of 0.03 showed a positive relationship between the variable and per capita income of the current year which is used as a proxy for economic development and it is statistically significant at 5% and it implies that a percentage increase in previous a period lag of PCI would lead to 48% increase in PCI of the current year. The coefficient of second period of LNPCI which is -0.11 with probability value of 0.55 showed a negative relationship between the variable and per capita income of the current year which is used as a proxy for economic development but not statistically significant at 5% and it implies that a percentage increase in two period lag of LNPCI would lead to 11% decrease in PCI of the current year.

The value of the first period lag of LNFSS which is 0.05 with probability value of 0.47 showed a positive relationship between the variable and per capita income of the current year which is used as a proxy for economic development but not statistically significant at 5% and it implies that a percentage increase in the first period lag of LNFSS would lead to 4.7% increase in LNPCI of the current year. The coefficient of second period lag of LNFSS which is -0.02 with probability value of 0.71 showed a negative relationship between the variable and per capita income of the current year which is used as a proxy for economic development but not statistically significant at 5% and it implies that a percentage increase in second period lag of LNFSS would lead to 2% decrease in LNPCI of the current year.

Exchange rate in the first period have a value of 0.00 with probability value of 0.65 showed a positive relationship between the variable and per capita income of the current year which is used as a proxy for economic development and it is statistically significant at 5% and it implies that a percentage increase in EXR in the first period would lead to 0% increase in LNPCI of the current year. The coefficient value two period lag of EXR which is 0.00 with probability value of 0.47



showed a positive relationship between the variable and per capita income of the current year which is used as a proxy for economic development but not statistically significant at 5% and it implies that a percentage increase in two period lag of EXR would lead to 0% increase in LNPCI of the current year.

The result of the ECT(-1) which is -1.62 with probability value of 0.00, shows that about 162% of disequilibrium between short run and long run dynamics would be corrected each year in the variables of interest (LNFSS, LNPPP, LNOIR, EXR, IFR and INT) and it is significant at 1%.

The R-Squared value 0.84 showed that about 84% of total variation in the dependent variable (LNPCI) is being explained by the explanatory variables (LNFSS, LNPPP, LNOIR, EXR, IFR and INT).

The F-Statistic value of 4.98 with the probability value of 0.00 shows the fitness of the model and this is statistically significant at 1% ($p < 0.01$). It also implied that all independent variables have joint significance on the dependent variable.

The Durbin Watson Statistic always has a value between 0 and 4.0. A value of 2.0 means that there is no autocorrelation detected in the model. Values from 0 to 2.0 indicate positive autocorrelation and values from 2.0 to 4.0 indicate negative autocorrelation. In the above table, the value of Durbin Watson is 1.32 which indicates that there was a positive autocorrelation in the model because the value lies between 0 and 2.0.

Table 5: Error Correction Model (ECM) Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.024381	0.062686	-0.388930	0.7032
D(LNPCI(-1))	0.478064	0.196661	2.430902	0.0291
D(LNPCI(-2))	-0.109260	0.178414	-0.612397	0.5501
D(LNFSS(-1))	0.046911	0.062987	0.744778	0.4687
D(LNFSS(-2))	-0.023071	0.061359	-0.375992	0.7126
D(LNPPP(-1))	0.242509	0.095963	2.527102	0.0242
D(LNPPP(-2))	0.024727	0.100212	0.246746	0.8087
D(LNOIR(-1))	0.102315	0.151037	0.677418	0.5092
D(LNOIR(-2))	0.243725	0.129187	1.886603	0.0801
D(EXR(-1))	0.001221	0.002653	0.460008	0.6526
D(EXR(-2))	0.001732	0.002335	0.741680	0.4705
D(IFR(-1))	-0.002242	0.004280	-0.523936	0.6085
D(IFR(-2))	-0.015338	0.003426	-4.476399	0.0005
D(INT(-1))	0.007586	0.006705	1.131398	0.2769
D(INT(-2))	0.026472	0.005933	4.461622	0.0005
ECT(-1)	-1.618195	0.240655	-6.724131	0.0000
R-squared	0.842264	Mean dependent var		0.156445

Adjusted R-squared	0.673261	S.D. dependent var	0.278462
S.E. of regression	0.159172	Akaike info criterion	-0.533140
Sum squared resid	0.354699	Schwarz criterion	0.214165
Log likelihood	23.99710	Hannan-Quinn criteria.	-0.294071
F-statistic	4.983723	Durbin-Watson stat	1.320592
Prob(F-statistic)	0.002283		
Dependent Variable: D(LNPCI)			

Source: Author’s Computation, 2024

4.5 Normality Test

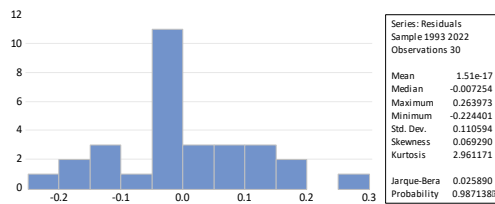


Figure 1: Normality Test Output

Source: Author’s Computation, 2024

H_0 :Residuals are normally distributed

H_1 : Residuals are not normally distributed

From figure 4.1, the Jarque-Bera value of 0.03 has a probability of 0.99 (99%) which implied that the probability value Of 0.99 (99%) is greater than 0.05 (5%) and this is statistically not significant at 5% level of significance. Hence, we accept the null hypothesis and conclude that Residuals are normally distributed.

4.6 Diagnostic Tests

Table 4.6: Diagnostic Test Output

Test	F-statistics	Probability	Remark
Serial correlation LM	2.46	0.51	Series are not serially correlated

Source: Author’s Computation, 2024

Table 4.6 above depicted the diagnostic tests outputs for the model and the result revealed that with F. statistic value of 2.46 and probability value of 0.51, series in the model are serially correlated.

4.7 Stability Test

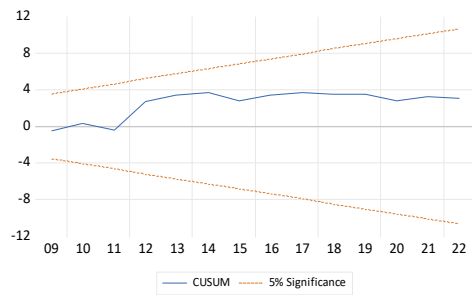


Figure 4.2: Stability Test (CUSUM) Output

Source: Author’s Computation, 2024

Figure 4.2 showed that the Cumulative Sum of Recursive Residuals (CUSUM) lies between the 5% level of significance which depicts that there is stability in the model.

4.8 Granger Causality Test

Table 4.7: Granger Causality Test Output

Null Hypothesis:	Obs	F-Statistic	Prob.	Remark
LNFISS does not Granger Cause LNPCI LNPCI does not Granger Cause LNFISS	31	0.16306 2.59889	0.8504 0.0936	No Causality
EXR does not Granger Cause LNPCI LNPCI does not Granger Cause EXR	31	0.07355 0.91797	0.9293 0.4119	No Causality

Source: Author’s Computation, 2024

Table 4.7 above showed the granger causality relationship among the variables involved in model. There is no causality between LNFISS and LNPCI with F. statistic values of 0.16306 and 2.59889 and probabilities values of 0.8504 and 0.0936. Also, there is no causality between EXR and LNPCI with F. statistic values of 0.07355 and 0.91797 and probabilities values of 0.9293 and 0.4119.

5.0 Conclusion And Policy Recommendation

5.1 Conclusion

The study concluded that fuel subsidy has insignificant negative effect on economic development in Nigeria within the period under review. The study also concluded that exchange rate has insignificant positive effect on economic development of Nigeria within the period under review. Based on the granger causality result, this study concluded that there is no causality between fuel subsidy and economic development of Nigeria, this implies that none of the two variables can be used to forecast each other within the period under review. Also, there is no causality between



exchange rate and economic development in Nigeria. this also means that neither of the two variables can be used to determine each other.

5.2 Recommendations

Based on the findings and conclusions above, the following recommendations were made:

1. Since fuel subsidies have negative effect on economic development, Nigerian government could consider gradually phasing out these subsidies. Instead, reallocating the funds saved from subsidy removal towards more productive sectors such as education, healthcare, infrastructure, and social welfare programs could yield greater benefits for overall economic development.
2. While exchange rate volatility may not significantly affect economic development, maintaining exchange rate stability remains crucial for investor confidence and macroeconomic stability. Nigerian government should continue to implement measures to manage exchange rate fluctuations, such as adopting prudent monetary and fiscal policies, building foreign exchange reserves, and encouraging foreign direct investment.
3. Given the limited impact of fuel subsidies and exchange rate volatility on economic development, there is a need for Nigerian government to prioritize efforts to diversify the Nigerian economy away from its heavy reliance on oil exports. Investing in sectors such as agriculture, manufacturing, technology, and services can create employment opportunities, stimulate economic growth, and reduce vulnerability to external shocks.

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***WOMEN EMPOWERMENT IN AGRICULTURE FOR FOOD SECURITY:
EVIDENCE FROM SELECTED WOMEN FARMERS IN LAGOS STATE***

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Abstract

In the context of global development, the active involvement of women in food production plays a crucial role in enhancing food security. This participation serves as an indicator of women's empowerment and its potential impact on socio-economic development. The present study focuses on examining the relationship between women's empowerment, various agricultural factors, and food security within the specific context of Lagos State, Nigeria. The specific objectives are to examine the extent to which access to agricultural financing supports food production. The study is underpinned by classical modernization and gender and development theories. It employs structured questionnaires, interviews, and focus group discussions to collect information from 282 farmers' associations using a simple random sampling method in Iyafin and Odogunyan farm settlements in Badagry and Ikorodu Local Government Areas, respectively. Data were analyzed using descriptive and inferential structural equation modeling techniques. The results show that fish production responded favourably and significantly to access to infrastructure and agricultural inputs, farm training, and food prices. It was also found that access to financing had a positive but inconsequential impact on food production. Similarly, the dimensions of women's empowerment significantly enhanced fish production. This study contributes to knowledge by incorporating access to agricultural financing. Recommendations include engaging women farmers in agricultural production for effective access to agricultural financing, concessions for women farmers regarding



collateral requirements, reductions in the cost of credit and loan repayment, and the need for alternative sources of financing for women farmers for cost and benefits evaluation. Provision of basic infrastructure such as good road networks, reliable transport services with modern agriculture and farming technology, and price legislation control boards are also recommended.

Keywords: Women's Empowerment, Agricultural Financing, Food Price, Food Production, Food Security.

Introduction

The participation of women in agricultural production has received considerable attention in the development literature. Agriculture is the key driver of long-term growth and food security. In Nigeria for instance, the National Bureau of Statistics (2018) states that 78.2 per cent of employed women in the country are in the informal sector and a large number of women participate in agriculture. An ILO's 2017 assessment suggests that in the African region, agriculture offered the highest employment prospect for women (33%), services (27%), and industries (16.9%). In Africa, women are considered to have occupied 80% of the agricultural labour force (Palacios, Lopes, Christainsen & Kilic, 2015). Evidence in the Nigerian context indicates that women produce up to 80% of the food consumed in their homes in rural areas where food cultivation is the primary economic activity (FAO, 2015). Existing studies have argued that significant intra-household differences exist between women's access, ownership of and control over production resources compared to men (Quisumbirg & Pandolfelli, 2010; Kieran, Sproule, Quisumbing, & Doss, 2017; Meinzen-Dick, Behrman, Pandolfelli, Peterman, & Quisumbing, 2019). Women are being denied access to land and other financial assets (Huyer, 2016; Brixora, Kangoye, & Tregenna, 2020), thereby leaving them less relevant.

Fapohunda (2013) found that, women generally in addition to earning less than men, demonstrate a higher propensity to be low paid. 22.6% of male respondents in the study earned below #24,000 per month while 36.3% of women did so. In a study conducted by Fapohunda (2018b) on the glass ceiling and women's career advancement highlights the key factors that lead to women earning less than males and, consequently, representing a lower level of human capital richness. These include lower human capital creation and education levels, early marriages, a lower labour force participation rate, employment in non-standard workplaces and jobs that don't satisfy the standards for decent labour, fewer hours worked in the labour market, and lower compensation.



In addition, studies have shown that women are more vulnerable to the loss of some assets like land, house, farmland, financial backup, decision making and other relevant rights due to separation, divorced, or widowhood (Fletschrer 2008; Amber, Behrman, & Quisumbing, 2010; Doss, 2018). As recently estimated by FAO (2019), if rural women have access to agricultural resources as men, agricultural yields could increase by 20-30% and the total number of people that are starving around the world would be reduced to 12-17%. Thus, when women as producers of food are empowered, they become dominant towards achieving food security (Okoli & Umeh, 2001). Nigeria's food security is slowed down by some factors and these include inadequate supply of agricultural inputs, land ownership inputs, rural urban migration, and lack of credit agricultural financial institutions among others (Abdullahi, 2010).

Nigeria is blessed with abundant human and agricultural resources, however, majority of its citizens live in hunger and abject poverty. For instance, Nigeria is ranked 143 out of a total of 163 countries in the 2022 Global Hunger Index (Ntagu, & Ewuim, 2022). The 2020 United Nations Development Programme Human Development Index put Nigeria on 169 out of a total of 189 countries with hunger and poverty (UNDP, 2020). Classifying Nigeria as one of the poorest countries testify to its failure to secure adequate food for its teeming population. Efforts by the government of Nigeria towards improving food security and access to food to its populace have not been successful (Ebo, 2016). Institutions like the Agricultural Development Project (ADP), River Basin Development Authority (RBDA), and National Food Storage Programme (NFSP) established to boost agricultural development have produced mixed outcomes from food sovereignty perspective (Faloyin, 2015). Empowerment is also critical for smallholder farmers to gain the right to control over food production and define their own food and agriculture policy (Patel, 2012).

According to the food security theory, agricultural productivity will rise if women have equal access to productive resources as males, enhancing food security. ([Clement](#), [Jan-Emmanuel](#), and [George](#), 2019).

Review of literature

Women Empowerment and Food Security

Kennedy (2019) defines food security as the constant availability of sufficient food supply to support a steady increase in food consumption. This definition overlooked the fact that food security is a state in which everyone, at all times, and has physical, social, and economic access to enough, safe, and wholesome food. Kennedy construed supply of food to meet the dietary needs and food



preferences for an active and healthy life by all people at all time. This definition is comprehensive but it did not recognize food security as the success of local livelihoods to guarantee success to sufficient food at the household level.

However, there is a strong link between food security and women's empowerment. Evidence reveals that women have been systematically oppressed through various laws and norms in their respective societies. Globally, women are still vulnerable to food insecurity due to lack of access and control over their household's assets such as land. While women produce 70% of food grown for consumption, the asymmetries in ownership of, access to and control of livelihood assets negatively affect their role in food production (Opiyo & Agong, 2020). It gives an overview on why and how to consider women's aspects in both short-term humanitarian assistance and long-term development cooperation that address food security.

Ramkisson (2018) posits that food security interventions are mainly led by females (52.8%) who practice subsistence farming as their main source of income. Namara (2018) maintains that gender equity should prioritize women empowerment through programmes that are designed to address the needs of women. This implies that such programmes should be focused on equal access to productive resources and decision-making processes. Menon (2018) emphasises that women and men have unique development priorities, needs and constraints, therefore they are affected differently by development interventions. In order to ensure that all people, regardless of gender, benefit from and are empowered by development policies and practices to promote food security and nutrition, a gender approach to food security can facilitate adjustments in gender power relations. Every man, woman, and child has a right to sufficient nutrition. Women and girls are overrepresented in cases of food insecurity, which is partially due to the fact that they are frequently denied basic human rights including the right to property ownership, the ability to find decent employment, access to education, and good health.

The work of rural women is extremely important for ensuring that people have access to food in general. In emerging nations, women make up an average of 43% of the agricultural labor force. Therefore, protecting women's human rights is an important tactic in ensuring food security for everyone. Women work in a range of agricultural activities, including raising crops, animals, and fish. They produce both subsistence and commercial quantities of food and cash crops. Women engage in a variety of activities at the local level to assist the growth of agriculture and the



management of natural resources, including crop domestication, soil and water conservation, and forestry (Gonsalves, 2005).

Studies on food security (Duffy et al., 2017; Rao et al., 2017; Sinclair et al., 2017), show that one of the key contributing factors to food insecurity is gender inequality in communities and the society at large. These studies identify women as the most vulnerable group to food insecurity. Qureshi et al. (2015) further report that 22 national poverty assessments found that South African women are vulnerable to food insecurity (Qureshi et al., 2015). Furthermore, Rummery (2020) argues that gender inequalities are caused by states, private sectors and individuals, by considering the social policy to see how policies affect different group of men and women, and examines what impact this has on women's equality. It also looks at the interplay between paid work and unpaid care work and examines how this affects women in the welfare state.

Women encounter several barriers while trying to obtain the resources, assets, and services needed for rural livelihoods. These include having access to improved seed varieties, livestock, machinery, extension services, agricultural education, and loans. For instance, just 5% of agricultural extension services are provided to women globally (UNDP 2012). Rural women frequently devote a significant portion of their time to additional household responsibilities, which leaves them with less time for food production or other sources of revenue. Women's abilities to make an income and, consequently, their capacity to purchase food are further hampered by the fact that they have less market access than males. With fewer assets and heavier burdens, women are more vulnerable to shocks and less well positioned to respond to shock e.g. the effects of climate change or other rapid changes in the environment. Social and economic inequalities between men and women result in less food being produced, less income being earned, and higher levels of poverty and food insecurity. Agriculture might produce up to 30% more if women had equal access to resources as men. This might increase the total agricultural output in poor nations by 2.5%, resulting in a 12–17% decrease in the global rate of hunger (FAO 2012). From food production on the family plot to food preparation to distribution within the household, women are essential to achieving each of the three pillars of food security: availability (enough food is consistently available), access (enough resources are available to obtain appropriate foods for a nutritious diet), and use (appropriate use based on knowledge of basic nutrition and care). However, that role of women in agriculture is generally undervalued and constrained by limitations on women's access to resources, services, and labour market opportunities. Studies have shown that in most regions of the world, women perform



the bulk of unpaid work in both agricultural production and the “care” economy. This includes child care, fetching water and fuel wood, purchasing and preparing food, cleaning, and caring for the sick and elderly (Folbre, 2006; Kabeer, 2012).

Research Methodology

This study used cross-sectional research design. The study adopted mixed method which include both qualitative and quantitative approach. Thus, a structured questionnaire, interviews and focus group discussion will be conducted to elicit information from targeted respondents. This study is meant to investigate what is going on among rural women farmers in the study area, regarding their economic empowerment through agriculture. This study is set to provide an understanding on the empowerment status of women farmers in relation to their food production capacity. To this end, the dependent variable is identified as food production, while the independent variable is empowerment.

Badagry and Ikorodu Local Government Areas (LGAs) in Lagos state, Nigeria, are the chosen areas of the study. These LGAs are chosen due to availability of land, access of farmers to irrigation which is an indispensable factor necessary for substantial increase in food production, for sustainable agricultural sector growth and achieving self-reliance among rural women.

3.6 Sampling Techniques and Procedures

The sampling method that was adopted is the simple random sampling. This sampling allows for flexibility for careful selection of samples

3.8 Data Sources and Types

Data were collected from both secondary and primary sources. The secondary source was utilized to obtain the composition of women farmers in Badagry and Ikorodu LGAs from the records of their relevant associations. The administered questionnaire was designed in line with the research questions and objectives of the study and focus group discussion to increase additional information necessary to support the study.

3.9 Data Collection Instrument and Administration

The data collection instruments were primary means while the administration through structured questionnaires, interviews and FGDs. The questionnaires were administered on targeted audience such as it has the advantage of respondents tending to be more truthful with responses. Besides, related information was collected via group discussion in which the selected women farmers participated and expressed their views as regards fish farming in the selected farm settlement.

3.12 Data Analytical Techniques

The study involves cross-section analysis in which the cross-sectional units are made up of the farming women who are members of Iyafin farm settlement in Badagry LGA and Odogunyan Farm Settlement in Ikorodu LGA in Lagos State. The study will employ both descriptive and inferential analyses.

Model Specification

In accordance with the conceptual framework, the following linear regression models is specified having food production (a proxy for food security) as the dependent variable and agricultural financing, infrastructure and agricultural input, access to training and food price as the independent variables.

The functional form is given as:

$$FDP_i = f(AAF_i, IAI_i, WAT_i, FPR_i) \quad (3.1)$$

The regression model is given as:

$$FDP_i = \beta_0 + \beta_1 AAF_i + \beta_2 IAI_i + \beta_3 WAT_i + \beta_4 FPR_i + \varepsilon_i \quad (3.2)$$

Where: FDP = Food production

AAF = Access to agricultural financing

IAI = Infrastructure and availability of agricultural inputs

WAT = Women's access to training

FPR = Food Price

ε_i = error term

β_0 = intercept coefficients

$\beta_1, \beta_2, \beta_3, \beta_4$ = Partial regression coefficients

i = individual respondents, that is, $i = 1, 2, 3, \dots 302$.

The models to capture each of the three research objectives are stated as follows:

Objective one: To examine the extent to which access to agricultural financing support food production in Lagos state

Food production here is seen as the dependent variables while agricultural financing represents the independent variables. Therefore, the model is explicitly stated in the functional form as:

$$FPD = f(AAF) \dots \dots \dots (3.3)$$



However, the variables *FPD* and *AAF* are constructs and structural. According to Classical Modernization and Gender Development Theories adopted *AAF* determine by availability of collateral facilities (*AAF1*), Proximity to Credit Market (*AAF2*), Cost of Credits (*AAF3*), Repayment Plan (*AAF4*), and Operation of Bank Account (*AAF5*).

This implies that: $AAF = f(AAF1, AAF2, AAF3, AAF4, AAF5) \dots\dots\dots (3.4)$

Further Food Production (*FPD*) is determined by Women’s Right (*FPD1*), Women Position (*FPD2*), Women Empowerment (*FPD3*), and Access to Production Resources (*FPD4*).

Therefore,

$$FPD = f(FPD1, FPD2, FPD3, FPD4) \dots\dots\dots (3.5)$$

Objective two: To investigate whether availability of infrastructure and agricultural inputs have significant impact on food production in Lagos state.

Here food production is seen as the dependent variable while availability of infrastructure and agricultural inputs represent the independent variables. Therefore, the model is specified in functional form as: $FPD = f(IAI) \dots\dots\dots (3.6)$

Infrastructure and agricultural inputs depends on Road Network (*IAI1*), Modern Practice (*IAI2*), Seed Availabilities (*IAI3*), and Agricultural Tools (*IAI4*). This implies that:

$$IAI = f(IAI1, IAI2, IAI3, IAI4) \dots\dots\dots (3.7)$$

Objective three: To assess the extent to which women’s access to farm training improves food production in Lagos state.

Here food production is seen as the dependent variable while women’s access to farm training represents the independent variables.

Therefore, the model is stated in functional form as

$$FPD = f(WAT) \dots\dots\dots (3.8)$$

Women’s access to farm training is measured by Women’s Age (*WAT1*), Education Level (*WAT2*), marital status (*WAT3*), Distance from Training centres (*WAT4*).

Therefore: $WAT = f(WAT1, WAT2, WAT3, WAT4) \dots\dots\dots (3.9)$

Objective four: To ascertain the impact of food price on food production in Lagos State.

Here food production is seen as the dependent variables while food price represents the independent variables. The model is stated in functional form as:

$$FDP = f (FPR) \dots\dots\dots(3.10)$$

Food price is measured here by market demand ($FPR1$), agricultural productivity ($FPR2$), cost of production ($FPR3$), exchange rate ($FPR4$).

$$\text{Therefore: } FPR = f (FPR1, FPR2, FPR3, FPR4) \dots\dots\dots(3.11)$$

The linear regression equation (3.2) can be represented using structural equation modelling (SEM). Thus, to achieve objectives 1 to 4, the model is virtually presented in Figure 3.3.

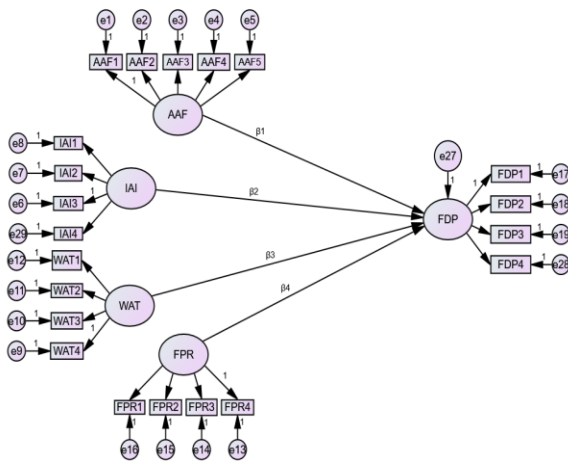


Figure 3.3: A typical full structural model for the study.
Source: Researcher’s Formulation

Figure 3.3 presents the typical SEM for showing the measurement parts and the structural part (path analysis). The measurement part deals the relationship between a set of items/statements and the associated latent variable. However, the path analysis examines the impact of the exogenous variables (AAF , IAI , WAT and FPR) on each of the endogenous variables (FDP). The variables in the ellipses are the constructs or latent variables (also the unobserved variables). The variables in the rectangle represent statements or items (also the observed variables) that are associated with the respective constructs. In order to analyse the four objectives, questionnaire will be administered based on Structural Equation Modelling techniques.



The first stage was tested using Confirmatory Factor Analysis (CFA). CFA is conducted in order to determine which latent variables is a true measure of the variables they are purportedly attached. A threshold of 0.7 was usually considered. This was followed by running the Full-SEM analysis. In summary, to achieve the first, second and third objective, the study utilized structural equation modelling.

Data Analysis and RESULTS

4.2 Descriptive Analysis of the Respondents' Demographics

This section presents the distributions of the details of the respondents, viz. farm settlement, age, marital status, educational qualification, other occupation and religion.

As shown in Table 4.1, out of the 282 surveyed women farmers, 118 (41.8%) are members of Iyafin Farm Settlement located in Badagry while 164 (58.2%) are members of Odogunyan Farm Settlement situated in Ikorodu, Lagos State. Apparently, Ikorodu Farm Settlement appears to have large female members involved in fish farming.

The age distribution of the female farmers depicts that 77 (27.3%) members fall within the 21-30 years of age range; 106 (37.6%) are in the 31–40 years' age range; 41 (14.5%) are within the age range of 41–50 years while 58 (20.6%) of the respondent are at least 51 years of age and above. The foregoing, majority of the surveyed women farmer are in the category of 31–40 years of active population age.

Table 4.1-: Respondents' Demographics Frequency Distribution

1. Farm Settlement		
Categories	Frequency	%
Badagry	118	41.8
Ikorodu	164	58.2
Total	282	100
2. Age		
Categories	Frequency	%
21-30 Years	77	27.3
31-40 Years	106	37.6



41-50 Years	41	14.5
51 Years & Above	58	20.6
Total	282	100.0

3. Marital Status

Categories	Frequency	%
Single	20	7.1
Married	252	89.4
Divorced	4	1.4
Widow	6	2.1
Total	282	100

4. Highest Educational Qualification

Categories	Frequency	%
SSCE	104	36.9
OND/NCE	106	37.6
BSc./HND	57	20.2
M.Sc./MBA	15	5.3
Total	282	100

5. Other Occupation

Categories	Frequency	%
Civil Servant	83	29.4
Business Venture	166	58.9
Others	33	11.7
Total	282	100

6. Religion

Categories	Frequency	%
Traditional Religion	6	2.1
Islam	147	52.1
Christianity	129	45.7
Total	282	100

Source: Field Survey

Furthermore, the marital status distribution reveal that the surveyed women farmers are predominantly married members across the two selected farm settlements comprising about 252 (89.4%) of the entire surveyed respondents.



As revealed in the distribution of educational qualification, women farmers are predominantly SSCE and OND/NCE certificate holders across the two selected farm settlements comprising about 104 (36.9%) and 106 (37.6%), respectively, of the entire surveyed respondents. Meanwhile, about 57 (20.2%) and 15 (5.3%) of the respondents are, respectively, BSc/HND and MSc/MBA certificate holders.

Moreover, the surveyed women farmers were observed to be engaged in other occupations, perhaps, as their core professions. Apparently, about 29.4 percent of the farmers were found to be civil servants while about 58.9 percent of the farmers are predominantly into business venture. Meanwhile, about 33 (11.7%) of the farmers are engaged in other kind of occupations such as working in private sector.

The religion distribution of the women farmers shows that 147 (52.1%) are predominantly Muslims followed by Christians comprising 129 (45.7%) across the selected farm settlements. Meanwhile, the remaining proportion of 2.1 percent of the surveyed respondents practice traditional religion.

4.3 Descriptive Analysis of the Variables

Following the responses gathered from the survey, this section provides the summary statistics of the responses of the surveyed women farmers as regards dimensions of women empowerment in agriculture and food security viz. access to agricultural financing (AAF), infrastructure and agricultural inputs (IAI), women's access to farm training (WAT), food price (FDS) and food production (FDP). The summary of statistical mean, standard deviation (SD), skewness (**S_K**), frequency and percentage distribution of the responses.

Tables 4.2 to 4.5 depict the summary statistics of the responses to the questionnaire on the variables relating to women empowerment in agriculture and food security. Following the study's structured questionnaire, each of the statements (observed variables) measuring the dimensions of women empowerment in agriculture (such as access to agricultural financing, infrastructure and agricultural inputs, women's access to farm training and food price) is measured on a 5-point Likert scale. The mean of the response scales is 3.0 response units. Since the items or statements are expressed in negative forms, items or statements of any scaled response with a mean below 3.0 are considered to be desirable while items of any scaled response very close to 5.0 are considered to be undesirable. Besides, an item is most desirable having its mean response close to 1.00. The coefficient of skewness (**S_K**) of any item or statement is negative if the mean response is greater than 3.0, and thus, implies that most of the responses cluster around the 'agree' response scales. On the other hand, the



coefficient is positive if the corresponding mean response is less than 3.0, thus implies that most of the cluster around ‘disagree’ response scales.

4.3.1 Access to Agricultural Financing (AAF) on Food Production

Table 4.2: Summary statistics for Access to Agricultural Financing (AAF) on Food Production

S/N	Item	Mean	SD	S _K
AAF_1	Availability of collateral has positive effect on farmers’ access to credit.	4.11	1.014	-1.33
AAF_2	Limited land ownership by female farmers hinders their access to formal credit.	3.91	0.942	-0.894
AAF_3	Proximity to Credit market will increase output and productivity	3.93	0.908	-1.245
AAF_4	Providing women farmers with credit will increase Agricultural productivity.	3.97	0.998	-0.852
AAF_5	Reducing the cost of credit for women farmers could increase food production.	3.91	1.015	-1.027
AAF_6	Lower cost of credit enhances female access to credit.	4.11	0.792	-0.984
AAF_7	Access to credit by female farmers allows increased food production	4.22	0.654	-1.028
AAF_8	Certainty/Regularity of making loan repayment improves women’s access to credits and improve food production.	3.98	0.669	-0.334
AAF_9	Other sources of finance e.g. Ajo/Esusu, local money lenders, personal savings, family support helps improves agricultural outputs	4.00	0.656	0.004

Source: Field Survey

The table above reveals that each of the statements has a mean response unit between 3.0 and 5.0, thus, considered to be appropriate. More importantly, Item 10 (AAF_10: *mean* = 4.25, *SD* = 0.666, *S_K* = -0.912) has the highest mean response units. This suggests that the most desirable statement or item of measurement (observed variable) for ‘access to agricultural financing’ is that “operation of bank account by women provides access to low cost of credit”. Thus, majority of the responses hover between ‘agree’ and ‘strongly agree’ response scales for ‘operation of bank account by women provides access to low cost of credit’ having negative coefficient of skewness. Besides, access to credit by female farmers allows increased food production and also availability of collateral has positive effect on farmers’ access to credit.



Discussion of Findings

This study's survey reveals that most of the sampled women fish-farmers fall within the age category of 31-40 years. The foregoing descriptive outcome corroborates the empirical outcome obtained in Abdulhamid, Lliyasu, Mohammed and Sani (2016). The aforementioned studies found that the rural women participating in agriculture are predominantly within the productive age range. Besides, the women fish-farmers' association are predominantly married women farmers. The empirical findings also reveal that substantial proportion of the surveyed women farmers in Lagos State possess SSCE and OND/NCE. The foregoing descriptive result implies the surveyed women's farmers are at least averagely educated and thus, likely to have potential long-term prospects for fish-farming in Lagos State. However, Aneela *et al.* (2015) discovered that substantial proportions of the women in agriculture in Pakistan are illiterate.

Meanwhile, following the assessment of the dimensions of women empowerment in agricultural sector and food security, the objectives of the study are appraised as:

5.2.1 To examine the extent to which access to agricultural financing support food production in Lagos state

Following the measurement analysis of the observed measures of access to agricultural financing, the empirical outcomes reveal that measures such as access to credit, loan repayment period, other sources of finance (such as money lenders, family support) and the bank operations by women farmers (*i.e.* access to financial services) are not true measures of access to agricultural financing by women farmers in Lagos State. The foregoing may be attributable to inconsistencies in the responses of the surveyed women farmers across the selected farmer associations. However, other observed measures (such as; availability of collateral, limited land ownership, proximity to credit market and cost of credit reduction) were found to incorporate true measures of access to agricultural financing in Lagos. Based on the incorporated measures using structural analysis, access to agricultural financing appears to exert inconsequential impact on food (fish) production in Lagos State. Thus, fish production is not significantly supported by access to agricultural financing in Lagos State.

6.2 Conclusion

This study investigated the of impact women's empowerment in agriculture on food production in Lagos State. The dimensions of women's empowerment considered herein include: access to



agricultural financing. Following the empirical analysis, lower cost of credit, access to credit, loan repayment and other sources of finance, as measures for access to agricultural financing, were observed to be weak measures of empowerment of women in space of agricultural production. However, availability of collateral, land ownership, proximity to financial institution, cost of credit reduction are essential to access to agricultural financing among women farmers in Lagos State.

In general, women's empowerment in agriculture, specifically in the spectrum of fish farming, has the tendency to improve food security in Lagos State via: infrastructure and agricultural inputs, women's access to farm training and food price. In a study conducted by Fapohunda (2012b) found that It is impossible to overstate the importance of women in Nigeria's informal financial industry. In order to establish an enabling policy environment, the government must form partnerships with the newly formed association of women. This includes making credit available to women at reasonable rates and enlisting the support of the business sector in government initiatives to provide credit to women. "The constraints on women's access to resources must be removed, and opportunity should be created for their enterprise" (Fapohunda, 2012).

6.3 Recommendations

More importantly, access to credit facility is tremendously essential for development of the agricultural sector. Thus, relevant government agency in the agricultural sector, in the conjunction financial institutions, should ensure that women farmers engaged in the agricultural production have effective access to agricultural financing in Lagos State. Essentially, special consideration should be given to collateral requirement, reduced cost of credit and loan repayment mechanism for the accessibility of financing for fish production. Besides, alternative sources of financing should be made available for the women's farmers in order compare the cost and benefits of the different sources. The options available would enables the women farmers to make their optimum choice.

In order to enhance food security, the agricultural sector is an essential component of economy. Thus, massive infrastructure and essential agricultural inputs need to put in place. Most importantly, it is the fundamental responsibility of the policy-makers to provide enabling environment such as formidable road networks, reliable transport services modern agriculture and farming technology, among others. Besides, quality seedlings and storage facility should be immensely available. Availability of infrastructure and essential agricultural inputs would massively empower women in agriculture and thus, boost food production. Most importantly, there is need for advancement in



harvesting and post-harvesting techniques (such as freezing, drying methods, smoking, among others).

Overall, the role of government is tremendously indispensable in the spectrum of the agricultural sector. The government needs to revamp the policies, enactments and agencies relating to agriculture. More importantly, women's empowerment in agriculture needs to be given substantial considerations. Just like the oil sector, the agricultural sector also needs to be given the prerequisite for enhanced food security.

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PETROLEUM PUMP PRICE AND STANDARD OF LIVING IN NIGERIA

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ABSTRACT

The study empirically investigated the relationship between pump price of petroleum and standard of living in Nigeria. To achieve this objective, secondary data such as, per capita income, gross domestic product, capital expenditure, exchange rate, petrol pump price and consumer price index were sourced from World Development Index and CBN statistical bulletin 2022. The data were investigated for stationarity by conducting unit root test. Long-run relationships amongst the variables were confirmed using Engle-Granger (1987) approach. The result revealed that there was cointegrating or long-run relationship between the explained and explanatory variables. Further, the result showed that all included explanatory variables significantly affect standard of living in Nigeria. In particular, persistent increment in pump price of petrol and worsening exchange rate significantly reduced the economy power of Nigerians. Variables like CPI and GDP appeared to significantly influence per capita income positively. The study therefore recommends that the government should first put in place a system that will cushion the effect of higher power cost before subsidy removal and also used free resources as a result of subsidy removal judiciously in order to reduce the negative effect of higher power cost on her citizens.

Keywords: Standard of living, petrol pump price, exchange rate, long-run, subsidy

I. INTRODUCTION

Subsidy which is the financial assistance that the government provides to reduce the financial burden of consumers of some essential goods like petroleum products remained a strong determinant of welfare for the masses, and producers who rely on these commodities for growth and development. Reducing or removal of this assistance has always created panic and fear among the consumers because removal always leads to upward trend in prices of goods and services



(Nwaoha et al., 2018). Thus, each time subsidy is removed, standard of living goes down because the economic power of the people is reduced. Several studies have showed that any time subsidy is removed, the people and the economy suffers (Arinze, 2011; Ocheni, 2015; Maghyereh et al., 2017; Musa et al., 2022).

Oil revenue constitutes significant portion of government revenue in most oil-exporting countries in Africa and Nigeria is not an exception. Thus, when, oil prices goes up, the positive impact is immediately felt by the government with attendant higher bills for subsidy payment. For this reason, every government of Nigeria looks for a way to reduce or remove the subsidy of petroleum products. However, while government revenue grows and more funds are available for projects execution, thereby giving the economy beautiful outlook at the global level, at local level, inflation goes up and the majority of the populace suffers. According to Atele et.al (2022), increment in pump prices of petroleum products will leads to inflationary pressure, eroding purchasing power and widening the gap between the rich and poor with considerable effect on the vulnerable in the society. Higher prices of petroleum pump prices either as a result of removal of fuel subsidy as witnessed by current regime or as a result of higher world market prices will generally reflect on higher transportation cost, higher cost of goods and services, including essential commodities and drugs. This eventually will make the poor poorer and prone to health hazards and even death

Overtime, fuel price, particularly, premium motor spirit (PMS) popularly known as petrol is major and known to influence prices of commodities in Nigeria. The issue about this commodity surrounds subsidy total removal or partial removal. Several governments in Nigeria, has removed subsidy partially since the return to democracy in 1999. Each attempt has been followed by higher prices of goods and services, psychological distress on the vulnerable and reduction in purchasing power of naira as a result of inflation that always followed.

The current study sets out to investigate the impact of pump price of petrol on the standard of living of Nigeria. Some important questions the study answered are; what is the trend of prices of petrol and per capita income in Nigeria? , what is the relationship between petrol pump prices and standard of living in Nigeria? And what other factor contribute to standard of living of Nigeria?. The study contributed to existing knowledge by focusing on petrol pump price and standard of living in Nigeria. This is a major departure from previous studies with focus on crude oil price, and economic growth (Gummi et al., 2016; Onakoya & Agunbiade, 2020; Musa et al., 2022). Other



studies in similar area based their analysis on primary data and content analysis (Gatawa & Abdullahi, 2017; Aruofor & Ogbeide, 2023). The remainder of study is organized as follows; section II prevents the review of related literature, section III focused on methodology. Section IV is on results and discussions while section V concludes the study.

II REVIEW OF RELEVANT LITERATURE

Peter (2011) investigated the impact of oil price on Nigeria economy. With the aid of time series data over the period 1978 to 2007, his result showed that increment in oil price significantly influenced higher inflation, high cost of living and inequality in income distribution in Nigeria.

Stephen (2015) examined the impact of increment in fuel price on Nigeria economy. Based on survey research design, the result showed that increment in fuel price by way of removal of subsidy had a significant positive impact on transportation cost and negative impact on gross domestic product. The study clearly showed that, subsidy removal translated to higher cost of production and reduction in gross domestic product. Thus, with higher fuel price, poverty level is expected to rise.

The study by Gummi et al. (2016) examined the relationship between crude oil price and economic growth in Nigeria. Their study first established a uni-directional relationship that flowed from crude oil price to economic growth. Based on OLS methodology, their result showed that crude oil prices are positively related with GDP. This is expected as higher oil prices will mean higher national income for a country like Nigeria that relies heavily on oil export.

Gatawa and Abdullahi (2017) examined the impact of petroleum pump prices on household welfare in Nigeria. The study used survey research design and focused on selected household in Kaduna state. Based on descriptive and inferential statistic, the result showed that prices of premium motor spirit (petrol), dual purpose kerosene (kerosene) and gas significantly reduced the welfare level of respondents.

Roland (2017) investigated the influence of some macroeconomic variables such as leading rate, employment level and petrol prices on economic growth in Nigeria. With the aid of error correction model, the result from a data set from 1970 to 2013 showed that petrol and lending rates exerted a negative impact on economic growth.



In the study by Onakoya and Agunbiade (2020) crude oil prices do not significantly affect macroeconomics variables like GDP and per capita income in Nigeria. This outcome was based on a data set from 1995 to 2017 using OLS method of analysis.

In studying the effect of fuel subsidy removal on the Nigeria poor, Umeji et al (2021) employed a descriptive research design methodology. Their result showed that the poor suffer as a result of higher transport cost and increment in price of other goods and services.

Musa et al (2022) investigated the relationship between crude oil price and standard of living in Nigeria. The study employed annual data from 1981 to 2019. The result from the ARDL methodology showed that crude oil price and inflation rate has a negative and significant impact on standard of living in Nigeria, while exchange rate affects standard of living of Nigeria's positively.

Majority of the reviewed literature above showed that energy prices, particularly petroleum products can trigger several unfavorable situations in an economy. For instance, it has been shown that higher cost of petroleum products, resulted in higher inflation, higher cost of goods and services and lower standard of living.

III METHODOLOGY

The aim of this study is to establish the relationship between standard of living in Nigeria and petrol price fluctuations in Nigeria. The method of OLS was applied based on theoretical exposition of endogenous growth model that can help study the influence of petrol price and other control variables on standard of living in Nigeria.

This study the following model was specified to study the relationship between petrol pump price and standard of living in Nigeria.

$$PCI = f(GDP, CAEXP, EXRATE, PPR, CPI) \quad (1)$$

Where: PCI is the per capita income

GDP is real gross domestic product

CAEXP is capital expenditure

EXRATE is exchange rate



PPR is petroleum pump price

CPI is consumer prices index

In order to avoid the impact of outliers, some of the variables in equation (1) above were transformed to log form. Thus, equation (1) is expressed below:

$$PCI = f(\text{GDP}, \text{LCAEXP}, \text{EXRATE}, \text{LPPR}, \text{CPI}) \quad (2)$$

The line of best fit for the model is:

$$PCI = \beta_0 + \beta_1 \text{LGDP} + \beta_2 \text{LCAEXP} + \beta_3 \text{EXRATE} + \beta_4 \text{LPPR} + \beta_5 \text{CPI} + U \quad (3)$$

β_0 is the intercept term while β_1 to β_5 are slope parameters that measure the influence of each explanatory variable on the explained variable and U is the stochastic error term.

The least square methodology adopted in the analysis produced coefficients that are “BLUE”. The analysis was conducted with the aid of E-View 10 statistical package.

Data analysed were interpreted using economic criteria-this focused on the sign and size of the slope parameter estimate. Further, interpretation of result was also based on econometric or statistical criteria-this focused on significance of each explanatory variable in the model. Finally, multiple graphs were used to study the trends of variables in the model.

Unit root test was conducted to determine whether the variables are stationary or not. This is to avoid spurious regressions as Granger noted “a test for cointegration can be thought of a pre-test to avoid spurious regression situations”. Again, Engle and Granger (1987) two-step cointegration test was applied on the residual in order to determine if the coefficients cointegrate. According to Engle and Granger (1987), if series in a model are stationary at higher level than the stationarity level of the residual from their linear combination, the coefficients from such regression can be interpreted as long-run coefficients. Both Augumented Dickey-Fuller tests and Phillips-Perron test were used for testing the stationarity of the variables. When variables become cointegrated, the implication is that a cointegrating regression is not spurious or nonsensical and the parameters of such cointegrating regression can be interpreted as long-run or equilibrium parameters (Gujarati, 2004).

IV RESULTS AND DISCUSSION

This section presents results of data analysis, interpretation, and a brief discussion of results. As earlier noted in the previous section, a pre-test is needed to check for the presence of unit root in order to avoid running series that are not stationary. Table 1 below present a summary of the result of the unit root test carried out on each of the variable using Augmented Dickey-Fuller Test.

Table 1: Unit Root test results

Variables	t-statistics	P.Values	Critical Values			Order of Integration
			1%	5%	10%	
			1%	5%	10%	I(1)
PCI**	-2.613593	0.0107	-2.641672	-1.952066	-1.610400	I(1)
LGDP**	-3.008218	0.0451	-3.661661	-2.960411	-2.619160	I(1)
LCAEXP***	-5.707512	0.0000	-3.661661	-2.960411	-2.619160	I(1)
EXRATE**	-3.334856	0.0217	-3.661661	-2.960411	-2.619160	I(1)
LPPR***	-8.266355	0.0000	-3.661661	-2.960411	-2.619160	I(1)
CPI***	-4.301436	0.0021	-3.670170	-2.963972	-2.621007	I(1)

Source: Author's computation (2024)

***Significant at 1%, **Significant at 5% and *Significant at 10%

Observe that all variables in the model were not stationary at levels but became stationary at first difference that is integrated of order one i.e. I(1). Again all variables were significant at 5% level. Now that these variables are stationary at first difference, the linear combination of the series will give a meaningful result with long-run relationship provided the residual from their combination is stationary at levels.

To establish if the coefficients of the regression can be interpreted as long-run coefficients, Engle and Granger (1987), cointegration test was applied. Economically speaking, two or more variables will be cointegrated if they have a long-term or equilibrium relationship. To check for this, the residual of regression result was tested if it is stationary at level i.e. I(0) using Augmented Dickey-Fuller test technique. The brief result presented in table 2 below shows that the linear combination of the variables were stationary at level I(0) and are significant at 1%, 5% & 10%. Therefore, the regression is a cointegrating one and all the parameters are interpreted as long-run coefficients.

Table 2: Residual Unit Root test results



Variables	t-statistics	P.Values	Critical Values			Order of Integration
			1%	5%	10%	
RESID01***	-5.743156	0.0001	-3.724070	-2.986225	-2.632604	I(0)

Source: Author's computation (2024)

***Significant at 1%, **Significant at 5% and *Significant at 10%

After establishing that; the variables are stationary and cointegrated. The next task is to interpret and judge the “goodness” of the parameters of the regression results. The following shall be used for judging the “goodness” of the parameters of the estimates. First, acceptance or rejection of each slope of the regression shall be based on economic theory that is the parameters shall be evaluated based on what theory says in terms of the sign and size of the regression coefficients. Second, acceptance or rejection of the regression coefficients shall be based on tests of statistical significance. Other tests are f-test, adjusted R^2 and autocorrelation coefficient (Durbin-Watson Statistics). We shall begin with a brief description of the data used for analysis.

Description of the data based on statistics in table 3 below

A careful observation of the table showed that capital expenditure (CAEXP), consumer price index (CPI), petrol pump price (PPR) and exchange rate (EXRATE) are the most volatile variables in the model. The gap between the mean of these variables and their minimum values are very large. Other variables had a moderate volatility when compare with the four variables above

Table 3 showing Mean, Maximum and Minimum values of the variables

	PCI	GDP	CAEXP	EXRATE	PPR	CPI
Mean	285282.3	44745.64	1083.612	147.6586	66.83727	18.08467
Maximum	379251.6	74752.42	6335.585	459.5000	202.4800	72.83550
Minimum	202255.7	21680.20	24.04860	8.037808	0.700000	5.388008

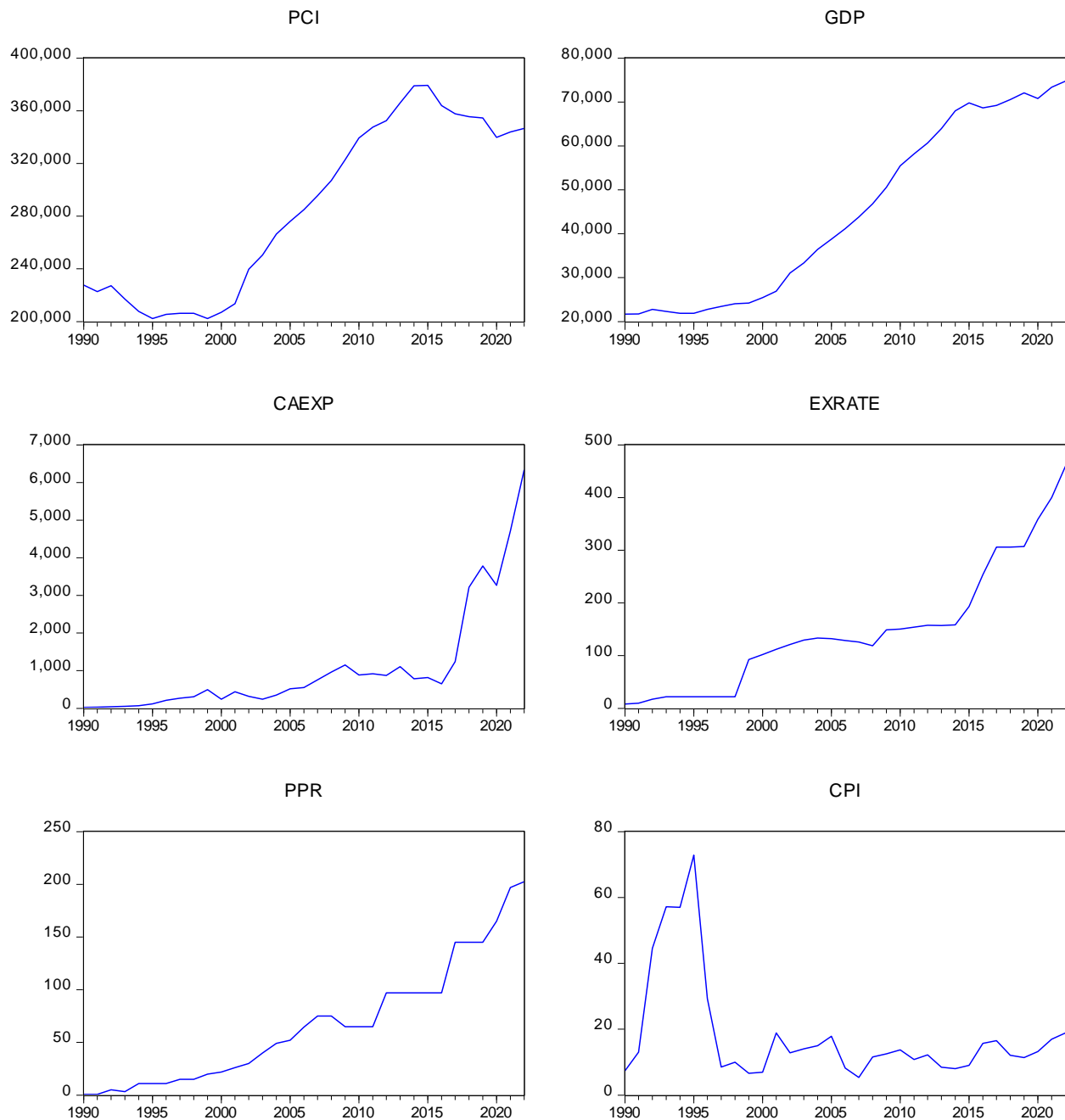
Descriptive statistics based on multiple graphs in Table 4 below

The graph showed that petroleum pump prize (PPR) experienced consistent sharp increment from 2009 to 2022. Over similar period per capita income (PCI) consistently dropped. Exchange rate and GDP rose throughout the period of observation. Consumer price index (CPI) fell from the peak in 1995 and became relatively stable for the remainder of the period. Capital expenditure was



relatively stable up to 2015 and thereafter, a sharp rise was observed throughout the remaining period.

Table 4: Multiple Graphs





By the size, a unit rise in GDP will cause per capita income to increase by 195824.2 units. Also, unit rise in capital expenditure will lead to decrease in per capita income by 5109.4. Further, when exchange rate goes up by one unit, per capita income will reduce by 131.55 units. Similarly, a unit increment in pump price of petrol will cause per capita income to reduce by 7363.81 units. Finally, a unit increment in consumer price index will lead to 106.74 units rise in per capita income. It is important to note that petrol pump price exerted the highest negative influence on per capita income in Nigeria.

Interpretation Of Results Based On Econometric/Statistical Criteria

The test of significance that is appropriate and widely used for study of this nature is student t-test which produces same result with the probability value (Prob.) that comes with each coefficient. This is summarised in the table 5 below.

Table 5 Regression Result

Variable	Coefficient	Prob.
C	-1715301	0.0000
LGDP	195824.2	0.0000
LCAEXP	-5109.40	0.0033
EXRATE	-131.55	0.0000
LPPR	-7363.81	0.0000
CPI	106.74	0.0216

A probability value that is less than 1% (≤ 0.01), 5% (≤ 0.05) and 10% (≤ 0.1) indicate significance at 1%, 5%, and 10% respectively. Significant parameter indicates that the null hypothesis should be rejected at respective levels of significance in favour of the alternative hypothesis. By this, all parameter estimates in the model are significant at 5%. These indicated that these variables are very important in determining per capita income in Nigeria. Therefore, the null hypothesis that $B_1=B_2=B_3=B_4=B_5=0$ should be rejected at 5% level of significance in favour of the alternative hypothesis.

F-test, Adjusted R² and Durbin-Watson Statistics

While the t-test, tests the individual significance of the parameter estimate, the F-test, tests the overall significance of the parameter estimates. The null hypothesis is that, all the betas are equal to zero (i.e. $B_1=B_2=B_3=B_4=B_5=0$). The F-statistics is 2513.21 with probability value of 0.000 indicates that the null hypothesis should be rejected. This means that the model as a whole is



statistically significant. Another function of F-statistics is that it tests the significance of R^2 and Adjusted R^2 . When it is significant, R^2 and Adjusted R^2 are also significant, by this; the R^2 and Adjusted R^2 in our result are significant.

The Adjusted R^2 is better than R^2 because it takes care of the loss in the degree of freedom as more variables are added to the model. R^2 and Adjusted R^2 show the proportion of variation in the dependent variable explained by the explanatory variables. In this result, an Adjusted R^2 of 0.997 shows that 99% of the variation in per capita income can be explained by the included explanatory variables and this is significant by the F-test statistics.

Finally, the Durbin-Watson statistics shows if there is serial correlation in the model that is if there is autocorrelation problem. A model with high autocorrelation is not efficient although the coefficients are not biased. The implication is that, the parameter estimate is not reliable because the least square estimator is less efficient than other estimators. The Durbin-Watson statistics that falls within 1.8 and 2.2 shows a good estimator with little or no autocorrelation problem. The closer the value is to 2, the better the estimate. A value less than 2 shows a positive autocorrelation while a value more than 2 shows some level of negative autocorrelation. The Durbin –Watson statistics of 2.2 in this study shows that our model is free from autocorrelation problem. This means that the estimates in the result are unbiased and efficient. Therefore, our results have a strong predictive power.

Based on the results interpreted above, per capita income is greatly influenced by all the explanatory variables in model. Except for GDP and CPI that causes upward trend in PCI, all other variables exerted a negative influence on PCI. The result showed that increment in pump prices will cause per capita income to fall and reduce the welfare condition of the masses. Several other studies have showed that increment in petroleum pump price or subsidy removal will directly reduce the purchasing power of the and therefore reduction in welfare level (Stephen, 2015; Gatawa & Abdullahi, 2017; Musa et al., 2022). Similarly, increment in exchange rate exerted negative influence on per capital income. These two important factors influences negative par capita income negatively.



V CONCLUSION AND POLICY RECOMMENDATION

The purpose of this study was to empirically study the relationship between per capita income and petroleum pump price. From the result above, it can be concluded that when subsidy removal is not well managed, the people will suffer as a result of higher cost of goods and services. Thus, the government should ensure that resource gained by subsidy removal is judiciously used such the negative influence on welfare of the people is reduced or totally remove.

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DEMOCRACY, OIL AND GOVERNANCE IN NIGERIA

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Abstract

Nigerian State has come of age in democratic governance with politics of oil money attracted many politicians into political parties to be elected into the corridors of power. Party politics as against governance took preeminence, while the crude oil replaced the agricultural products such as cocoa, peanuts, cotton, palm oil, among others. The revenue from the oil was misappropriated and mismanaged. And there is magnitude of failure in socio-economic and infrastructures like education, housing, security and employment. In fact, majority of Nigerians are still poor. The paper argues that the revenue from the oil money declined and the government resulted into importing Premium Motor Spirit (PMS), and other subsidiaries because the four national refineries became moribund. And that the politics and oil rent-seeking is responsible for subsidy removal on PMS only benefitted the few. The paper concludes that the removal of oil subsidy on petrol is a right decision by the government of President Ahmed Bola Tinubu. After all, all the tiers of government are now receiving more allocation from the Federation Account unlike what were allocated to them in the past. And that the revenue to those levels of government on monthly should be judiciously appropriated, and channeled into socio-economic and infrastructures development. Although, the PMS removal is not without challenges but it will pay us all at the long run.

Keywords: Democracy; Oil; Governance; Nigeria; Tiers of Government; Premium Motor Spirit.

Introduction

In 1999 when Nigeria returned to civil rule, it was with high hope and expectation that the election representatives into the positions of authority will aim to correct misgovernance, maladministration, mismanagement, which the military regimes beginning in 1985 had plagued the people and the country. It was with great euphoria that the citizens were more than expectant when the 'last' military rule, General Abudulsalami Abubakar deliberately and without negotiation and within the less than 365 days handed political power to the former Head of State, General Olusegun Obasanjo in May 29, 1999 (Akinboye & Anifowose, 2015; Iroanusi, 2000; Enefe, 2008). The handing over attracted pageantry and applause locally and internationally that democracy been



the government of the people, elected by the people and representatives of the people will center on good governance and bringing development in socio-economic spheres and that what the military regimes have deprived the people will in no small measure be corrected because the people themselves are now in charge of governance, and that there is propensity to accelerate good governance in a polity.

Good governance is accelerated in different countries largely because the elected representatives of the people are all-ears-opened, all-eyes-opened to the yearnings and complains of the people. This by and large makes democratic governance worthwhile. The utility of democracy ensued in people governance with the elected representatives saddled with the responsibilities of governance for people interest has settled the problem of governance and sustenance of democratic rule. In many Third World countries, governance crises have influenced populace demonstrations, civil unrest, national strikes culminated into political uncertainties largely because new policies are made without consultation, solution or palliatives insight to sustain the majority of the population have some instances led to change of political order and democratic government. The announcements of government policy without some solution insights to sustain the citizenry, in most cases have led to overthrow of democratic and non-democratic governments. A nondemocratic order has not only increased the challenges of governance but quantumly reflected on the abuse of fundamental human rights through the constitutional suspension cum abolition of democratic institutions. Yet, the clamour for popular rule hinged in liberal democracy has led to operation of democratic space for people to participate in decision making process through the platform of political parties as the avenue which make the citizens to elect their representatives into position of governance. It is expected that when the majority of the people purposively elect their representatives into corridors of power, the elected representatives ought to consult those who have given them the mandate before any policy is introduced especially in a poverty ridden polity. On the contrary, however, arbitrary policy without consultation seems to be the norm and tenet of democracy in the less developed democracies. This is followed with lots of socio-economic and political consequences.

Like other developing democracies in the world, Nigeria democratic experiment since 1999 have witnessed governance crisis. Nigerian citizens and other nationals in the country have wake-up to hear government announcement on new policies on the radio, the television sets, or read on the tabloids government programmes without the government putting into place solution or how citizens will cope with challenges that follows the decision. One such occasions is the announcement of the subsidy removal on PMS or petrol in May 2023, when the incoming government being led by President Ahmed Bola Tinubu during his inauguration speck and publicly stated that the subsidy regime is gone. This sudden decision not only attracted condemnation from many Nigerians who had suffered untold hardship under the previous governments but denounced the government sudden decision as unexpected. However, the decision to remove oil subsidy, though, touted to be long overdue, but there was no provision to assuage hardship and precarious situation of average Nigerians having survived the policy of Naira 'recolouring'. Indeed, the subsidy removal have generated untold calamities for the majority of men and women, young and old, students, formal and informal workers alike. The PMS is tied to everything in Nigeria. It affected the transportation system, buying and selling, housing, healthcare, school fees among



others. As demonstrated elsewhere with pictorial evidences (Ogunwa, 2012), the PMS price adjustment by the then President Goodluck Jonathan administration did throw many Nigerians into the capital cities and demanded unconditional reversal to N65.00 per litter from N141.00. What followed the two weeks protests and strikes across the country was severe brutalization and killings of innocent Nigerians who are only demanding good governance from their elected representatives (Ogunwa, 2012). Now that the era of subsidy regime is gone, what is the socio-economic implication on citizenry? Will the subsidy removal brings in good governance for the people? The remaining parts of the paper include Britain and Nigerian state, politics, oil and governance in Nigeria and conclusion.

Britain and Nigerian State

The political economy of Nigerian State began with the British imperialist when the whole territory later known as Nigeria was subjugated, dominated and colonialized. The conquest of Nigerian people that is, the different nationalities was the impetus that the colonial government used to affirm its presence and amalgamation of the country in 1914. At a start, the British created and administered Nigeria as two entities namely: the South and the Northern protectorates. The unification of the two was meant to rule the empire from one source and one account because the colonial government was not prepared to spend the Britons hard-earned resources to develop Nigeria and her people. The relative political stability recorded after the amalgamation, the British tutelage was now settled for governance in Nigeria.

However, the event that led to colonialism and political unification of Nigeria and Africa in general “initially driven by stories of its enormous wealth, real or imaginary to invade the continent” (Uzoigwe, 1974, p. 21). This impulse, according Lenin (1916) influenced the European conquest of Africa had primarily economic roots. The quest for economic resources of African states including Nigeria was the basis and that began the scramble for Africa (Jinadu, 2010; Uzoigwe, 1974) and consequent of the African states partition into different segments and naming the African states further put European towards imperial economic expansion to annex for “New markets! New markets!” in Nigeria (Greenwood, 1899). Uzoigwe (1974, p. 25) put it that the “acquisition of these markets which implied the control of the countries themselves would nullify the effects of hostile tariffs by creating an open door to world trade, and to British trade in particular, thereby helping to cure its economic ills” accentuated by the industrial unrest and unemployment which occurred in the early nineties. The expansion by European nations into the less developed economies was in the spirit of domination and subjugation as well as “to make our way not only in the civilized, but in the uncivilized markets of the world”.

In Nigeria, the British expansion and colonization was essentially economic reason. For instance, Salisbury had advocated for African expansion as indispensable to British prosperity, employment, and world power and at the same time to smooth the path of British enterprises and to facilitate the application of British capital. The British trade in Nigeria as asserted by one of the British officials, is that “commerce is the greatest of all political interests. ...All the great offices of state are occupied with commercial affairs” (quoted in Uzoigwe, 1974, p. 25). The interest of British government is therefore interest of commerce, and commerce to benefit the interest of British government. This put to rest the British permutation and interest, because one time Governor



General in Nigeria has said that the motivation into Nigeria is “because it produced palm oil” (Johnston, 1923, p. 241). As such, as the British grew economically because of trade in Nigeria, her trade exceeded with other colonies especially in non-tropical Colonies and Dependences, including Canada, the Cape, Natal, New Zealand, and Australia.

From the foregoing, the creation of Nigeria and by extension the name given to her is purely on trade-matter benefit because she could not avoid the luxuries of using the British Pounds Sterling to run a colony especially when the North was added to the South (Olaniyan & Alao, 2003). All the political institutions such as the legislative assembly, constitutional engineering, and party formation, among others were essentially to further and consolidate the hold on the country since the country is seen as a nation flowing with the milk and honey, untapped resources begging for exploration. The structure of the country under the colonial government was designed to perpetuate her even after anticipated political independence of the colony.

After independence in 1960, the educated Nigerian elites upon their return from the metropolitan countries demanded for inclusion and participation in government. Yet, their demand was followed by tokenism, as only 4 Nigerians represented the whole country in the Legislative Council for decades (Oyediran, 2007). The political architecture under the British dominance is lopsided, even in the favour of the North in the sense that one of the founding fathers of Nigeria expresses it documentally that the British did not set out to build a Nigerian nation (Ayandele, 1974). As Olaniyan and Alao (2003, p. 9) have observed “the motives and dynamics of the colonial enterprise were to fully exploit the resources of the colony for the development of Britain”. Therefore, the politics of amalgamation is a policy personally conceived and executed by Lord Lugard administration, while the home government played along. Consequently, all the permutations and structures put in place before independence collapsed when the indigenous ruling elites took over government and inherited several contradictions and those “who could be trusted to share their values and be attentive to their interests” (Ake, 1996, p. 3).

Politics, Oil and Governance in Nigeria

We have highlighted that the creation of Nigerian State was carried out by Lord Lugard under the supervision of British government. However, the foundations for proper annexation, domination and subjugation as well as the administration were laid to meet the aspiration and interests of the colonial government. All the parameters put in place for colonization and integration of Nigeria into the International Capitalist System including culture, economy and language were structured towards imperialists.

Following the industrial revolution between 1750 and 1845, which completely transformed the European nations into a society that has attained the stage of full-blown capitalism, because production expanded as a result of the development of productive forces as well as noticeable advancement in technologies led to increase in industries. The development in industries made the western capitalist societies so strong that they needed not only to search for raw materials to feed their industries but also for markets outside their borders. This put European countries to move to the developing countries such as Asia, Latin America, and Africa to capture them. Having secured those countries of the less developed, altercation degenerated into conflict between the European powers over the newly conquered nations which led to the Berlin Conference of 1884/85



where the conflicts were settled through the political partition or division of Africa “to pacify some of the European countries or to put an end to the incessant in-fighting among them” (Adeniran, 1983, p. 194). After the Berlin Conference especially the partitioning, the European powers formally came back to possess their ‘possession’ as settled at the Conference.

With this development, the stage was now set for European nations through their capitalists to formally lay claim to their colonies with the aim to possess the culture, social, political, economic and psychology domination. With colonization came domination of the productive sectors of the economies of these colonial territories. For instance, the colonial government administration not only disrupted domestic trades and the existing trade networks between the people, they in fact denied the industrial development by discouraging local production and compelled the indigenes people to diversify to primary production, primary commodities in other to feed their own industries in the metropolises. The local industries were so choked as a result of unequally competition with the more developed countries because they (metropolitan) pumped in large quantities their finished products into the colonies. The local industries lost the internal stimuli and impetus for growth and development because the agricultural production heavily depended on the demands and needs of the international market hence the local farmers have been forced and compelled to produce for export. The introduction of the colonial type of economy made the local farmers to be underpaid because what they get for local production or commodities exported became cheaper than any available substitute in the international market. The establishment of the Bank of British for West Africa in 1894 influenced introduction of money-economy, which made the European currencies became the medium of exchange, credit system and removal of pre-colonial currencies.

All these changes in the economies of the colonies consequently led to integration of African States and her economies into the World Capitalism with socio-economic and political consequences including the creation of an unviable and hegemonic state; establishment of a weak and unproductive ruling class; dependency of colonies on the production of narrow range of cash crops; for foreign exchange earning; the vulnerability of price fluctuation and the domination of the economies by the multinational corporations; reliance and dependency on foreign experts and foreign loan to executive development projects; low level of technology; and the location of African economy at the periphery of the international capitalist system (Babawale, 2006). Coleman (1958, p. 54) has observed that “in order to further British economic interests in Nigeria it was necessary to establish political control, and then to constructs communications, institute a common currency, and encourage African production of tropical export crops, and finally to stimulate a desire for European manufactured goods. Thus, the structure of Nigerian State towards national and international bourgeoisie continued after political independence in 1960. Earlier, for decades, the British has debased the economy and exploitation left Nigeria in 1960 a spatially distorted underdeveloped and peripheral capitalist country in the international division of labour.

With political independence attained by the Nigeria and the political elites at large in charge of the governance, the postcolonial states continued to be a mere caricature of the colonial predecessors because those who got the political power also performed the same functions as did by the past colonial masters. At the independence, it is expected that the ruling elite should work towards eradication of different contours and impediments to governance matter, but as Ake (1996, p. 3)



has observed “it continued to be totalistic in scope, constituting a statist economy”. Indeed, attention to politics divided the ruling elites as they engaged and concentrated on how to win and retain political power “as they pulled apart, they placed more value on capturing political power for themselves and grew increasingly fearful about what seemed to them to be the grave consequences of losing to their rivals in the competition for the control of state power” (Ake, 1996, p. 5). Put this way, “the premium on political power raised higher and higher and with it the intensity of political competition and its domination by efficiency norms”. The attention to politics became the preoccupation of the rulers because they appeal to national, ethnic, communal even religious loyalties, and introduced political discords, divisions among the people during elections. The political power was deadly sought by all means and every means and to maintain power by all means possible. Even, Gavin (1980, p. 47) observes that the attitudes of the politicians to politics was ruthless and violent, and politics means a do or die occupation “... the ethics of business penetrated politics, the ethics of politics penetrate business, the ethics of the gangster penetrated both”. Politics as a business for politicians eroded the quest for good governance. The citizens that voted for them to assume the responsibility of governance became object of poverty.

Perhaps, at the independence, politicians that took over government lacked the ingredients for national remedies and displayed no commitment to the development of their domestic environment which led to alienation of the people from the Nigerian state. For them, the country is wicked and uncaring that should be suffered, cheated, abused and exploited since the country have shown itself to be irrelevant to their existential needs. These leaders in government were carefully selected into corridors of power because the African successors are successors who could be trusted by the colonial masters to share their values and be attentive to their interests at home and abroad. The acquisition of state power remained personalized as they were not interested to transform the economy but used the state power for personal accumulation and weakened material base of the new political leaders, who had been economically marginalized by the discriminatory economic policies of the colonial regime. The economic marginalization of this class actually increased the quest for political power to compensate for or “explore the one leverage they had: control of state power to strengthen their material base” and the abandonment of socio-economic responsibility because of “the calculus of office” (Ake, 1996, p. 6, 7). He went further to describe the quest for power by the few politicians that political power was everything, it was not only the access to wealth but also the means to security within and outside and serve as the only guarantor of their general well-being. Their well-being is more paramount and uncompromised without attention to problem of development and the general public at large.

As a result of power struggle, the nation’s economy therefore, remained underdeveloped despite the appellation of Nigeria as the giant of Africa turned to be “a *sick* giant” (Mundt, Aborisade & LeVan, 2008, p. 661), which cannot cart a part of honour, and development for her citizens.

The country’s dependence on local raw materials across the geopolitical zones continued until the discovery of the crude in 1958. This discovery which seems to be a blessing at a time turned to be a curse at another time because “in the preceding decade, Nigeria had become dependent on oil revenues for imports and large-scale development projects” (Mundt, Aborisade & LeVan, 2008, p. 669). The oil dependence was superimposed on other agricultural projects and neglected area which once served the entire country financially and foreign exchange earnings. No thanks to oil



boom in 1970s, because no sooner the oil boom, the country's economy was distorted by the great disparity of value between petroleum and the traditional agricultural products, while the young workers including the school leavers abandoned their farms and villages and trooped to the cities for the oil fields to pursue economic career which is the oil money.

However, the discovery of crude oil in commercial quantities (Obi, 2024) shifted the attention of the ruling elites from cash crops to oil and by 1970s crude oil had become the major foreign exchange earnings. The reason for this according to Falola and Ihonvbere (1985) are that Nigeria has historically lacked a bourgeoisie which has an accumulative base in agriculture. The nature of Nigerian state easily manipulated to shift its area of interest from the rural areas and agriculture to oil sector and finally, the character of the Nigerian bourgeoisie to respond positively to increasing returns from oil exports as a member of OPEC and only initiated policies to increase state participation in terms of ownership but not control in the oil industry. The implication of these is that Nigeria only rely on oil rents and a dependent peripheral capitalist economy at the level of : exporting oil to consuming countries and collecting rents for same; higher payments in real terms for imports from developed economies; investments in other economies, facilitated by oil rents already collected; holding of reserves in western banks and financial institutions; massive food imports; and finally, imports to meet defense requirements (Falola & Ihonvbere, 1985)

The country dependent on oil at the peril of cash crops and agricultural produce informed the reason for the government to have embarked; on a massive food-import policy from the European societies to feed Nigerians. The importation of these items such as rice, meat, cereals, sugar and wheat, all were hitherto produced in Nigeria before the oil boom "oil revenue is spent on the importation of various consumer goods, capital goods, rice and other agricultural produce which could be cultivated in Nigeria. Thus, we earned our oil revenue only use it to keep foreign industries going" (Amu, 1982). The mismanagement of oil revenues continued to grow the country import bill and for the oil money, many nationals came to Nigeria to take the advantage of incompetent party (NPN) in power to sell services of good, bad or indifferent quality to Nigerians (Freund 1984 cited in Falola & Ihonvbere, 1985).

Under the Shagari administration, the oil as the basis of sustenance in Nigeria affected the life style of Nigerian politicians particularly the members of NPN, and encouraged opposition party members to join them if they wanted to look as rosy and robust as they (NPN) members were. Government contracts were over-invoiced on the housing units and the steel-mill company because grandiose projects, veritable gold mine, for contractors and conduit pipes to make millions of money. Corruption in the second Republic showed that payment were made to workers who were indeed ghost workers in government ministries and parastatals and importation of fake products for foreign exchange, stealing of government properties and illegal transfer of money to private accounts. The government officials' vis-à-vis executive and legislative houses were not left out in corruption spiral because they fixed the salaries, allowances and others as they wanted. The country that had oil in 1970s, shortly after the enthronement of democracy in 1979 became broke "and the Shagari government had to beg all over the world for loans. Shagari needed the loans not for development but to mediate intra-class rivalries, remain in power, pay political debts and avert total economic disaster" (Falola & Ihonvbere, 1985, p. 113). The oil boom and quantum of resources or money available in country as well as the foreign reserves were actually resources



that should be used for the betterment of Nigeria and her people. But, the resources were wasted, mismanaged as they were used to carter for the local bourgeoisie at the expense of the masses.

The discovery of oil has led to the abandonment of agricultural activities hitherto Nigerians are known and accounted for over eight percent of all federal revenues and 90 percent of all foreign exchange earnings (Obi, 2004). This development has thrown many Nigerians to ask for white-collar employment in the government establishments. As Obi (2004, p. 265) has said that the reliance on the oil wealth has spawned a political culture with emphasis on “how to share the presidential wealth, rather than how to engage in the production of renewable and viable alternatives. As such, other sources of revenue were neglected in the rush for oil resources at the centre. ...the economy did not undergo any real structural development. ...while the economy remained dependent on a single commodity whose fortunes were externally determined”.

The politics of oil rent is linked to subsidy on the every litre of Premium Motor Spirit (PMS) bought by Nigerians informed the issue of subsidy payment by the Nigerian government is not clear to many Nigerians. Some have argued that is subsidy actually being paid by the government, while others have denied any subsidy payment by the government (National Mirror, January 9, 2013).

Before the colonial penetration and formal colonialism, the country paraded different agricultural products such as cocoa, palm oil, timber, rubber, cattle, hides and skins, cotton, and peanuts, “Nigeria’s incorporation into the capitalist market as a junior partner, which started with the supply of slaves, continue unaltered with the supply of commodities like palm oil, cocoa, groundnut, cotton, among others” (Babawale, 2006, p. 2). The volatile prices of raw materials in the world capital system crippled the finance needed for developmental projects “afloat and mediate class contradictions always fluctuated with changes in the world market” (Falola & Ihonvbere, 1985). These raw materials actually attracted the British imperialist to colonize Nigeria. The production and exportation of the agricultural commodities especially the palm oil and cocoa launched the country into global system, while at the same time depended on commodity markets in the industrial countries for its foreign exchange earnings or what Ake called the “pass on the responsibility for development to foreign patrons” (1996, p. 7).

The popularity of the ruling elites in mismanagement, misgovernance and maladministration in the country attracted the Nigeria military to forcefully intervene in politics and removed of the elected government. Although, the military in politics is abbreviation, but notwithstanding, its seem to have restructured the polity as well as the misfortunes that have bedeviled the country. Even at that, the military regimes contributed to the fall of the federalism in the country through the centralization of power and hitherto resources controlled by the regional government under the purview of the federal government. As Asobie (1998, p. 18) remarked that:

First, the federal government has, beginning from 1963, but especially since 1976, demonstrated an increased capacity to alter unilaterally and in its own favour the existing distribution of power between it and the regional governments and, indeed, among the various levels of government. Second, there has been an increasing accretion to the federal government of functions previously allocated to the regional (or



states) governments. Third, the resources – coercive, bureaucratic, ideological and financial directly available to the component units (regions or states) for carrying out their constitutional functions have steadily diminished in range and quantum while those at the disposal of the federal government have increased.

This thought is needed to be quoted at length with aim to demonstrates the reason d'état and why both national and state governments have abandoned country's advantage of agricultural resources for the "petrol-naira" because

The nature of oil wealth spawned a political culture in which emphasis was on how to share the providential wealth, rather than how to engage in the production of renewable and viable alternatives. As such, other sources of revenue were neglected in the rush for oil resources at the centre, thus giving the federal government a lot of leverage, which unfortunately was channeled into unproductive pursuits" (Obi, 2004, p. 265).

Indeed, the oil money has diverted the attention of government officials from looking inward to channel national resources apart from oil as panacea to development. The oil revenue has influenced the struggle for federal power and contradictions between the federal government and the other tiers of government; federal and state governments; federal government and oil-producing states, oil-producing states and the non-oil producing states; federal government and the oil minorities and oil minorities and the multinationals (Obi, 2004). This is not limited to these levels of government and organizations alone but reflected in the quest for struggle for power at centre because "... with the advent of oil the other tiers of government have lost the power over national resources to the federal government" (Obi, 2004, p. 268). The control of national resources by the federal government has put the subnational governments into a precarious situation and hindered them not to generate enough revenue to take care of their people. And this has led to severe consequences and inability of Nigerian state to leave up to the expectations of meeting the needs of the teeming population.

The reliance on oil as the avenue for national income has influenced the national government to fixing the price of Petrol and its other subsidiaries products beginning from 1970s after the promulgation of the Price Control Act, while "is noble, its administration in Nigeria has been plagued with serious allegations of corruption and mismanagement" (PWC, 2023, p. 2). Since then, the price of PMS in Nigerian market has continued to rise to the imaginable proportion. The incessant price increases on PMS has to do with the position of the Federal government decision to formally remove oil subsidy on PMS being imported into Nigeria. This is because the country's owned oil refineries has struggled to meet demand of the people, and the choice left for the government of the federation is to export crude oil and then import enough PMS for the use of Nigerians. Even, following the policy of deregulation of oil industry and despite granting licenses for private organizations to build refineries and compliment the ineffectiveness and inefficient of NNPC, perhaps the moribund government refineries. There is no single private refinery that comes on board to refine PMS, diesel among others. According to African Renewal (2023, p. 3), the



twenty licensed private sector approved to build refineries “chose not to build because the subsidies in effect price controls might have prevented them from recouping their investment. As a case in point, the government’s own revenues dwindled and record-low oil prices”.

The continued exportation of crude oil and importation of refined products from the crude oil such as PMS, Diesel, Kerosene, among others into the country has led to colossal loss to Nigerian economy and betterment of Nigerian citizens “Nigeria being the largest in Africa and the sixth largest oil producing country in the world, successive Nigeria governments have been unable to use the oil wealth to significantly reduce poverty, provide basic social and economic services her citizens need” (Obasi, Ezenkwa, Onwa & Nwogbaga, 2017, p. 52-53). The announcement by Tinubu led-federal government of Nigeria that the fuel subsidy regime is gone in his maiden address to Nigerians on Monday May 29, 2023 “this (subsidy removal) is the decision we must bear to save our country from going under and take our resources away from the stranglehold of a few unpatriotic elements” (Tinubu quoted in Africa Renewal (2023, p. 3) According to him, the subsidy on oil has to go for betterment of Nigerian because the beneficiaries of oil subsidy are those selected few “the subsidy costing trillions annually, favoured a selected few and posed a threat to economic fairness and democratic governance” and the imperative is “to fight economic imbalances, multiple exchange rates and illicit money accumulation” (Tinubu quoted in Onafowokan, 2024, <https://www.vanguardngr.com/2024/01/months-after-fuel-subsidy-removal-in-nigeria-so-far-how-good/>). PWC (2023) collaborated the position of President Tinubu further that the statistics from the World Bank shows that Nigeria’s total revenue in 2000 was USD10.8 billion, while in 2010, it increased to USD67.9 billion, and government spent more than USD30 billion on fuel subsidies in less than 20 years. This has greatly influenced decline in infrastructures such as education, health and defense. And yet, the government in 2022 borrowed N1 trillion to finance fuel subsidy regime.

The cankerworm or parasite bedeviling the national economy, that is, the oil subsidy is a challenge that has confronted political leadership in the country. As Olisah (2020) remarks, it is a problem which “over the past 30 years, the Nigerian government has made several attempts to remove the petroleum subsidy” (quoted in Yakubu, Abdullahi, Maijama’s & Musa, 2023, p. 363).

The subsidy removal, although a big challenge to Nigeria and Nigerians especially those have-nots, this class of people suffers low wages and income, lack of infrastructure including housing, transportation, and electricity and communication system. The removal triggered the increase in the price of PMS which affected transportation from one place to another, cost of living, buying and selling, costing of housing and light, school fees, etc. Indeed, the PMS issue is built around the economy and has made economic static, moribund and crawling (Ake, 1996, p. 3). As a result, there is inflation in the country “running at nearly 30% with cost of food, a big share of many people’s budget, rising even faster at 35.4%, while the cost of imported goods has skyrocketed as the Nigerian currency plummets” (Ademuwagun, 2024, <https://www.ft.com/content/29752a06-adea-4175-b278-22e0632c375a>). The removal on the PMS, although contributed to poverty because the Amnesty International in Nigeria has observed that left majority of Nigerians in dilemma but insisted that they must pay for inability of the past Nigerian government official failure to do the needful, but the current government that is, Tinubu administration under the umbrella of All Progressives Congress “must urgently put in place measures to protect the rights



of people most affected by the removal of the fuel subsidies and prioritize addressing widespread hunger, higher unemployment and the rapidly falling standard of living” (Sanusi, 2023, <https://www.amnesty.org/en/latest/news/2023/06/nigeria-remove-fuel-subsidy-exacerbate-po/>).

The consequences of subsidy removal have not benefitted Nigerians populace since the removal resulted in the government socio-economic and political responsibilities. And this has decline access to basic amenities, education, motorable roads, health care system and increased poverty level and giving the rising poverty levels in country, its declined “standard of living, increase impoverished segments of the population, cost of transportation, food and other essential goods and services” (Yakubu, Abdullahi, Maijama’a & Musa, 2023, p. 362).

No doubt, the challenges of PMS removal are enormous and challenging in the sense that “the fuel subsidy removal is a bitter pill for 99% of Nigerians, who are struggling to cope with the economic recession and security challenges in the country. The policy has exposed the deep-rooted problems and structural imbalances in the Nigerian economy, which is heavily dependent on oil revenue and imports. It has also put to test the trust and the confidence of the people in the government ...” (Rabiu, 2023, <https://www.premiumtimesng.com/opinion/650912-fuel-subsidy-removal-still-a-very-bitter-pill-for-nigerians-by-adamu-rabiu.html?ztzc=1>).

The fact that Nigerians have not trooped to the streets and major roads to protect the subsidy removal on oil unlike in 2012 when Jonathan sharply removed the subsidy suggest that the people trust the current administration under the President Tinubu by which the revenue will be spent for infrastructures, social welfare, and economic diversification which will lead to national prosperity and development. Even, President has observed that “in a little over two months, we have saved over a trillion Naira that would have been squandered on the unproductive fuel subsidy which only benefited smugglers and fraudsters” (quoted in Onuah, 2023, <https://www.reuters.com/world/africa/nigeria-saved-132-bln-two-months-after-fuel-subsidy-removal-tinubu-2023-07-31/>). Although, there is hardship in the land as a result of subsidy removal, however, Nigerians daily consumption has reduced significantly from 66m to 40m. The Vanguard Newspaper reported that the N3.92 trillion set aside for petrol subsidy for 30 months period between January 2020 and June 2022 over past the combined budgets for the Education and Defense Ministries respectively. The federal government spent between 2006-2018 humongous sum of over N10 trillion on PMS, between 2021-2022 N5.82 trillion and propose to spend the sum of N3.36 trillion for 6 months only in 2023 (Abayomi, 2023, <https://www.vanguardngr.com/2023/06/consequences-of-fuel-subsidy-removal-on-nigerias-balance-of-trade/>).

The pains being suffered by the people following the removal of PMS, the National Bureau of Statistics (2023) reported that the country’s CPI increased to 22.41% in May 2023 affecting essential commodities like palm oil, groundnut oil, yam, bread, cereals, fish, meat and beverages (cited in MPRA, 2023). This is an indication of inflationary trends in goods and services, food and building items. It also impacted on the small and medium enterprises across the country. Babalola and Salau (2020) reported that the subsidy removal contributed immensely to inflation, fluctuations on exchange rate, economy and governmental fiscal policies “the removal of fuel subsidy in Nigeria in 2023 has triggered a profound shift with far-reaching implications across



economic, social, and environmental spheres” (quoted in Evans, Nwaogwugwu, Vincent, Wale-Awe, Mesagan & Ojapinwa, 2023, p. 2). However, in order to address the effect of PMS on the subsidy removal, the federal government has approved N500 billion, and N100 billion to acquire 3,000 units of 20-seater CNG-fuelled buses; N200 billion to boost agriculture production; N75 billion for manufacturers; and N125 billion for micro, small and medium-sized enterprises and informal sector; the government also approved N185 billion as incentives for the subnational government; the student loan scheme and other programmes got N1 trillion; the federal workers were allocated N315 billion at N35,000.00 per worker for a period of six months; 15 million households got the sum of N1.13 trillion at N25,000.00 per month for a period of three months; Nigerian federal law-makers got N70 billion; while a loan facility to 1.5 million market women received N75 billion (Jaiyeola, 2023, <https://punchng.com/fg-mayspend-n-3-27tn-on-pallaitives-loans>).

These and other palliatives are meant to reduce the agony being experienced by Nigerians and effect on food production “our plan to support cultivation of 500,000 hectares of farmland and all-year-round farming practice remain on course” and N200 billion out of the N500 billion approved by the National Assembly will be disbursed as follows: our administration will invest N50 billion each to cultivate 150,000 hectares of rice and maize, N50 billion each will also be earmarked to cultivate 100,000 hectares of wheat and cassava” (Jaiyeola, 2023, <https://punchng.com/fg-mayspend-n-3-27tn-on-pallaitives-loans>). In addition, Tinubu led-administration the presidency has approved upward review of salaries of Nigerian workers across board. The Vanguard Newspapers (2024) reported that there is increase between 25% and 35% in salary of civil servants with following salary structures: the Consolidated University Academic Salary Structure (CONUASS) and Consolidated Tertiary Institutions Salary Structure (CONTISS) for universities; Consolidated Polytechnics and Colleges of Education Academic Staff Salary Structure (CONPCASS) and Consolidated Tertiary Education Institution Salary Structure (CONTEDISS); Consolidated Medical Salary Structure (CONMESS) and Consolidated Health Sector Salary Structure (CONHESS). Others are Consolidated Public Service Salary Structure (CONPSS), Consolidated Research and Allied Institutions Salary Structure (CONRAISS), Consolidated Police Salary Structure (CONPOSS), Consolidated Para-military Salary Structure (CONPASS), Consolidated Intelligence Community Salary Structure (CONICCS), and Consolidated Armed Forces Salary Structure (CONAFSS). There is also increment on pensioners under the Defined Benefit Scheme (DBS) between 20% and 28% upward.

Notwithstanding the challenges of subsidy removal and panaceas cum palliatives provided, but at the long run, the removal will serve the Nigerian state better in reduction of federal and state government borrowing and humongous debts and fiscal deficits; investment in the critical sectors, elimination of smuggling; sustainability of welfare and its affordability; stabilization and lower price of fuel for end users; contribution to economic growth, among others. These and other benefits will attend the issue of subsidy. Even now the subnational government are smiling to their capitals because they collect more than what they used to collect before May 29, 2023. The allocation from the federal government has increased substantially since June 2023 and now (April 2024). The states and local governments are now better in terms of revenues they receive monthly. For instance, between June and December 2023, they collectively received a sum of N3.34 trillion.



Even, the National Bureau of Statistics stated that there is an increase of N545 or 19.5% from the N2.79 trillion allocated to the states and local government between January to June in 2023 (cited in Tolu-Kolawole, Aina & Shaibu, 2024, <https://punchng.com/nigerians-seek-relief-as-states-get-n3-3tn-allocations/>). The paper further reported that in July N514 billion, August N533.75 billion, September N627.73 billion, October N497.97 billion; November N533 billion and December N610.5 billion were given to the States and Local governments respectively in 2023 (Tolu-Kolawole, Aina & Shaibu, 2024, <https://punchng.com/nigerians-seek-relief-as-states-get-n3-3tn-allocations/>). Thisday Newspaper (2024) also reported that the allocation to the all tier of government in January 2024 has increased from N1.67 trillion to N2.07 trillion (Akanbi, 2024, <https://www.thisdaylive.com/index.php/2024/05/05/elusive-gains-of-subsidy-removal-in-the-states>). Observing further that the federal government got N3.99 trillion or 39.37%, the States got N3.585 trillion or 35.34%, while the 774 Local governments across the country got N2.56 trillion or 25.28%. The PWC (2023) has revealed that the long effect of removal will impact on and influence stronger Naira and decline in imported inflation; encouragement of local capitalists to invest in downstream through development of local industry to refine PMS and increase employment; PMS will be available to end users.

The oil subsidy removal, although, has pros and cons, yet, the positive effect is that the proceeds according to President Tinubu would be directed towards significant savings and resources allocation for Nigeria and Nigerians at large “we shall instead rechanneled the funds into better investment in public infrastructure, education, health and jobs that will materially improve the lives of millions of our people (quoted in Sanyaolu, 2024, https://sunnewsonline.com/fuel-subsidy-removal-9-months-after-nigerians-groan-seek-palliatives/#google_vign). But, Nigerians have role to play by demanding accountability, transparency, inclusion, participation on how the funds are executed to improve their well-being “when will Nigerians begin to make their state governors and local government chairmen accountable? The truth is as long as Nigerians concentrate on the federal government for their legitimate demands, state governments will continue to mismanage funds and the cycle of underdevelopment will continue” (Akanbi, 2024 <https://www.thisdaylive.com/index.php/2024/05/05/elusive-gaoms-of-subsidy-removal-in-the-states>).

Conclusion

The study has shown that discovery of crude oil in commercial quantity is responsible for heavily dependent on the oil wealth that triggered the quest for political power by a few political elite. Before the independence and prior to colonial rule, the nationalities relied heavily ‘on the agricultural products, such as palm oil, cotton, peanuts, among others. However, following the colonial rule and aftermath of the Berlin Conference, the colonial government forced Nigerian people to produce in commercial quantity raw materials for the colonizers who also determined how much to buy commodities through brutal force.

The handing over to local elites who ought to have consolidated on the token handed over to them, continued the legacy of colonialism as they shifted attention to crude oil money. The oil money replaced agricultural products. The decline in oil money owing to moribund of the national refineries led to the importation of PMS into the country. As the government imports the finished



products from crude oil like PMS, Kerosene, Diesel, the Nigerian government provided the succor to the people through payment of subsidy on any litre of fuel brought to the country. This started in 1970s and continued till now. Attempts at removal of oil subsidy by any government either by the military or civil rule is usually resisted by Nigerians. In fact those leaders lacked the political will. But this was not the case when in May 29, 2023, the new government headed by President Ahmed Bola Tinubu announced the end of oil subsidy regime.

However, the pain of oil subsidy removal is very humongous. It has led to inflation and food items and building materials rose astronomically. The federal government in turn rolled out different palliatives with aim to bring succor to majority of Nigerians. While the removal of subsidy on PMS is long overdue, and benefited a few Nigerians, the revenues from that action should be channeled purposively and properly and appropriated to the needs of Nigerians like housing, good roads, better transportation system, good and affordable health care system, education opportunities, empowerment through creation of employment and training for deserving individuals. Similarly, the governments both at national, state and local governments should not see what come to their purses as avenue to further enrich themselves, but, such revenue should be appropriated into productive ventures and ensure their people irrespective of ethnicity, colour, language, religion, political affiliation enjoy the dividends of democratic governance.

Now that there is no more oil money at the national level, the quest for power and a do or die party politics should seize as the attention on power is now at behest of state as well as the local government. The federal government should put up a mechanism, platform or committee whereby the revenues to itself, States, and the local governments are monitored monthly, quarterly or yearly basis. The membership should not be on political affiliation but across governmental and nongovernmental organizations. The monitorship will ensure that the purpose or aim of subsidy on PMS removal is not jeopardized or ended in the personal pockets of elected representatives and appointed public officials. The PMS removal is a good to start a new Nigeria and for Nigerians.

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***EXCHANGE RATE UNIFICATION IN NIGERIA:
BALANCING STABILITY, COMPETITIVENESS, AND
ECONOMIC INTEGRATION***

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Abstract

Economically, exchange rate unification was driven by compelling arguments regarding its potential to catalyze price stability, enhance export competitiveness, and attract foreign investment. Stable prices are paramount for maintaining macroeconomic stability, controlling inflation, and fostering sustainable economic growth. This paper explores the recent unification of exchange rate in Nigeria. The decision to unify its exchange rates was driven by a combination of policy motivations, economic arguments, and external pressures. The country's exchange rate system, characterized by multiple rates and windows, posed significant challenges in terms of complexity. Adverse effects are expected in the short-term, but these effects will dissipate in the medium to long-term of this new exchange rate policy.

Keywords: exchange rate, unification, Balancing Stability, Competitiveness, Economic Integration, parallel market, official exchange rate, Nigeria.

Introduction

Exchange rate policies are crucial for ensuring economic stability, fostering competitiveness, and promoting integration into the global economy. They contribute to price stability by managing inflationary pressures and enhance the effectiveness of monetary policy. It enables stable and competitive exchange rates which facilitates international trade and attracts foreign capital inflows, promoting financial market development and economic growth. Overall, exchange rate policies play a vital role in achieving a balance between these objectives and responding to domestic and global economic challenges.

As one of the largest economies in Africa, Nigeria plays a significant role in regional and global economic dynamics. The management of its exchange rate has profound implications for economic stability, export competitiveness, and integration into the global economy. Nigeria has a long history of economic reforms. Some notable economic reforms are the 1986 structural adjustment program (SAP), the 2003 Nigerian Economic Empowerment Development Strategy (NEEDS), and the 2023 exchange rate unification reform. Between 2014 and mid-2023, Nigeria operated under a managed float exchange rate regime, implementing multiple exchange rates to allocate foreign exchange. These rates aimed to assist exporters and small businesses. However, this system was replaced in mid-2023 by a unified exchange rate regime under the President Tinubu Administration. The exchange rate unification reform of 2023 was intended to unify all exchange rates into a single market-determined exchange rate to promote transparency and price discovery in the foreign



exchange market, among other benefits. Similar exchange rate unification efforts have been undertaken by countries like India, Zambia, Canada, Chile, Sweden, Malawi, Norway, Kenya, Cuba, Australia, Japan, Mexico, Poland, Tanzania to name a few. However, the impact of such reforms varies across countries, depending on their economic fundamentals, policies, and implementation strategies. In Nigeria's case, high inflation, substantial deficits, fuel subsidy removal, and low government revenue complicate the assessment of the exact effects of exchange rate unification. Nonetheless, analysts speculate on its potential impacts.

This paper aims to analyze the process of exchange rate unification in Nigeria and its implications for balancing stability, competitiveness, and economic integration. By examining the policy motivations, implementation challenges, and macroeconomic outcomes associated with exchange rate unification, this study aims to shed light on the opportunities and challenges facing Nigeria as it navigates its path towards a unified exchange rate regime.

Literature Review

Kamin (1992) outlined the critical need for exchange rate unification to combat market distortions and increase macroeconomic stability. A fixed official exchange rate for current account transactions may stabilize domestic prices, while a floating rate for capital account transactions could maintain competitiveness. However, an overvalued official exchange rate can harm economic competitiveness. It's hard to control the flow of funds between market segments, and multiple rates create opportunities for abuse, making it challenging to distinguish legal from illegal activities. Therefore, there's a clear need to unify exchange rates and implement appropriate macroeconomic policies.

Agenor and Flood (1992) showed that many developing countries unify the official and parallel markets for foreign exchange by floating the exchange rate. They also showed that the behavior of parallel market premium in times leading to the unification depends on market expectations about the post-reform policy stance on exchange rate.

Kaufmann and O'Connell (1999) examined the exchange rate unification in Tanzania and found that trade and financial portfolio factors were significant determinants of the parallel market premium. They also found that a more aggressive move towards exchange rate unification has fiscal benefits, and it reduced monetary growth and inflationary pressures.

Kiguel and O'Connell (1995) demonstrated the prevalence of both official and parallel market exchange rates in developing nations. Their research showed the impact of the substantial premiums observed in the parallel market exchange rates on resource allocation and economic growth in these countries. They found that these premiums were often excessive and prolonged, with instances such as Venezuela maintaining high premiums for eight years, Mexico for five years, and Argentina for eight years.

Aron and Elbadawi (1997) revealed that despite the reforms and aggressive policies aimed at unifying the exchange rate in Zambia between 1964 and 1990, the black-market premium remained persistently high. This suggests that efforts to achieve exchange rate unification were unsuccessful in Zambia. In contrast, Nkurunziza (2020) found that in the case of Burundi, the parallel market



premium is influenced by factors such as the anticipated rate of devaluation, trade policy variables, and GDP growth.

Pinto (1989) criticized the World Bank's endorsement of unifying official and black-market exchange rates in African nations. In his analysis of Ghana, Sierra Leone, and Nigeria, Pinto argued that the World Bank's policy recommendation in favor of unification fails to consider significant factors. These include scenarios where multiple exchange rates serve as a form of taxation and instances where the widened deficit resulting from unification intensifies inflation.

The studies cited indicate that the effects of exchange rate unification differ across countries based on their unique economic circumstances, policies, and execution approaches. Yet, none of these studies specifically examined Nigeria's encounter with exchange rate unification.

Nigeria's exchange rate regime has evolved over time. Initially, it followed a fixed exchange rate system, with the Central Bank of Nigeria (CBN) determining the Naira's value against other currencies. However, economic challenges prompted a shift to a managed float exchange rate regime. This regime faced criticism for causing price distortions and burdening oil importers with higher foreign exchange rates, resulting in substantial fuel subsidy payments exceeding N7 trillion (US\$15.2bn) in 2022.

Despite the potential benefits of the managed float exchange rate regime, criticism primarily stemmed from the lack of adequate controls to prevent price arbitrage in the foreign exchange market. This situation fostered unproductive arbitrage, rent-seeking behavior, round-tripping, and unfair competition, adversely impacting Nigeria's economy.

To address these issues, the government initiated reforms aimed at unifying exchange rates. The objective was to streamline the system, mitigate distortions, and enhance market transparency. By mid-2023, Nigeria transitioned to a single market-determined exchange rate regime, consolidating all exchange rates. This shift reflects Nigeria's commitment to enhancing the efficiency of the foreign exchange market and fostering economic stability.

Implications for Economic Stability

Exchange rate stability significantly contributes to investor confidence, capital inflows, and economic resilience in Nigeria. A stable exchange rate environment reduces uncertainty, instilling confidence among investors and encouraging both domestic and foreign investment. This stability attracts capital inflows into the country, as foreign investors are more willing to commit funds to Nigeria when they can predict future returns with greater accuracy.

However, an increase in the naira value of foreign debts can have implications for exchange rate stability. If the resulting appreciation of the naira is substantial, it may disrupt exchange rate stability, erode investor confidence, deter capital inflows, and hinder efforts to enhance economic resilience.

Therefore, policymakers need to carefully manage the implications of changes in the naira value of foreign debts to maintain a balance between short-term benefits and long-term economic stability and growth. By implementing appropriate policies to mitigate the negative effects of naira appreciation, such as strategic debt management and exchange rate interventions, Nigeria can



preserve exchange rate stability and continue to foster investor confidence, attract capital inflows, and promote economic resilience.

Implications for Competitiveness:

A unified exchange rate is intended to boost Nigeria's export competitiveness by ensuring competitive pricing in international markets and encouraging domestic production through import substitution. The reduction of unproductive subsidies and distortions would create a stable environment for producers and investors, enhancing the usefulness and reward of projections. This would streamline decision-making, reducing uncertainties and arbitrariness. Achieving an equilibrium exchange rate is also simpler under a unified system.

The potential initial negative effects of increased inflation and possible output loss can be mitigated through sustained implementation of complementary demand management policies and supply-side initiatives. In this context, the unification of exchange rates, leading to higher consolidated rates aligning with parallel market rates, could increase costs for businesses reliant on imports. While some businesses may struggle or fail, others could pass on the added expenses to consumers, potentially sparking inflation. However, a competitive unified exchange rate might prompt businesses to capitalize on export opportunities by leveraging the affordability of Nigerian products in global markets due to the depreciated exchange rate.

Implications for Economic Integration:

Externally, Nigeria has encountered pressures from international financial institutions and global market dynamics, emphasizing the necessity of exchange rate reforms. Collaborations with entities like the International Monetary Fund (IMF) and the World Bank often involve recommendations for exchange rate adjustments within broader economic reform agendas. Furthermore, external market forces, including fluctuations in global commodity prices, capital flows, and exchange rate movements, have influenced Nigeria's exchange rate system, prompting reforms to uphold stability and competitiveness amid a volatile global economy.

Under the previous exchange rate regime, foreign investors hesitated to invest in Nigeria due to challenges in repatriating profits, leading to capital being trapped and impeding investment inflows. The introduction of a new exchange system that provides flexibility and facilitates easier profit repatriation is anticipated to address this issue, potentially attracting more foreign investments and stimulating economic growth.

From a broader perspective, exchange rate unification facilitates Nigeria's integration into global markets by aligning its currency value with international standards and reducing transaction costs, thus promoting trade and investment flows. This policy shift signals Nigeria's commitment to fostering sustainable economic growth and development while aligning with regional and global economic trends.

The appreciation of the naira against foreign debts presents significant hurdles for debt management. Both government and private sectors may face increased debt burdens, potentially straining finances and elevating the debt-to-GDP ratio. Additionally, Nigeria's reliance on imports exposes the



economy to inflationary risks, as higher import costs resulting from the stronger naira could drive domestic prices upwards.

It might seem Nigeria will encounter challenges in meeting unfulfilled foreign exchange demands and future projections. Inadequate growth in foreign exchange supply poses a risk of naira devaluation, potentially leading to unforeseen currency depreciation and heightened economic instability.

In summary, while the new exchange regime shows potential for attracting foreign investments, streamlining capital repatriation and global market integration, Nigeria must navigate the intricacies of debt management, address inflationary pressures from import costs, and manage foreign exchange supply to mitigate risks of currency devaluation and economic instability.

Conclusion

In conclusion, this paper explored Nigeria's recent exchange rate unification policy which represents a significant step towards addressing longstanding challenges and unlocking opportunities for economic growth and stability. The decision to transition to a unified exchange rate regime was driven by compelling arguments regarding its potential to stimulate price stability, enhance export competitiveness, and attract foreign investment. While the process is expected to yield positive outcomes in the medium to long term, it is not without its challenges.

The implications of exchange rate unification for Nigeria's economic stability, competitiveness, and integration into the global economy are multifaceted. Exchange rate stability is critical for fostering investor confidence, attracting capital inflows, and promoting economic resilience. However, an increase in the naira value of foreign debts presents challenges that must be carefully managed to maintain exchange rate stability and sustain economic growth.

The unification of exchange rates has the potential to bolster Nigeria's export competitiveness and streamline decision-making processes for businesses. However, initial disruptions such as increased inflation and import costs may need to be mitigated through proactive policy measures. Exchange rate reforms position Nigeria to better integrate into global markets, aligning its currency value with international standards and reducing transaction costs. This highlights Nigeria's commitment to fostering sustainable economic growth and development in alignment with regional and global economic trends.

In navigating the complexities of exchange rate unification, policymakers must remain vigilant and proactive in addressing emerging challenges while leveraging opportunities for economic advancement. By implementing prudent policies, fostering collaboration with international partners, and fostering a conducive business environment, Nigeria can maximize the benefits of exchange rate unification and position itself for long-term prosperity.

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**LABOUR PRODUCTIVITY IMPACTS ON ECONOMIC GROWTH IN
NIGERIA: 1993-2021**

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ABSTRACT

This study investigates labour productivity impacts on economic growth in Nigeria between 1993-2021. The broad objective of this study is to verify the effect of labour productivity on economic growth in Nigeria; while the specific objectives of this study is to determine the short-run and long-run impact of labour productivity on economic growth in Nigeria. The study employed secondary means of data collection to obtain data for real GDP, labour productivity, foreign direct investment, inflation rate, and exchange rate. The long-run cointegration test was carried out using ARDL Bounds test, and the result demonstrates the existence of long-run cointegrating relationship between dependent variable and independent variables, as F-statistics was found to be greater than the upper bound I(1) value. The ARDL estimation result reveals that in the short-run, labour productivity, inflation rate, and exchange rate have positive and statistically significant impact on economic growth at 1% significant level, while Foreign Direct Investment has negative and significant effect on economic growth at 1% significant level. In the long-run, labour productivity and inflation rate positively affect economic growth at 1% significant level, exchange rate has positive effect on economic growth at 5% level of significant, while foreign direct investment has negative impact on economic growth at 1% significant level. The granger causality result shows that there is no granger causality relationship between labour productivity and real GDP. Based on these results, this study concludes that labour productivity has strong and positive impact on economic growth in Nigeria. Therefore, the study recommends the need for government to develop and implement integrated jobs strategies in order to increase labour productivity.

Keywords: Labour Productivity, Economic Growth, Foreign Direct Investment, Inflation Rate, Exchange Rate.

1. INTRODUCTION

The global economy cannot downplay the crucial inputs of labour into the production process which ultimately utilizes man, money, machine, materials and methods for the entire process. This is further buttressed by Soomro, Wang, Tunio and Aripkhanova (2021), as they posit that



productivity is an engine and key driver of economic growth. The productivity of labour is not dependent on labour per se, it is a function of quality training and education, technology environment, supports system, quality and quantity of work tools. The importance of labour productivity on economic growth has been demonstrated by numerous studies showing a positive relationship between the two variables (Oyamendan, 2022; Hardt, 2020; Wu, 2013; Campbell, 2009). As opined by Solow (1956), labour productivity is accorded prominence in standard growth accounting models. The wealth and strength of nations rest ultimately upon the development of people and the effective commitment of their energies and talents to production to sustain economic growth (Todaro, 2007). The United Nations Development Programme (2010) affirmed that no country can achieve sustained economic growth without substantial investment in human capital development and improved labour productivity. In the current era of globalization and increasing competitiveness, the survival of a given country depends on its labour productivity which in turn facilitates the economic growth and development (Papadogonas & Voulgaris, 2005). Labour productivity improvement is vital because it enhances rapid output growth (Faruq & Telaroli, 2011).

Labour productivity is a key factor of boosting economic growth. Evidence from the theoretical point of view, Solow-Swan (1956) model posited that labour productivity growth (i.e., technology progress) along with capital accumulation largely accounts for the changes in economic growth in the long-run. Also, Rostow's (1959) stages of growth model postulated that the transition of economic activities as well as economic growth and development is majorly caused by labour productivity. Considering the major drivers of labour productivity which are technological change, physical change, and human capital; Rostow claimed that it is possible for the economy to move from traditional society, which marks a period of low economic growth to the age of mass consumption, which marks a period of highest economic growth and development.

Nigerian labour productivity has not been satisfactory over the years because of low GDP per person in the country (Umoru & Yaqub, 2013). The World Bank (2009) reported low labour productivity in Nigeria with an average growth rate of 1.2% between 2000 and 2008 which was below the rate of 1.9% recorded for Sub-Saharan African countries and 2% recorded for low-income countries. Similarly, the International Labour Organization (2015) maintained that labour productivity positively affects economic growth by bringing about the production of more goods and services with the same amount of resources. Sadly, the reverse is the case in developing



countries like Nigeria based on the statistical evidence extracted from the National Bureau of Statistics. Labour productivity growth remains a veritable driver of output growth as it increases a country's capacity to create better opportunities for decent and productive employment. A sustained productivity growth is a good channel for increasing the economic prosperity of a country. If this sustained productivity growth is backed by technological innovation and capital-intensive investment, it could have dual effects on employment level - i.e., either create or destroy jobs. However, the link among these macroeconomic variables in Nigeria remains unclear, as reflected in its economic growth pattern, which rather precludes productivity growth or increase in employment. It is on this background that this study examines the impact of labour productivity on economic growth in Nigeria within the period under review.

2. LITERATURE REVIEW

Labour Productivity

Labour productivity which is also known as workforce productivity is a vital economic indicator that can be used to determine the total output produced by one hour of labour within an economy. As submitted by Kornieieva, Varela, Luis and Teixeira (2022), labour productivity is an important indicator that characterizes the ability of the economic system to function with proper efficiency. According to Investopedia (2020), Labour Productivity measures the hourly output of a country's economy. In Nigeria, the growth of labour productivity has been highly volatile over the years. Elsewhere in literature, labour productivity is defined as the output level produced per unit of labour inputs employed in production (Kahyarara, 2019). According to Awotunde (2018), the trend of labour productivity in Nigeria from the period of 1971 to 2013 was unstable with the mean and standard deviation of labour productivity growth over the period calculated around 2.05% and 7.24% respectively. National Bureau of Statistics (2015) liken the poor growth of labour productivity in Nigeria to the consequences of certain setbacks that are challenging economic activities which include: poor access to finance, poor power and transport infrastructure, unfavourable policy support to businesses and investment climate, poor quality of educational institutions, and inadequate science and technological capabilities. Besides, other possible factors that could impede labour productivity growth in Nigeria are; continuous high unemployment which is progressing into underemployment, over-supply of labour, low wage subsistence jobs, and low skilled employment (National Bureau of Statistics, 2015). To sum the various views up, Labour Productivity can be viewed as the quantity or the monetary worth of output a labour input



can turn in per unit of time in a production process. This time horizon can be hourly, daily, weekly, monthly or annually.

Economic Growth

Economic growth is related to a quantitative sustained increase in the country's per capita output or income accompanied by expansion in its labour force, consumption, capital and volume of trade. Economic growth has been largely defined as the increase in production of economic growth and services, compared from one period of time to another which can be measured either via Gross Domestic Product (GDP) or Gross National Product (GNP) (Potters, 2021).

Solow-Swan Growth Model

Theoretically, this work leans on the Solow-Swan Growth Model which was developed independently by Robert Solow and Trevor Swan (1956) to explain economic growth by considering capital accumulation, technological progress (productivity growth), and labour or population growth. Solow-Swan model is also known as the neoclassical aggregate production function which is an extension to the 1946 Harrod-Domar model. The model extends Harrod-Domar model by adding labour to the factors of production and capital-output ratios that are not fixed. Solow model forecast that through technological progress, economies meet together for their steady state equilibrium in the long-run. While change in savings and population growth will only result to absolute value of real income in the long-run. Changes in the technology progress grow exponentially at constant exogenous rate. The technological change is believed to be labour-augmenting and mainly motivated by its natural-constant growth rate that is determined by forces outside the model.

Stundziene and Saboniene (2019) hypothesized whether tangible investment will augment labour productivity in European countries. The study adopted seven variables model and employed correlation test, granger causality test and VAR model to analyze the relationship among the variables. The study validated that tangible investment has positive effect on labour productivity in European countries. The study further found reciprocal causality nexus between apparent labour productivity to gross investment in existing buildings and structures per person employed as well as gross investment in tangible goods per person employed.

Korkmaz and Korkmaz (2017) employed panel data analysis techniques (which include panel unit root, panel cointegration test and granger causality test) to assess the nexus between labour productivity and economic growth among seven OECD countries between 2008 and 2014. From



the cointegration result, the study discovered that there is a long-term equilibrium nexus between labour productivity and economic growth. Also the granger causality test revealed a unidirectional causality nexus running from economic growth to labour productivity. From the findings, the study concluded that labour productivity facilitates sustainable economic growth in the developed countries.

Habanabakize (2021) developed NARDL model which comprises three variables that include: job opportunity, labour productivity, and real wages. These models were analyzed using both cointegration method and NARDL statistical analysis method. The result gotten from the analysis revealed that positive relationship exists between labour productivity and job opportunity, while real wages only has negative effect on labour productivity in the long-run. Remi et al., (2020) analyzed the role of health in labour productivity enhancement in Nigeria. The study developed four variables VAR model which include: health indicators (consists of life expectancy, government health expenditure, and malaria cases), secondary school enrolment rates, life expectancy rates, and labour productivity index. The model was analyzed using different estimation techniques such as: Johansen co-integration, pairwise granger causality test, VAR-model, and VECM. The study argued that government spending on health as well as life expectancy rate do not have any statistical effect on labour productivity in Nigeria; while malaria cases has negative significant effect on labour productivity in Nigeria.

Kelani et al., (2019) obtained times data spanning between 1981 and 2017 for variables such as: real GDP growth rate, life expectancy, labour productivity per capita, and investment. The study employed Auto-regressive distributed lag (ARDL) for statistical analysis. The study noticed that labour productivity does not cause economic growth in Nigeria. The study explained that low quality of education and obvious depth in quality of manpower justify the absent of labour productivity impact on economic growth in Nigeria. The study therefore suggested that government policies for economic growth should focus on manpower improvement via continuous training and retraining of labour force as well as development of quality education.

3. METHODOLOGY

To estimate the effect of labour productivity on Nigeria's economic growth, the study used the aggregate production function framework (APF). The preference for adopting APF in this work is that, in addition to "conventional input" of labour and capital used the in the neoclassical



production function, it permits the inclusion of “unconventional inputs” in the model to capture their contribution to economic growth. The standard aggregate production function is written as:

$$Y = Af(K, L) \dots\dots\dots (3.1)$$

Where Y denotes the aggregate production of the economy (real GDP per capita) and A, K, L are the level of technology, the stock of domestic physical capital and the stock of labour force respectively. When the level of technology, A is ignored, the standard aggregate production function becomes:

$$Y = f(K, L) \dots\dots\dots (3.2)$$

Following Ngutsav and Ijirshar (2018), the standard aggregate production function is modified to other macroeconomic variables like Labour Productivity (LP), Foreign Direct Investment (FDI), inflation Rate (INF), and Exchange Rate (EXR), which are believed to affect Nigeria’s economic growth are included in the model. Hence, the aggregate production function used for the analysis are specified as

$$Y = f(K, L, LP, FDI, INF, EXR) \dots\dots\dots (3.3)$$

The variables of interest in this study are Y, which represents Real Gross Domestic Product (RGDP), LP. Other variables, FDI, INF, and EXR are included to serve as controls. From the functional equation above, after taking the natural logarithms of both sides, the estimable equation is specified as follows:

Model Specification

Mathematically, Equation 3.3 is transformed thus,

$$RGDP_t = \alpha_0 + \alpha_1 K_t + \alpha_2 L_t + \alpha_3 LP_t + \alpha_4 FDI_t + \alpha_5 INF_t + \alpha_6 EXR_t + e_t \dots\dots\dots (3.4)$$

Where α_0 is the constant term, $\alpha_3 - \alpha_6$ is parameters to be estimated and e_t is the error term, and t is time.

The entire variables are transformed into natural logarithm to lessen the effect of heteroscedasticity in the time series data, as presented in Equation 3.5.

$$\ln RGDP_t = \alpha_0 + \alpha_1 \ln K_t + \alpha_2 \ln L_t + \alpha_3 \ln LP_t + \alpha_4 \ln FDI_t + \alpha_5 \ln INF_t + \alpha_6 \ln EXR_t + e_t \dots (3.5)$$

ARDL Model:

$$\begin{aligned} \Delta \ln(RGDP)_t = & \beta_0 + \sum_{i=1}^{p_0} \nu_i \Delta \ln(RGDP)_{t-1} + \sum_{i=0}^{p_1} \tau_i \Delta \ln(K)_{t-1} + \\ & \sum_{i=0}^{p_2} \theta_i \Delta \ln(L)_{t-1} + \sum_{i=0}^{p_3} \sigma_i \Delta \ln(LP)_{t-1} + \sum_{i=0}^{p_4} \gamma_i \Delta \ln(FDI)_{t-1} + \sum_{i=0}^{p_5} \omega_i \Delta \ln(INF)_{t-1} + \\ & \sum_{i=0}^{p_6} \kappa_i \Delta \ln(EXR)_{t-1} + \eta_0 \ln(RGDP)_{t-1} + \eta_1 \ln(K)_{t-1} + \eta_2 \ln(L)_{t-2} + \eta_3 \ln(LP)_{t-1} + \\ & \eta_4 \ln(FDI)_{t-1} + \eta_5 \ln(INF)_{t-1} + \eta_6 \ln(EXR)_{t-1} + e_t \quad \dots\dots\dots(3.6) \end{aligned}$$

Where: β_0 is the intercept and e_t is the white noise. The remaining coefficients describe short-run and long-run relationships. The $\eta_j, j=0, 1 \dots 6$ correspond to the long-run relationship while the short-run effects are captured by the coefficients for the first difference variables i.e., $\theta_i, \sigma_i, \gamma_i, \omega_i$, and κ_i . $p_1 - p_4$ represents the optimum lag length of each of the variables.

4. RESULTS AND DISCUSSION

Descriptive Statistics

In this section, the properties of the data used for the purpose of this study which spans through 30 years were discussed. The data used include real GDP, labour productivity, foreign direct investment, inflation rate, and exchange rate. The description of these data include mean, median, standard deviation, skewness, kurtosis, and Jarque-Bera (see table 4.1).

Table 4.1 Descriptive Statistics Results

	lnRGDP	lnLP	lnFDI	INF	lnEXR
Mean	30.35	17.58	1.73	17.30	121.67
Median	30.65	17.61	1.57	10.31	127.23
Maximum	32.61	17.82	5.79	75.40	306.92
Minimum	26.93	17.25	0.50	0.69	8.04
Std. Dev.	1.73	0.18	1.18	16.11	88.83
Skewness	-0.46	-0.38	1.94	1.96	0.59
Kurtosis	2.03	1.75	7.01	7.01	2.78
Jarque-Bera	2.21	2.65	38.91	39.36	1.79
Probability	0.33	0.27	0.001	0.001	0.41
Observations	30	30	30	30	30

Source: Authors' Computation

From Table 4.1, the average mean revealed that the trend of real GDP over the years has been positive on the average of 30.35%. This means that on an average, real GDP increased by 30.35%

between the periods of 1993 and 2021. The average labour productivity, foreign direct investment, inflation, and exchange rate are 17.58%, 1.73%, 17.30% and 121.67% respectively. This also implies that labour productivity, foreign direct investment, inflation rate, and exchange rate increased on the average of 17.58%, 1.73%, 17.30% and 121.67% respectively within the studied period. It was also noted that the variables used in the study change within their minimum and maximum values; while the standard deviation showed that exchange rate is the most volatile and labour productivity is the least volatile among the variables employed in the study. For the Kurtosis, the variables foreign direct investment and inflation rate are leptokurtic in nature since their values are above 3, while other variables i.e., real GDP, labour productivity, and exchange rate are platikurtic in nature since their value are below 3. The Jarque-Bera statistics of lnRGDP, lnLP, and lnEXR have a probability value of 0.33, 0.27, and 0.41, which were not significant at 5% significance level. The null hypothesis was accepted that the variables are normally distributed. On the other hand, lnFDI and INF has a probability value of 0.001, which was statistically significant at 5% significance level. The null hypothesis was rejected, and it was concluded that the variables were not normally distributed.

Correlation Test

To determine the linear relationship that exists among the variables and check whether multicollinearity problem exists among the variables employed, correlation test was carried out and the result is presented in Table 4.2.

Table 4.2 Correlation Analysis Results

	lnGDP	lnLP	lnFDI	INF	lnEXR
lnRGDP	1				
lnLP	0.992 (0.000)*	1			
lnFDI	-305 (0.101)*	-253 (0.145)	1		
INF	-0.521 (0.003)*	-0.553 (0.002)*	0.334 (0.071)*	1	
lnEXR	0.889 (0.000)*	0.883 (0.000)*	-0.831 (0.084)*	-0.457 (0.011)*	1

*Note: the parenthesis () are the probability values of the variables, while * implies significant level at a 5% significance level. Source: Authors' Computation*

From Table 4.2, it was observed that there exists positive and significant linear relationship between lnRGDP and some independent variables namely lnLP, and lnEXR, while lnFDI and lnINF had a negative linear association with lnRGDP. The result also revealed that there is absence of multicollinearity problem among the variables employed as none in association to lnRGDP has a value of 1.

Unit Root Test

To check the existence of unit root among the variables employed in this study, the unit root test was carried out using both Augmented Dickey Fuller (ADF) test. The result is presented in Table 4.3.

Table 4.3 Unit Root Results

With Intercept Only					With Intercept Only				
Variable	At Level	Critical value			At First Difference	Critical value			Order of integration
		1%	5%	10%		1%	5%	10%	
lnRGDP	-1.57	-4.36	-3.60	-3.23	-3.66	-4.36	-3.60	-3.23	I(1)
lnLP	1.28	-4.44	-3.63	-3.25	-3.62	-4.39	-3.61	-3.24	I(1)
lnFDI	-3.10	-4.36	-3.60	-3.23	-4.99	-4.34	-3.59	-3.23	I(1)
INF	-4.97	-4.33	-3.59	-3.23					I(0)
lnEXR	-2.31	-4.32	-3.58	-3.23	-3.86	-4.32	-3.58	-3.23	I(1)

Source: Authors' Computation

From the result presented in table 4.3, it was shown that INF was stationary at level. The variable was integrated of order zero which implied that the variable is I(0). Contrarily, other variables (lnRGDP, lnLP, lnFDI and lnEXR) were not stationary at level but became stationary at first difference that is, the variables were integrated of order one which implied that the variables are I(1).

ARDL Estimation

The ARDL estimation was adopted to examine the long-run and short-run effect of labour productivity on economic growth in Nigeria as specified in the objective of the study. The model has been widely used by notable scholars in the literature to determine the short-run and long-run

impact of independent variables on dependent variable. As a result, this study tested the short-run and long-run effect of labour productivity on economic growth in Nigeria using ARDL model. The optimal lag was automatic selected with the maximum lags set at 4 for both dependent variable and regressors, while Schwarz Information Criteria (SIC) was used as the model selection criteria. The result is presented in Table 4.5.

Table 4.5 ARDL Estimation Results

Dependent Variable: $\Delta(\ln GDP)$				
Selected Model: ARDL (3, 4, 3, 4)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	67.44224	5.321929	12.67252	0.0011
$\Delta \ln LP_{t-1}$	-1.004979	0.195977	-5.128039	0.0144
$\Delta \ln LP_{t-2}$	0.338294	0.140248	2.412117	0.0948
$\Delta \ln LP_{t-3}$	2.208884	0.149111	14.81370	0.0007
ΔFDI_{t-1}	0.028436	0.002829	10.05033	0.0021
ΔFDI_{t-2}	-0.111429	0.008001	-13.92615	0.0008
ΔFDI_{t-3}	-0.052858	0.004998	-10.57602	0.0018
ΔFDI_{t-4}	-0.031190	0.003309	-9.426075	0.0025
ΔINF_{t-1}	0.007403	0.000252	29.32494	0.0001
ΔINF_{t-2}	0.007767	0.000649	11.96660	0.0013
ΔINF_{t-3}	0.003123	0.000447	6.992352	0.0060
ΔEXR_{t-1}	-0.001207	8.94E-05	-13.49518	0.0009
ΔEXR_{t-2}	0.000173	0.000123	1.411056	0.2531
ΔEXR_{t-3}	0.000363	0.000118	3.084445	0.0539
ΔEXR_{t-4}	0.001973	0.000102	19.33051	0.0003
Long-run Estimation				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\ln LP$	9.854367	0.150461	65.49449	0.0000
FDI	-0.321519	0.012867	-24.98713	0.0001
INF	0.014543	0.001151	12.63392	0.0011
EXR	0.000988	0.000217	4.561143	0.0198

Source: Authors' Computation

From the result presented in Table 4.5, it was revealed that in the short-run, labour productivity, inflation rate, and exchange rate impact on economic growth with positive relationship at a 5% significant level, while foreign direct investment negatively impact economic growth at a 5% significant level. By implication, 1% change in labour productivity, inflation rate, and exchange



rate increase economic growth by 2.208%, 0.008%, and 0.002% respectively, while 1% changes in foreign direct investment reduces economic growth by 0.031%. This implies that foreign direct investment had a negative impact on Nigeria's economic growth. This is an indication that Nigeria should be cautious in implementing or attracting foreign direct investment flows into Nigeria. However, this sign could be as a result of the insufficient human capital development.

On the other hand, the long-run result revealed that both labour productivity and inflation rate positively affect economic growth at a 5% significant level, exchange rate has positive effect on economic growth at 5% level of significant, while foreign direct investment has negative impact on economic growth at a 5% significant level. This result implies that 1% change in labour productivity, inflation rate, and exchange rate cause economic growth to increase by 9.85%, 0.015%, and 0.001% respectively, while 1% changes in foreign direct investment reduce economy growth by 0.322%.

Granger Causality Test

Granger causality test is employed to determine the direction of causal relationship that exists between the dependent variable i.e., real GDP and independent variables namely: labour productivity, foreign direct investment, inflation rate, and exchange rate. The result is presented in Table 4.6.

Table: 4.6. Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
lnLP does not Granger Cause lnGDP	28	2.23125	0.1301
lnGDP does not Granger Cause lnLP		1.66229	0.2117
FDI does not Granger Cause lnGDP	28	7.78437	0.0026
lnGDP does not Granger Cause FDI		5.16431	0.0140
INF does not Granger Cause lnGDP	28	0.80862	0.4577
lnGDP does not Granger Cause INF		6.83288	0.0047
EXR does not Granger Cause lnGDP	28	1.97270	0.1619
lnGDP does not Granger Cause EXR		2.66079	0.0913

Source: Authors' Computation

From the granger causality result presented in table 4.6, it can be deduced that there is no granger causality relationship between labour productivity and real GDP. This implies that labour productivity does not explain changes in real GDP. The bidirectional causal relationship was discovered for both foreign direct investment and real GDP. By implication, it means that both the variables explain the changes of each other. For inflation rate and exchange rate, there exists a



unidirectional causal relationship flowing from real GDP to inflation rate and exchange rate respectively. This implies that real GDP explains the changes in inflation rate and exchange rate.

Discussion of Findings

The study examined the relationship between labour productivity and economic growth in Nigeria for the period of 1993 and 2021. The result appeared to be mixed in nature, such that labour productivity, which is a product of inventions and innovation affected real economic growth significantly based on the ARDL result and insignificantly based on the Granger causality result.

The short and long-run impact of labour productivity on economic growth in Nigeria

The result, both in the short and long-run revealed that labour productivity positively and significantly impacts economic growth in Nigeria. The result is in conformity with the aggregate production function theory, which stipulates that economic growth is a function of labour productivity. This finding can be attributed to various employment intervention programmes (such as: Subsidy Reinvestment and Empowerment Program (SURE-P), Nigerian Youth Employment Action Plan (NIYEAP), Skills Development for Youth Employment (SDYE) and N-Power) initiated by Nigerian government over the years to engage the youth and fresh graduates in every sector of the economy to make them more productive. Besides, entrepreneur programs (such as: Start-up Nigeria (SN), Youth Entrepreneurship Support Program (YESP), Social Intervention Fund (SIF) were introduced by Nigeria government to induce labour productivity in the economy.

5. CONCLUSION AND POLICY RECOMMENDATIONS

Conclusion

From the result obtained from the ARDL Bounds test, it can be inferred that there is cointegrating nexus between labour productivity and economic growth in the long-run. Based on the result obtained from the ARDL estimation, this study concludes that labour productivity has a positive and meaningful impact on economic growth in Nigeria both in short-run and long-run. Besides, it can also be deduced that inflation rate and exchange rate positively and significantly affect economic growth in Nigeria both in long-run and short-run while it is concluded that negative and significant impact exists from foreign direct investment to economic growth in Nigeria. Furthermore, it was concluded that there is no causality relationship between labour productivity and economic growth, while bidirectional causality relationship was submitted for foreign direct investment and economic growth, and unidirectional relationship flowing from economic growth to inflation rate and exchange rate in Nigeria.



Recommendations

Regarding the empirical findings obtained in this study, various strategic policies that could increase economic growth in Nigeria are recommended as follows:

- (i) Government needs to develop and implement integrated jobs strategies and support via improving financial access, strengthening skills training, supporting a strong private sector, and building sustainable infrastructure to increase labour productivity and achieve sustainable economic growth.
- (ii) Government should increase investment in human resource development that could improve labour productivity in all sectors in the recent changing world towards highly technological growth-oriented economy.
- (iii) Macro and regulatory policies such as improving market linkages, addressing sectorial and regional needs, labour regulations and active labour market programs should be used as tools that will enable private sectors to create more jobs.

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***FUEL SUBSIDY REMOVAL AND ITS IMPACT ON CUSTOMIZED
INTER-TRANSIT SERVICES IN EDO STATE: POLICY PERSPECTIVES***

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ABSTRACT

This research study focused on fuel subsidy removal and its impact on customized inter-transit services in three senatorial districts in Edo State. The specific objectives of the study are to ascertain the relationship between fuel subsidy removal and the profit margin of inter-transit service; to examine the effect of fuel subsidy removal on the hike in fares of inter-transit services. The study is anchored on the theory of regulated monopolies within which government subsidies themselves, are perceived as distorting the forces of demand and supply. The study adopted a survey research design, with the research instrument as a questionnaire formatted in line with the objectives of the study. The population of the study is three hundred and twenty-eight (328) respondents. The sample size was determined using Yamane's formula as one hundred and eighty (180) respondents. One hundred and twenty (150) questionnaires were collected for analysis. The returned questionnaires were tested with chi-square and with the aid of SPSS version 22. The research concludes that fuel subsidy removal is an important element in the larger scheme to accelerate business development. The result of the findings shows that fuel subsidy removal have a significant on SMEs amongst customized transit services in the three senatorial districts in Edo State. Based on the finding, the study recommended the following that the government should focus on maintenance of moribund Nigerian refineries, while additional support should be given to the inter-transit services in form of access to finance or special regulated price for fuel, see opportunities in clean energy by embracing cleaner options like electric vehicles, biofuel, or solar-powered technologies.

Keywords: Classic economic theory, Customized transit owners, Local governments, SMEs, fuel subsidy removal



1.1 INTRODUCTION

In Nigeria, the regulation and control of domestic prices of petroleum products by government is peculiar in developing nations of the world. Governments, in some cases focus their efforts on the direct control of import levels, domestic distribution, and domestic prices while some give the private sector the mandate to freely import and distribute petroleum products. However, when the government sets the domestic price ceilings and compensate the private sector distributors to cover ensuring losses. Government that directly control prices in most cases introduce price subsidies that keep domestic prices below border prices. This is particularly the case when international fuel prices increase sharply and governments are reluctant to pass these increases fully on to the domestic prices of petroleum products (Ovaga & Okechukwu, 2022). Energy subsidies are found in virtually every country but its size varies; some are relatively high while some are low compared to that of other countries. The justifications for the use of subsidy vary from social welfare protection, job creation, healthcare, the encouragement of new sources of energy supply and economic development to energy security. While the concept of subsidy itself is noble, several attempts to remove the subsidy proved abortive until thirteen years after diesel was deregulated, kerosene subsidy was removed in 2016 and fuel subsidy was removed in 2023 by President Bola Tinubu's administration.

Market reforms pursued since the inauguration of the new administration and pre-2023 issues such as the border closure, have fuel subsidies and exchange rate unification has triggered a notable depreciation of the Naira, exacerbated inflationary pressures, and created a more constructive interest rate environment (Ozili and Arun, 2023). The removal of fuel subsidies have resulted in a staggering 220% year-on-year increase in petrol prices, coupled with a depreciation of the Naira by over 70% since transitioning to a floating foreign exchange regime, albeit a managed float. In March 2024, the food inflation soared to 33.4% and 40% respectively, reaching a 28-year peak. In response, the Central Bank of Nigeria (CBN), tightened monetary policies by progressively raising the MPR from 16.5% in 2022 to 24.75% by February 2024 (Adekunle and Oseni (2021). The inflation persist at elevated levels, underscoring the needs that Nigeria's inflation is predominantly influenced by supply-side factors, thus remaining largely unresponsive to monetary policy instruments. Since fuel subsidy removal on Petroleum Motor Spirit (PMS) has proven to be the biggest challenge to the managers of the SMEs in economic growth in Nigeria (Couharde, &



Mouhoud, 2020). This will not only improve the standard of living for citizens but also enhance economic growth.

While, the formal sector mostly uses diesel for their activities, the informal sector relies on petrol. The rise in petrol prices have relatively lead to the shutdown of small businesses that cannot cover costs or whose profit margins have been completely eroded by fuel subsidy removal in the formal sector. The survival and growth of organizations largely depends on profits, this is also applicable to Small and Medium Enterprises. Small scale businesses are recognized as the engine room for the development of any economy because they form the bulk of business activities in a growing economy like Nigeria (Ighodalo & Popogbe, 2022). They contribute to the economy in terms of output of goods and services rendered to the society, provision of job opportunities, reduce income disparities, develop a pool of skilled and semiskilled workers for industrial expansion and offers a breeding ground for entrepreneurial and managerial activities. Small scale businesses is a driver of economy growth in Nigeria because of its contribution to GDP. According to the Nigerian Bureau of Statistics (2021), SMEs account for around 48 percent of the country's Gross Domestic Product (GDP), 96 percent of existing enterprises, and 84 percent of employed people. Despite backing from the government and the banking industry in Nigeria, SMEs constitute majority of businesses in Nigeria (Nigerian Bureau of Statistics, 2021).

The growth of SMEs have been attributed to many factors including the use of oil subsidies (Pentina, Koh & Le, 2012). The advent of oil subsidy has brought new marketing opportunities that can help SMEs increase the number of transaction and sales (Chaffey, 2008). One of the beneficiaries of oil subsidies in Edo state is the customized inter-transit services. This services are registered organizations with the government, and provides transport services that traversed across country for public uses. They are often characterized by their flexibility and adaptability to the needs of their customers, as well as play a vital role in the local economy, providing employment opportunities and contributing to the overall transportation system. Examples of theses customized inter-transit services in Edo state are the CBM express motors, Edegbe Motors, Osarehenmen Motors, Iyare Motors, and God is Good Motors. This sector generated N5.2 billion in revenue in 2023, with a profit margin of 15% (NBS, 2022). This indicates that mass transit owners play a significant role in the local economy, providing jobs and contributing to the state's revenue and their role in the state's economy.



Recent evidence in the Nigerian literature shows mixed effect of fuel subsidy. Some studies identify some benefits of fuel subsidy and call for transparency in the administration of fuel subsidy while other studies highlight the negative consequences of fuel subsidy and advocate for its removal. For example, Umeji and Eleanya (2021) argue that Nigerian oil wealth has not translated to improved standard of living despite the introduction of fuel subsidy, and that fuel subsidy removal could have severe consequences which can be mitigated by transparency on the part of government in spending the funds saved from fuel subsidy removal for infrastructural development. Ovaga and Okechukwu (2022) argue that fuel subsidy breeds corruption in Nigeria because a group of corrupt people have been working against the functioning of existing refineries and they undermine efforts to build new refineries in Nigeria so that fuel importation would be sustained and fuel subsidy could lead to higher macroeconomic instability through rising energy prices and inflation in Nigeria.

Despite these evidence in the literature, there is little or no discussion about the impact of the recent fuel removal in Nigeria in 2023. The way the fuel subsidy was removed, without first providing some palliatives, led to controversy about how the fuel subsidy removal would affect the Nigerian economy and Nigerians. The main objective of this study is to investigate the extent to which fuel subsidy removal have impacted on inter-transit businesses, with specific focus on customized inter-transit services in Edo state, Nigeria. Worth to know that Edo state is the heartbeat of the nation, one of commercial centers in Nigeria, and West Africa (Olukoju, 2014). This is because Benin is the most populous Black Country in the world. Also, the state has a rich cultural heritage, many routes that tends to lead to other states and as the heart of the nation, there are many routes to access Edo state. This study therefore examine policy perspectives: a study of customized inter-transit services in Edo South district, Edo state. The specific objectives of the study are; to examine the relationship between fuel subsidy removal and the profit margin of the inter-transit services; and investigate the fuel subsidy removal and the affect price hike in transport services in the three senatorial districts of Edo state

1.2 Literature Review

This section explains the key concepts, the theories related to the scope of the work and empirical evidences in order to identify the gaps of the study.



1.3 Theoretical Review

This study is however, anchored on the two theories of regulated monopolies and the theory of Cluster development. These theories seek to explain and predict how governments and organizations can foster economic growth and development.

1.3.1 Theory of Regulated Monopolies

Clark, (1927) propounded the theory of regulated monopolies, an economic concepts which suggests that, in certain cases, it may be more efficient to have a single firm's control the market for a particular good or service, rather than having multiple firms compete against each other. The theory holds that the government may choose to regulate the monopoly, setting rules and regulations that monopoly must follow. The goal of regulation is to protect consumers from exploitation and to ensure that the monopoly is operating in the public interest. The theory suggests that the subsidies flow from the producers (or marketers) to the consumers, there is a transmission loss in which appropriately, about half of the subsidies accrue to the few market players who are licensed to the industry and their agents. In the context of this study, The NNPC acts through seven major marketers listed as Mobil, NNPC Retail, Oando, Conoil, Total, AP and MRS oil. This block essentially captures 50-percent of the subsidies available in the industry. However, the theory will allow increase efficiency in the economy.

1.3.2 Theory of Cluster development

The challenges of implement industrial policy necessitated the need for alternative approaches, such as the theory of cluster development. The theory was propounded by Porter (1990) and has been widely explored by researchers to identify the specific characteristics of clustered businesses in a particular location or industry can create a competitive advantage for those businesses. This theory emphasizes the importance of fostering collaboration and cooperation between businesses and other actors. This idea that businesses can benefit from the proximity of other businesses that are involved in similar activities, leading to increased productivity, innovation, and collaboration, that can attract workers and resources, leading to further economic growth. In contrast, the theory of cluster development is based on a bottom-up approach, where the government supports the development of existing cluster by removing barriers to growth and providing incentives.

Moreover, the theory of regulated monopolies is relevant in the sense that the NNPC is the major retailer of the petroleum products, the seller determined who gets what at their price and the time



the independent marketers can load at the depots. Nigerian is experiencing a severe fuel shortage and scarcity.

1.2 Conceptual Review

1.2.1 Concept of Subsidy

In essence, subsidy refers to financial aid or monetary assistance provided by a government to a sector or industry deemed essential for economic prosperity. This support is often given with the intention of keeping prices low for consumers or supporting the incomes of producers of desired commodities. Since government is the primary provider of subsidies, it is expedient that policy makers should be well equipped to disburse the accrued revenue.

1.2.2 Small and Medium Enterprises (SMEs)

Businesses size varies in terms of the capital assets while others use skill of labour and turnover level. Others define SMEs in terms of their legal status and method of production. Storey (2012), tries to sum up the danger of using size to define the status of a business by stating that in some sectors all businesses may be regarded as small, whilst in other sectors there are possibly no businesses which are small. (Ighodalo & Popogbe, 2022) argued that the engine room for the development of any economy because they form the bulk of business activities in a growing economy like Nigeria and the survival and growth of SMEs largely depends on profits. In the context of this study customized inter-transit owners in the three senatorial districts in Edo is example of SMES in Nigeria.

1.2.3 Fuel Price Hike on Transportation

There is no doubt that the recent increase in the price of fuel from N185 to N650, by the Federal Government of Nigeria has started to trim down the purchasing power of the people, especially the poor masses, who have always been at the receiving end of every harsh economic policy introduced by government. In reality, the pump prices in among the independent filling stations ranges from 750 to 800 Naira, which inevitably affects transport costs, essential goods and social expenses. Conceptually, the customized inter-transit owners are the Edegbe Motors, Osarehenmen Motors, Iyare Motors, the God is Good Motors etc., in the three senatorial districts in Edo State, invest a lot for their operational costs.

1.5 Methodology

This study employed a survey research design. Through this methodology the study was able to gather data, and analyze them to present the relationships existing between the variables (Mccombes, 2019). Since all members of a targeted population cannot be reached, a survey design allows for inference on the population to be drawn using the sample, this method was used and considered appropriate for gathering the information needed for the study. Thus, the population was three hundred and twenty-eight (328) respondents and the sample size was determined using Yamane's formula. The determined sample size is one hundred and eighty (180) respondents for the study.

A convenience sampling techniques was used to draw the following three senatorial districts of Edo state namely Edo-South District, Edo central and Edo North senatorial districts to capture the opinions of the customized inter-transit owners and market women and the passengers. After distributing 180 questionnaires in the targeted districts, 165 were collected for analysis; only 150 data were found usable.

1.5.1 Data analysis and Interpretations

Descriptive and inferential statistics were utilized to examine the data. Frequencies distributions, means, and standard deviation. The t-test was employed for inferential statistics to check the study's hypotheses. SPSS version was used for the data analysis.

Table 1: Summary of the Causes of fuel scarcity in the three senatorial districts, Edo State

S/N	Items	SA	A	%	D	SD	%	Remark
1	Excessive corruption and mismanagement	51	37	88	4	0	11	Agreed
2	Pipeline Vandalization	43	28	71	7	3	10	Agreed
3	Maintenance and repairs of refineries	49	34	83	5	1	6	Agreed
4	Smuggling of fuels	40	35	75	7	4	11	Agreed

Source: Field survey, 2024

Fuel shortages in the Edo State three senatorial districts can be attributed to the factors listed above, including excessive corruption and mismanagement, pipeline vandalization, maintenance and



repairs of refineries and smuggling of fuel. This is due to the fact that the majority opinion on any given among the customized inter-transit owner is assumed to be correct.

Table 2: Mean and Standard Deviation on Smuggling of fuel

S/N	Items	N	T.T	SD	CV	T-Cal	P-Value	Dec
1	Excessive corruption and mismanagement	160	3.01	7.50	249.2	18.20	000	Sig
2	Pipeline Vandalization	150	3.01	3.86	128.7	26.54	0.000	Sig
3	Maintenance and repairs of refineries	150	6.99	83	216.4	5.65	0.001	Sig
4	Smuggling of fuels	150	1.92	75	57.5	8.88	0.003	Sig

Source: Field survey, 2024

Table 2 reveals that the average was above a 3.0, which suggested that both the mean and the standard deviation were low on the low side. This demonstrated the similarity of the respondents' opinions. For the fuel shortage in Edo state, a t-test shows that all of the factors utilized to access the issue are significant at the 5% and 1% levels.

Table 3: Effect of Fuel scarcity in lives Customized inter-transit owners and Passengers in Edo State

S/N	Items	SA	A	%	D	SD	%	Remark
1	Hike in transportation fare	42	32	3	3	3	6	Agreed
2	Heavy consumption burden transferred by price increase	45	34	99	5	2	7	Agreed
3	Stagnation of goods and people	36	32	68	7	4	11	Agreed

Source: Field survey, 2024



The fuel subsidy removal and shortage of fuel has had a significant impact on the Customized inter-transit owners and Passengers in Edo State. This is as a result of Heavy consumption burden transferred by price increase, and spare parts constantly used has gone up too. Both the transporters and passengers bears the burden.

Table 4: Mean and Standard Deviation on transporters and passengers in Edo State

S/N	Items	N	TT	SD	CV	T-Cal	P-Val	Dec
1	Hike in transportation fare	150	3.04	5.03	165.5	9.06	0.012	Sig
2	Heavy consumption burden transferred by price increase	150	3.14	4.00	127.4	20.35	0.002	Sig
3	Stagnation of goods and people	150	3.01	6.56	217.9	16.11	0.004	Sig

Source: Field survey, 2024

The effect of fuel subsidy removal is felt in every aspect of life in Edo senatorial districts. The opinions of the respondents were intertwined. The t-test results show that all indicators used to measure the impact of the fuel crisis on transporters and passengers are significant at both the 5% and 1% critical value.

Hypotheses Testing

The hypotheses were tested with the t-test statistics as shown below. The decision rule stated that reject the null hypothesis H_0 , if the P-value associated with the t-calculated value is less at 5% critical value.

Test of Hypothesis One

H_{01} : There is no significant difference between fuel subsidy removal and Customised transporters in Edo State.

Table 5: T-test Analysis of the relationship between Fuel subsidy removal and Customised transporters in Edo State.

	Mean	Standard Deviation	Paired different 95% confidence interval of the difference	Paired different 95% confidence interval of the difference	t	Sig (2-tailed)
			Lower	Upper		
Fuel subsidy removal & organization	1,64500	,57286	,73345	2,55655	5,743	.010

Source: Field survey, 2024

The PV associated with the t-calculated value (0.10) is less than the 5% critical value when analysed with SPSS version 22, as shown in table 5. Consequently, we cannot accept the alternative hypothesis. Thus, we can say that a transporter's profit margin is significantly correlated with the availability of fuel.

Test of Hypothesis Two

H₀₂: There is no significant difference between fuel subsidy removal and hike in prices of goods and services (Transporters) in Edo State.

Table 6: T-test Analysis of the relationship between Fuel subsidy removal and hike in prices of goods and services (Transporters) in Edo State.

	Mean	Standard Deviation	Paired different 95% confidence interval of the difference	Paired different 95% confidence interval of the difference	t	Sig (2-tailed)
			Lower	Upper		
Fuel subsidy removal does	1,730	,51118	,46017	2,99983	5,862	.028



not affect the hike in price of goods and services						
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Source: Field survey, 2024

Table 6 above displays the result of a t-test analysis performed in SPSS Version 22.0. At 5% critical value, the PV is lower than the t-calculated value (0.28). Thus, we cannot accept the null hypothesis. In conclusion, the fuel subsidy removal has severe negative impact on the cost of doing business. It was discovered that many respondents in three Edo state senatorial districts claimed to be aware of the presence of fuel subsidy removal in Nigeria and how it affects commercial transporters and her citizens. The findings of this study are in line with those of Vincent (2023), who conducted an empirical study on the impact of Nigeria’s fuel subsidy removal on businesses especially the transporters in Edo State. The study demonstrated that businesses in Nigeria experience price increases as a result of fuel scarcity.

1.6 Policy perspectives

The policy implications of the 2023 fuel subsidy removal in Nigeria. The positive implications are that fuel subsidy removal would free up financial resources for other sectors of the economy, incentivize domestic refineries to produce more petroleum products, reduce Nigeria’s dependence on imported fuel, increase employment, channel funds for the development of critical public infrastructure, reduce the budget deficit and generate a budget surplus in the near future, reduce government borrowing, curb corruption associated with fuel subsidy payments, increase competition, reinvigorate domestic refineries and reduce pressure on the exchange rate. The negative implications are that fuel subsidy removal may decrease economic growth in the short term, increase inflation, increase poverty, increase fuel smuggling, increase crime, increase the prices of petroleum products and loss of jobs in the informal sector. It is recommended that the government should carefully evaluate the impact of fuel subsidy removal on individuals and businesses and provide palliatives and other economic relief programs to cushion the adverse effect on individuals and firms.

1.7 Conclusion and Recommendations

The conclusion from this study is that the government should carefully consider the impact of removing fuel subsidy on citizens and provide palliatives and other welfare-enhancing initiatives



to cushion the effect on individuals, households, and firms. The government could consider increasing the national wage, increasing the salary of civil servants, and introducing monetary palliatives to help the poor cope with the effect of fuel subsidy removal. Other social protection measures and social safety nets, such as unemployment benefits and cash transfers, can be adopted too. The government may also need to dialogue with labor unions to find a middle ground solution that meets the government's need and the needs of the people. Following the removal of fuel subsidy, if the government introduce reforms to revive Nigeria's domestic refineries, such reforms could revive domestic oil producing firms and increase domestic production of crude oil in Nigeria. The study puts forward the following recommendations:

- ✓ The government should put the moribund refineries into place to enhance availability of fuel. The presence of subsidy has not led to the revitalization of domestic refineries due to endemic corruption associated with fuel subsidy.
- ✓ Biofuel or compressed vehicles are very necessary now as alternative to fuel. The transporters should be given special incentives/ filling stations to buy their fuel this will to large extent reduce the prices of goods and services.
- ✓ Saboteurs or smugglers of fuel should be brought to book. This will prevent the underpricing of petrol and would curb corruption arising from inflating the quantity of imported PMS under the fuel subsidy regime.
- ✓ The funds saved from fuel subsidy removal, can be strategically allocated to promote sectors with high growth and job creation potentials, such as renewable energy, technology, agriculture, and manufacturing. Furthermore, certain sectors of the Nigerian economy require little government policy support.

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CREDIT SUPPLY, INVESTMENT GROWTH, AND INDUSTRIAL PERFORMANCE IN NIGERIA

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ABSTRACT

This study examined the effects of credit supply, investment growth on industrial performance in Nigeria. It investigates the determinants of industrial performance in Nigeria and determined the long-run relationship between industrial performance, credit supply, and investment growth in Nigeria. Secondary data was used for the study. Time series data on industrial output (IGDP), bank credit to the industrial sector (CPS), gross fixed capital formation (GFCF), Inflation rate (INFL), manufacturing capacity utilization (AMC), total government expenditure (TEXG), and credit to the private sector (CPS) were collected from Central Bank of Nigeria (CBN) statistical bulletins and Annual reports between 1986 and 2020. These data were analyzed using regression analysis, vector error correction mechanism (VECM), Unit root test was used to determine the stationary status of the data. The results showed the presence of a long-run relationship among the variables. It revealed that all the variables except credit to the industrial sector (-3.165082), determined the positive performance of the industrial sector in Nigeria. The results further showed that a 1% increase in credit to the private sector increased IGDP BY 81.6% ($t=2.443364$, $p<0.05$). Also, a unit increment in GFCF lead to a 12788.35 units ($t=-2.924421$, $p<0.05$) rise in industrial performance. PLI at long-run estimates showed a negative relationship to industrial performance. This indicated that, as PLI is increased, IGDP is reduced. The speed of adjustment results showed that long-run disequilibrium was corrected by 25% annually. The study concluded among other findings that credit to private sector and domestic investment are the major determinants of industrial performance in Nigeria. It also recommended that greater percentage of bank credit should be given to the private sector to achieve optimal growth in industrial sector in Nigeria.

Keywords: credit supply, industrial performance, error correction, co-integration.

1. INTRODUCTION AND BACKGROUND TO THE STUDY

Prior to independence in 1960, the Nigerian economy was mainly agrarian, both in production for domestic consumption and exports. Industrialisation was not part of the colonial economic policy which was majorly on making the colonies producers of primary raw materials for foreign industries and importers of manufactured goods. Therefore, the first indigenous administration set for itself after attainment of independence was how to transform Nigeria into a modern industrial



economy and this was embraced by successive governments. Effective from the First National Development Plan (1962-1968), rapid industrialisation was given high priority in Nigeria's development plans and goals. The Plan was designed to promote growth by laying foundation for future expansion of productive activities. Government was cognisant that a large volume of financial resources must be allocated to the productive sectors of the economy, especially the industrial sector. The plan was designed to allow Nigerians to participate, to a greater extent, in the ownership, control and management of a large proportion of the Nigerian industry.

Given the above, industrial sector has been widely acknowledged as the springboard for sustainable economic growth and development and the government of Nigeria in particular has increased interest in growing the industrial sector for three main reasons. First, failure of past industrial policy to generate efficient self-sustaining growth. Secondly, the increased emphasis on self-reliant approach to development and thirdly the recognition that, growing the industrial sector especially the small scale industries can contribute substantially to a wide range of developmental objectives, like efficient use of resources, employment creation, mobilization of domestic savings for investment encouragement, expansion and development of indigenous entrepreneurship and technology as well as non-lopsided income distribution (Olorunsola, 2003)

Industrial performance in Nigeria has faced several setbacks such as inadequate credit supply, infrastructural deficiency, and inappropriate government policy and so on. Studies have shown that, the continued persistence of non-performance of industrial sector in less developed countries was justified by scarcity of credit supply and administrative inexperience. This dismal performance of the industrial sector in the economy might have not resulted from lack of policy initiatives, because several policies and programmes have evolved in the past to promote activity in the sector. These programmes and policies includes: the Small Scale Industries Scheme (1971), Agricultural Credit Guarantee Scheme (1973), Nigeria Agricultural and Cooperative Bank (1973), Nigeria Bank for Commerce and Industries (1973), Small and Medium Scale Enterprises Loan Scheme (1992), National Economic Reconstruction Fund (1994), Family Economic Advancement Programme (1997), Peoples Bank (1989), Community Bank (1992) and a number of domestic and foreign aids. Though, they have not been sufficiently and adequately reflected in the performance of the industrial sector in Nigeria.

Consequently, the objective of this study is to investigate the determinants of industrial



performance and determine the long run relationship between industrial performances, credit supply and investment growth in Nigeria

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

The neoclassical model of long-run economic growth as introduced by Robert Solow (1924) and Trevor Swan (1918-1989) in 1956 focuses on long-run economic growth. According to the model, the key components of economic growth are saving and investment. An increase in saving and investment raises the capital stock and thus raises the full-employment of national income and product. The national income and product rises, and the rate of growth of national income and product increases. By this, the interest of economic policymakers is how to increase saving and investment for output to grow. Solow analyzes how higher saving and investment affects long-run economic growth. In the short run, higher saving and investment does increase the rate of growth of national income and product in the short run. Solow sets up a mathematical model of long-run economic growth. He assumes full employment of capital and labour. Given assumptions about population growth, saving, technology, he works out what happens as time passes. The Solow model is consistent with this study because credit supply could be proxy as savings because, credit supply is people's savings. So credit supply and investment will have a great impact on the performance of industrial sector. In the Solow model, net national product Y is a function of capital K and labor L , The neoclassical growth model assumes the existence of an aggregate production function $Y = F(K, N)$, where Y is aggregate output, K is the capital stock, and N is the number of workers. The production function has constant returns to scale (if K and N change in the same proportion, Y will also change in that proportion), with positive but diminishing marginal products of capital and labor.

Several related literature was reviewed to give empirical underpinning to this study or instance, Ogwumike and Afees (2010), observed that credit supply and Nigeria financial system has gone through intensive restructuring and rapid market-oriented transformations since the era of Structural Adjustment Programme (SAP) in 1986. 'They noted that before SAP the financial system was regulated. However, soon after deregulation, bank and non-bank financial institutions witness unprecedented increase, a situation that improved credit supply to the industrial sector and the economy at large Perhaps, financial sector reforms or liberalization in Nigeria began substantially in 1986 during the launch of the Structural Adjustment Programme (SAP).



According to Osuagwu and Nwokoma (2017), the first stage was termed 'exchange rate reforms which led to the creation of the first-tier and second-tier foreign exchange markets. In the second stage, the reforms was classified as "interest rate and monetary policy reform from 1987 until 1996 with the liberalisation of interest rates, and the introduction of the auction market for government securities in 1989 and the continued use of cash reserve requirements, in other words, direct monetary policy instruments (Orji, Aguegboh, and Anthony-Orji 2015). The third stage was the banking and capital market reformations in 1987 with the deregulation of bank licensing. This policy led to the rapid increase in numbers of banks from 41 in 1986 to 120 by 1992. However, from 1988 to 2005, the banking system went through transitional processes with the reduction of the number of banks from 89 to 25 and the increase in the minimum capital base from one billion to N25billion (Egwakhe and Osabuohien 2009; Shittu 2012). Finally, from 2010 there have been several reforms including abolishing universal banking system, the creation of the Asset Management Company tasked with buying out banks 'toxic assets', the comprehensive review of provisional guidelines for margin loans and so on.

However, these reforms came not without hiccups at the initial stages but later led to improvements in financial indicators, industrial performance and economic growth. One of the favourable outcomes of the reformation was the increase in bank credits to the private sector and the extent to which household and firms have access to credit (Omankhanlen 2012).

Nwankwor et al (2022) worked on monetary policy and manufacturing sector output in Nigeria. Their findings revealed that money supply; monetary policy rate and Treasury bill rate have positive and significant effects on manufacturing output while cash reserve ratio had negative and insignificant policy effect on manufacturing sector output in Nigeria. Egbetunde et al (2019) studies the relationship between financial development and industrial output in Nigeria between 1970 and 2016. The result confirms the existence of a long run relationship between financial development and industrial output. They further posited that financial development will help industrialization in as much the government promotes and encourages sound macroeconomic policies and strong institutions. Ekong et al (2022) investigates the impact of monetary policy shocks on the performance of the industrial sector in Nigeria. The study found that sudden shock or innovations on monetary policy rate and money supply leads to negative impact on industrial sector output without possibility of convergence throughout such period. Whereas, shocks to credit



supply exerts positive impact on industrial outputs. Omini, Ogbeba and Okoi (2017) investigated the effect of monetary policy shocks on the industrial growth in Nigeria. Using Restricted Vector Error Correction model (VECM) and Granger Causality test techniques. The result revealed a positive relationship between manufacturing and monetary policy innovations. Besides, it showed that monetary policy granger-caused the manufacturing output. Bakare-Aremu and Osobase (2015) analyzed the impact of both monetary and fiscal policies on the performance of the industrial sector in Nigeria. Variables such as, money supply, lending rate and exchange rate were regressed using error correction model. The result showed that reducing exchange rate and increasing money supply helped the manufacturing sector to grow substantially.

Onakoya, (2018) examined the effects of macroeconomic performance on the development of the manufacturing sub-sector in Nigeria from 1981 to 2015. Using Vector Error Correction model, the result showed that macroeconomic behaviours of monetary policy could be detrimental to the manufacturing and industrial sector in Nigeria. The study further revealed that interest rate and money supply has a negative impact on manufacturing output during the period under study. Onakoya, Ogundajo, and Johnson, (2017) using econometrics found strong evidence of positive impact of monetary policy on manufacturing output in Nigeria both in the short and long run period. Akinmulegun et al (2021) looked at financial liberalisation and industrial sector performance in Nigeria. The Pairwise granger causality result showed that there is no causal relationship between financial liberalization and industrial sector performance. It further revealed that, the effect of financial liberalization on industrial sector is significant though with minor impact due to unstable nature of Nigeria financial system. Kayode et al. (2020) used ARDL and Toda-Yamamoto causality to analyse the relationship between financial deepening and manufacturing sector performance in Nigeria using time series data for 32 years. Their results revealed that financial deepening has a significant positive effect on manufacturing performance; while the Toda-Yamamoto test established a unidirectional causality running from financial deepening to manufacturing performance in Nigeria.

Albaladejo (2003), using a quantitative indicator techniques to compare Nigeria with about ten Sub-Saharan countries, found out that, Nigerian industry is inexorably falling behind and has continue to be marginalized in the international and regional industrial scene. Furthermore, he discovered severe problems in the education system, technological stagnation of domestic



companies, and lack of foreign investment in manufacturing, among many other. Ogwumike (2010), opined that financial development is a major problem to economic growth in Nigeria. He found out a positive long run relationship between financial development and economic or industrial performance in Nigeria. Oke (2011) examined the impact of capital structure on industrial performance in Nigeria. In the study, he compared equity financing to debt financing. Eventually, he found a positive relationship between firms' performance and equity financing and a negative relationship between firms' performance and debt financing. The study alluded high cost of borrowing to the negative relationship. Obviously, from this study, both financing method have a statistically significant effects on industrial performance. Mba et al (2022) examines the direction of causality between trade openness and manufacturing output using Toda-Yamamoto Causality Approach. The results shows that trade openness has a positive and significant contribution to industrial output growth. Also, the dynamic impact of trade openness on industrial output was insignificant while the long-run impact was significant.

Adeleye et al (2017) carried out a study on financial reforms and credit growth in Nigeria, the study revealed that in the long-run, financial system deposits, inflation rate and per capita GDP are strong asymmetrical predictors of credit growth and real interest rates. They further showed that a long-run co-integration relationship exists between domestic credit and other covariates. Offum et al (2018) found that there is a unidirectional causality between market capitalization ratio and total value of shares traded ratio to industrial performance. They recommended improved publicity on the role of capital market as well as a strong regulatory mechanism for its efficient and smooth support for industrial sector. Adekunle et al (2020) examined international capital flows and industrial performance in Nigeria. Using a two-step Engle and Granger estimation procedure and the Granger Causality to estimates industrial output growth and capital inflows to Nigeria. The study revealed that labour participation, gross fixed capital formation, foreign direct investment (FDI), and portfolio investment had a significant positive relationship with industrial performance in Nigeria. Akinwumi et al (2020) examined the effect of bank credit on industrial sector in Nigeria. The study revealed that there is a strong relationship between banks credits, domestic money supply, maximum bank lending rate and industrial output in Nigeria. Also, Dauda et al (2016) investigated the likely impact (static and contemporaneous impacts) of human capital investment on industrial performance in Nigeria, using the Generalized Method of Moments (GMM) model. The study found that public investment on education is very important in determining industrial



productivity both in the short and long run while, public investment on health exerts a less significant role in industrial productivity in Nigeria. This study further revealed that Nigerian policy makers should increase its budgetary allocation to human capital development in order to raise industrial productivity through increase in skilled workforce and given more attention to regulation of health policy expenditure

3. DATA AND ECONOMETRIC METHODOLOGY

Models were specified to examine the relationship between credit supply, investment growth and industrial performance in Nigeria. Hence, this study adopted a model based on Linearized Cobb Douglas production function. This model was found suitable for this work since we have one dependent variable and multiple independent variables in the model to test the performance of industrial sector with respect to credit supply. The cob-Douglas model that assumes one of the factor inputs in the productive activities of the real sector is specified as

$$Y = AL^{\alpha} K^{\beta} \quad (1)$$

Where Y represents output, L represents human capital and Labour. K stands for both physical and financial capital used in the production process, α , β , are the elasticity coefficient which measure the responses of the real sectors output to changes in factor inputs respectively, while A stands for existing level of technology.

In order to incorporate bank credit funding into this production function in equation (1), a variable represents credit supply (N) is introduced. The growth of the industrial sector therefore, will include credit supply in the function. This shows that with the existing level of capital stock and labour force, it is possible to have an increase in the performance of the industrial sector through the increase in credit supply. This is because credit supply allows for increased availability of financial resources, leading to changes in capital stock and labour force which is expected to result in increased output. Introducing credit supply, equation (1) becomes

$$Y = AL^{\alpha} K^{\beta} N^{\phi} \quad (2)$$

From equation (2) it can be depicted that there is a linear relationship between bank credits and industrial output, if the function is linearised. Linearizing equation (2), it becomes



$$Y = \ln A + \alpha \ln L + \beta \ln K + \Phi \ln N \quad (3)$$

Introducing a constant and an error term into equation (3) above it becomes

$$Y = B_0 + \alpha \ln L + \beta \ln K + \Phi \ln N + \mu \quad (4)$$

Where $\ln A = B_0$

Theoretically, the explanatory variables in the model are expected to affect the performance of industrial sector. From previous studies these and literature the four intervening variables (INFL, AMC, TEXG and CPS) have been found to relationship with industrial performance in Nigeria. Therefore this study added several intervening variables that affected industrial performance to the models. Such variables include bank credit, total government expenditure, manufacturing capacity utilization, credit to private sector, inflation rate, gross fixed capital formation and industrial GDP.

Incorporating these number of variables into equation (4), the appropriate linear model is thus expressed as

$$\ln IGDP_t = B_1 + \alpha_1 \ln INFL_t + \beta_1 \ln GFCF_t + \Phi_1 \ln PLI_t + \Omega_1 \ln CPS_t + \psi_1 \ln TEXG_t + \varphi_1 \ln AMC_t + \mu_{1t} \quad (5)$$

Where

$IGDP$ = industrial sector output which is used as a measure of industrial performance

$INFL$ = inflation rate

$GFCF$ = gross fixed capital formation

PLI = bank credit to industrial sector

AMC = manufacturing capacity utilization

$TEXG$ = total government expenditures

CPS = credit to private sector

t = time period



\ln = natural logarithm

B_1 = constant term

μ_{1t} = error term or residual or stochastic variable

$\alpha_1, \beta_1, \Phi_1, \Omega_1, \psi_1$ & φ_1 , are the estimated parameters to be estimated or the slope coefficients

If a set of integrated I(1) variables are found to have one or more cointegrating vectors then suitable estimation technique is a VECM (Vector Error Correction Model) which adjusts to both short run changes in variables and deviations from equilibrium. Lag length criteria also suggest using an appropriate lag for estimating VECM. This type of models are similar to VAR models. Generally, the VECM model can be of the form

$$\Delta R_t = \Pi R_{t-1} + \sum_{j=1}^{K-1} \Gamma_j \Delta R_{t-j} + A d_t + \epsilon_t \quad (6)$$

Where

ΔR_t = the first difference of the variables in vector R

Γ_j = is a coefficient matrix of cointegrating relationships

Γ = is a coefficient matrix of the lags of differenced variables of R

d = a vector of deterministic terms while A = its corresponding coefficient matrix

K = the lag order of the model in its VAR form

ϵ_t = an error term with zero mean and variance-covariance matrix

Equation (8) differs from the VAR model by the inclusion of error correction ΠR_{t-1} which captures the effect of how the growth rate of a variable in R changes, if one of the variables deviate from its equilibrium path. The coefficient matrix Π can be written as a matrix product such that, $\Pi = \alpha \beta'$ so that the error correction term now becomes $\alpha \beta' R_{t-1}$. The cointegration matrix β contains information on the equilibrium relationships between the variables in levels



An important parameter in the estimation of the VECM dynamic model is the coefficient of the error correction term, (ECT 1) which measures the speed of adjustment of economic growth to its equilibrium level. In order to establish the joint effect of variables, under VECM all those variables are taken as endogenous (ΔY) and exogenous (ΔX), in order to establish the long and short run association between them. We applied a VECM model with at least one cointegrating equations. Short run effects are captured through individual coefficients of the differentiated terms. The coefficient of the VECM variable contains information about whether the past values of variables affect the current values of the variables under study. The size and statistical significance of the coefficient of the error correction term, measures the tendency of each variable to return to the equilibrium. A significant coefficient implies that past equilibrium errors play a role in determining the current outcomes that captures the long-run impact.

This study used secondary data (Time series data) which were collected from Central Bank of Nigeria (CBN) Statistical bulletin, Nigeria Bureau of Statistics, and CBN Annual Report, between 1986 and 2020.

4. EMPIRICAL RESULTS

This section presents and discusses the results of econometric analysis of credit supply, investment growth and industrial output in Nigeria from 1986 to 2020.

4.1. Unit Root Test

The result of the unit root test is presented in the following Table. The result from the table showed that all the variables deployed in this study were non-stationary, because, both the ADF and PP tests could not reject the hypothesis of a unit root at 5 percent level of significance. However these variables become stationary i.e. an $I(0)$ process after differencing once, indicating that they were integrated of order 1, that is, they follow a $I(1)$ process. The result from both the ADF and PP tests were consistence in $I(1)$ order.

Table 4.2: Result of the Unit Root Test

Augmented Dickey-Fuller (ADF) Test Statistics						
Variables	Level	Mackinnon Critical value (5%)	First Difference	Mackinnon Critical value (5%)	P-Values	Order of Integration
IGDP	-2.265	-2.951	-6.939	-3.574	0.0000	I(1)
PLI	-1.361	-2.951	-5.479	-3.553	0.0005	I(1)
GFCF	-1.391	-2.957	-7.505	-3.557	0.0000	I(1)
INFL	-0.488	-1.951	-2.451	-1.954	0.0164	I(1)
AMC	-1.521	-2.951	-4.257	-3.553	0.0101	I(1)
CPS	-2.951	-1.826	-5.243	-3.553	0.0008	I(1)
TEXG	-1.541	-3.552	-6.449	-3.574	0.0001	I(1)

4.2 Cointegration Test

The Johansen and Juselius multivariate cointegration result from both the trace statistic and maxima-eigen statistic revealed that cointegration exists among the variables used for this study. It is very important to note that the presence of at least one cointegrating vector among the group of I (1) variables is an indication that a linear combination which is said to be stationary exists. The results on tables 4.3 indicate 5 cointegrating equations in both the trace statistics and the maximum eigenvalue statistics test. Hence, the null hypothesis of no cointegration was rejected at 5 per cent level of significance as shown in the tables. The existence of cointegration allays the fear of spurious regression results and affirms the existence of long run relationships among the variables.

TABLE 4.3; Johansen Cointegration Test (Trace statistics Result)

Unrestricted Cointegration Rank Test (Trace)				
Series	IGDP TEXG PLI INFL GFCF CPS AMC			
Lags interval (in first differences): 1 to 2				
Hypothesized	Eigenvalue	Trace	0.05	Prob.**



No. of CE(s)		Statistic	Critical Value	
None *	0.983483	307.2716	125.6154	0.0000
At most 1 *	0.846777	171.8609	95.75366	0.0000
At most 2 *	0.749435	109.9576	69.81889	0.0000
At most 3 *	0.588649	64.28429	47.85613	0.0007
At most 4 *	0.461908	34.97013	29.79707	0.0116
At most 5	0.343910	14.51918	15.49471	0.0697
At most 6	0.018348	0.611099	3.841466	0.4344
Trace test indicates 5 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Author's Computations Using E-view.

4.3. The Results of OLS Regression Estimates and VECM

The OLS results as presented in table 4.5 revealed a long run impact of PLI, GFCF, INFL, TEXTG, AMC and CPS on industrial output (IGDP) in Nigeria. All the variables except PLI showed a positive relationship with industrial output (IGDP). Also, the result was statistically significant at 5% level. The positive relationship translate to the facts that these variables contribute positively to the growth of industrial output in Nigeria. Though, the PLI has a negative relationship with IGDP. The results further revealed an adjusted R squared of 0.98 which means the explanatory variables determine the explained by 99%. The f- statistics was significant at 1%. By this, the results as a whole is statistically reliable or significant for predictions. The Durbin- Watson statistics shows the absence of serial correlation at 1.62159 which is within the acceptable range

**Table 4.5; OLS Long-Run Regression Results**

Dependent Variable: LOG(IGDP)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
AMC	0.265807	0.099175	2.680188	0.0122
CPS	0.817731	0.334674	2.443364	0.0211
GFCF	12788.35	4986.598	2.564545	0.0160
INFL	10.61586	14.12427	0.751604	0.4586
PLI	-3.165082	1.124566	-2.814493	0.0088
TEXG	3.920018	0.450822	8.695258	0.0000
C	-4804.666	1563.481	-3.073056	0.0047
R-squared ; 0.990147		F-statistic ; 468.9766		Durbin-Watson stat;
Adjusted R-squared; 0.988036		Prob(F-statistic) ; 0.000000		1.621592

Source: Author's Computations

Table 4. 4

Short run Dynamics (Error Correction Term) between Industries Output, Credit supply and Domestic Investment

Variables	Coefficient	Std. Error	t-Statistic	Probability
ECT (-1)	-0.250344	0.047483	-5.272312	0.0000
D(IGDP(-1))	0.107209	0.152135	0.704695	0.4837
D(IGDP(-2))	0.154084	0.193122	0.797857	0.4281
D(GFCF(-1))	0.167939	0.682914	0.245915	0.8066
D(GFCF(-2))	-0.354291	0.607346	-0.583343	0.5618
D(PLI(-1))	1469.353	6217.680	0.236319	0.8140
D(PLI(-2))	13281.53	6118.383	2.170759	0.0339
C	5689.899	1430.213	3.978357	0.0002
INFL	0.177661	0.045897	3.870827	0.0003



CPS	-0.521377	0.1454	-3.585801	0.0007
AMC	0.27385	0.079301	3.453289	0.001
TEXG	0.020279	0.111407	0.182024	0.8562

R-Squared ; 0.898236

Adjusted R-Squared 0.842265

Durbin. Watson 2.144917

5. CONCLUSIONS AND RECOMMENDATIONS

This section presents major conclusions drawn and specific recommendations made by this study. First, bank credit to the industrial sector, gross fixed capita formation, government spending, manufacturing capacity utilization and inflation were found to be strong determinants of industrial performance in Nigeria. The contributions of credit to private sector was found to be the highest determinants of industries output, contributing about 82% to the growth of Nigeria. This was closely followed by manufacturing sector with 27% contribution upon 1% increase in credit supply. Loan to industrial sector, though statistically significant, was found to be having an inverse relationship with Industrial output. Empirically, the study discovered that, the dependent variables determine largely the state of industrial performance to about 98%. Besides, they are fundamental to the neo-classical theory. Second, long run relationship between the dependent and independent variables have been established. This will enable policy makers to make a long term predictions with the result of this empirical study. This is because the variables exhibits five co-integrating equation or relations. Third, any error observed in long run disequilibrium will be corrected for a speed of 25% per year.

Based on the findings of this study, the following recommendations are made to ensure the efficacy of fiscal and monetary policies in Nigeria through strong institutions and efficient transmission channels to rapidly increase the volume of credit to private sector and promote domestic investment.

(i) From the supply side, government should use appropriate instrument of monetary policy such as moral suasion and special directive to direct financial institutions to give ten percentage of total credit to industrial sector. This will channel more funds to the sector to boost industries growth. Also multiplier effects will work on the velocity of money to bring the required level of growth in the sector.



(ii) From the demand side, government spending, through expansionary fiscal policy should be jerked up sufficiently to boost aggregate demand such that it raises the production capacity of the industrial sector. This in turn will increase industrial output. While focusing on efficiency variable, government expenditures should be raised to that level that impacts positively on the sector.

(iii) Importantly, supply of bank credit to industrial sector should be dissociated from credit private sector. This is because of empirical finding from this study, which revealed a statistically significant negative relation between credit to bank credit to industries ($PLI = - 3.165082$) and industries output, whereas, a strong positive relation was found in the case of supply of credit to the private sector ($CPS = 0.811731$). Furthermore, as government spending increases, greater proportion should be devoted to the provision of road, electricity, pipe-borne water, education, health, tele-communication and social security. These components are said to be industrial growth enhancing. They constitute the infrastructural-base for the socio-economic development in every modern society.

On the other hand, if the desire minimum funding of the industries is achieved, this could aggravate the growth of Nigeria industries.

In addition, the study provided information on the period or numbers of years it will take any innovations to the independent variables to be stable.

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CREDIT SUPPLY SHOCKS AND INDUSTRIAL PERFORMANCE IN NIGERIA

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ABSTRACT

This study examined the effects of credit supply shocks on industrial performance in Nigeria from 1986 to 2020. It investigates the response of industrial performance to shocks or innovations in credit supply. Secondary data was used for the study. Time series data on industrial output (IGDP), bank credit to the industrial sector (CPS), gross fixed capital formation (GFCF), Inflation rate (INFL), manufacturing capacity utilization (AMC), total government expenditure (TEXG), and credit to the private sector (CPS) were collected from Central Bank of Nigeria (CBN) statistical bulletins and Annual reports between 1986 and 2020. These data were analyzed using vector auto regression (VAR), impulse response function (IRF), and variance decomposition (VD). Unit root test was used to determine the stationary status of the data. The study employed Johansen co integration technique to test for the co integration relationship among the variables in the VAR model. The results showed the presence of a long-run relationship among the variables. Furthermore, the study revealed that one standard shock to credit supply (PLI) has a sharp and immediate increase on the current value of industrial performance (IGDP) between periods one to four, and gradually decreased between periods five and six, then it gradually stabilised between period seven to ten. Interestingly, the response was in the positive region of the graph. The study concluded among other findings that shocks to credit supply is a major determinant of industrial performance and prosperity in Nigeria. The study recommended that greater percentage of bank credit should be given to the industrial sector in Nigeria.

Keywords: credit supply, industrial performance, *impulse response*, *variance decomposition*

1. INTRODUCTION

Today, industrialisation constituted a major policy objective of the Nigerian state. Government's desires to achieve industrial performance have been projected in several ways, including direct



participation, alone or jointly with private sector interest groups, provision of industrial incentives and finance. The central goal of government policy was to foster growth in the industrial sector by channeling funds to the private industrial sector. Occasionally, banks were mandated to finance, at low interest rates, certain types of investment that were considered of utmost priority to the economy. In addition, the federal Government has established and continued to fund development financial institutions and special schemes to boost industrial performance because the lending terms of development institutions are usually less stringent than those of the formal banks.

In 1964, the Nigeria Industrial Development Bank (NIDB) was set up to provide credit and other facility to industrial sector. An attractive features of NIDB is its policy of equity participation in the paid up share capital of some of the project financed. The Small Scale Industries Credit Scheme (SSICS) was set up in 1971, as a small industries development program to provide technical and financial support for Small and Medium Scale Enterprises (SMSEs). This led to the setting up of Small Industries Credit Committee (SICC) to administer the Small Industries Credit Funds (SICF) throughout the country. The SICF was formally launched in the third National Development Plan (1975 -1980) the scheme was designed to make credit available in liberal terms to the industrial sector and was managed by the State Ministries of Industry, Trade and Cooperatives through the Loan Management Committee (LMC). In 1973, the Nigeria Bank For Commerce and Industry (NBCI) was set up by FGN to provide among other things, financial services to indigenous business community particularly SMSEs. The NBCI implemented the Small and Medium Scale Enterprises Loan (SME1) World Bank Loan Scheme of 41 million US dollars in 1984. The scheme had maturity period ranging from 4 to 10 years including a moratorium of 2 to 4 years, while the foreign exchange risk was borne by the Federal Government. Furthermore, the local industries, which were largely multinational corporations were to gradually and eventually substitute imported inputs for local inputs. Several fiscal, monetary and infrastructural incentives such as tax holidays, income tax relief, capital allowance and depreciation allowance for investment in equipment, duty exemption on machinery, spare parts, and so on were granted to private sector to reduce business cost (Busari, 2005)

Industrial performance in Nigeria has faced several setbacks such as inadequate credit supply, infrastructural deficiency, and inappropriate government policy and so on. Studies have shown that, the continued persistence of non-performance of industrial sector in less developed countries



was justified by scarcity of credit supply and administrative inexperience. This dismal performance of the industrial sector in the economy might have not resulted from lack of policy initiatives, because several policies and programmes have evolved in the past to promote activity in the sector. These programmes and policies includes: the Small Scale Industries Scheme (1971), Agricultural Credit Guarantee Scheme (1973), Nigeria Agricultural and Cooperative Bank (1973), Nigeria Bank for Commerce and Industries (1973), Small and Medium Scale Enterprises Loan Scheme (1992), National Economic Reconstruction Fund (1994), Family Economic Advancement Programme (1997), Peoples Bank (1989), Community Bank (1992) and a number of domestic and foreign aids. Though, they have not been sufficiently and adequately reflected in the performance of the industrial sector in Nigeria.

Despite efforts by the Nigeria state as enumerated above, the contribution of the sector to the advancement of the Nigerian economy has not been impressive. This was shown by the available CBN statistical data which show a fall in the industrial performance from 11.8% in 1982 to 7.4% in 1997, which further pegged to 6% between 1998 and 2010. In 2011, there was a marginal increase in the industrial performance which later fell in 2015 to 9.5%. Furthermore, it has been observed that average industrial performance in the country between 2016 and 2019 was 8.7% (CBN, 2020). This is an indication of non-efficient industrial performance in the country.

The question that requires an urgent empirical answer is why the industrial performance in Nigeria has not been achieving the desire results over the years? From both the theoretical and empirical point of views, there are critical variables that drive industrial performance in any economy. For instance, akinmulegun and Adedayo (2021) identified financial liberalisation and credit supply capital as the strategic driver of industrial performance. Ogwumike and Afees (2010) observed credit supply as critical as any other factor. Meanwhile, further efforts by scholars in the recent times to unravel the critical factors that drive industrial performance in both country specific and cross countries studies have generated divided opinions in previous studies. Consequently, it is worth of note that various studies regarding this subject matter in the recent times have not provided a conclusive evidence in Nigeria. See (Osugwi and Nwokoma, 2017; Okuneye 2019, Olorunshola, 2003; Mba and Chukwumaeze, 2022; Ogbuaga and Oguniyi, 2021). This necessitated this study to provide more empirical evidence about critical factors driving industrial performance in Nigeria.



Therefore, objective of this study is to examine the response of industrial performance to shocks in credit supply in Nigeria between 1986 and 2020

2. THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

A variation to the Bank- based or Market- based theories is the Financial Services theory. The financial view is actually consistent with both the bank-based and the market -based views. Though, it embraces both, it minimizes their importance in the sense that the distinction between bank-based and market-based matters less, that financial services provision are by far more important than the form of their delivery (World Bank, 2001). According to the financial services view, the issue is not the source of finance. Rather it is the creation of an environment where financial services are soundly and efficiently provided. Therefore, the emphasis is on the creation of better functioning banks and markets rather than on the specific type of financial structure in place. Another digression from the financial services view is the Legal-based view of financial structure (Shleifer, Laporta, and Vishny (1997)). It argues that finance comprises a set of contracts that are made more or less effective by legal rights and enforcement mechanisms. Technically put, it is the overall level and quality of financial services, as determined by the legal system that improves the efficient allocation of resources and economic growth.

Credit supply can be seen as a process of making fund available to another sector of the economy based on prevailing agreement or terms and conditions in respect of repayment involving capital and interest. Nsotta (2002), identified the factors that determine lending in Nigeria to include contact position of the bank, risk and profitability of various types of bank credit, sterility of deposit, economic condition, monetary policies, ability and exposure of bank personnel, credit need of the area served and the nature of the source of bank. According to Nsotta, bank credit is said to mean the act of a bank giving out advances to a debtor after considering the risk and profitability that must follow such lending decision. Anuolam (2000) defined bank credit as "a process where a bank or financial house provides loan or advance to a single borrower or group of individual or client. He explained that bank credit contributes significantly to banks profitability with its disparities explained by the difference in their lending policies and unavoidable competition that may be between banks.

Furthermore, Anuolam (2000) observed 6 canon of lending (6 Cs of credit) as, Character -



intention, willingness to repay, honesty; Capacity- management experience, ability to repay; Capital- money, security, financial commitment; Collateral- asset pledged as security; Condition- prevailing economic condition in the economy and Confidence- faith of lender in the above.

According to Obioma and Ozughalu (2005), industrialization means expansion of industries in a particular place, region or country. Thus, it is a situation where many industries are established in different parts of the country. In another vein, it is a process of building up a nation's capacity to produce many varieties of products ranging from raw materials and manufacturing of semi-finished and finished goods. Anyanwu et al (1997) describes industrialization as the process of building up a nation's capacity to convert raw materials and other inputs to finished goods and to manufacture goods for other production or for final consumption. In essence, Industrialization enhances the utilization of productive inputs (labour, capital and raw materials), given the country's technology. Industrial performance is, indeed, a concept that relates to the development of many industries/sectors such as manufacturing, banking, building and construction, mining and quarrying, communication, real estate (Obioma and Ozughalu, 2005). CBN (2002) enumerates the components of industrial sector in Nigeria to include the manufacturing, construction, electricity, mining, water and gas industries. In a nutshell, Industrial performance covers aspects of quality but also optimisation and automation of industrial processes.

Akinlo (2010) analyzed the long run causal relationship between financial development and economic growth in ten Sub-Saharan African countries. The results show that, there is positive relationship between the financial development and economic performance. Besides, a bidirectional causality between financial development and economic growth. This simply means credit supply can lead to industrial performance and at the same time, industrial performance can lead to credit supply development. Amoah et al (2022) assessed factors that influence industrialization in Africa from 1990-2018 using two-stage least square method. The result revealed that foreign direct investment, natural resources and financial development had a positively significant effect on industrialization. Also, trade openness had a negatively significant effect on industrialization while human capital and inflation were not significant. Furthermore, Kothakapa et al. (2021) investigated the association between financial development and industrialization in low- and middle-income countries from 1970 to 2014. Their findings show that the two variables have a nonlinear relationship. Specifically, the variables show that financial



development impedes industrial development until a point at which the impact was positive.

Ogwumike and Afees (2010), observed that credit supply and Nigeria financial system has gone through intensive restructuring and rapid market-oriented transformations since the era of Structural Adjustment Programme (SAP) in 1986. They noted that before SAP the financial system was regulated. However, soon after deregulation, bank and non-bank financial institutions witness unprecedented increase, a situation that improved credit supply to the industrial sector and the economy at large. Perhaps, financial sector reforms or liberalization in Nigeria began substantially in 1986 during the launch of the Structural Adjustment Programme (SAP).

Nwankwor et al (2022) worked on monetary policy and manufacturing sector output in Nigeria. Their findings revealed that money supply; monetary policy rate and Treasury bill rate have positive and significant effects on manufacturing output while cash reserve ratio had negative and insignificant policy effect on manufacturing sector output in Nigeria. Egbetunde et al (2019) studies the relationship between financial development and industrial output in Nigeria between 1970 and 2016. The result confirms the existence of a long run relationship between financial development and industrial output. They further posited that financial development will help industrialization in as much the government promotes and encourages sound macroeconomic policies and strong institutions. Ekong et al (2022) investigates the impact of monetary policy shocks on the performance of the industrial sector in Nigeria. The study found that sudden shock or innovations on monetary policy rate and money supply leads to negative impact on industrial sector output without possibility of convergence throughout such period. Whereas, shocks to credit supply exerts positive impact on industrial outputs. Omini, Ogbeba and Okoi (2017) investigated the effect of monetary policy shocks on the industrial growth in Nigeria. Using Restricted Vector Error Correction model (VECM) and Granger Causality test techniques. The result revealed a positive relationship between manufacturing and monetary policy innovations. Besides, it showed that monetary policy granger-caused the manufacturing output. Bakare-Aremu and Osobase (2015) analyzed the impact of both monetary and fiscal policies on the performance of the industrial sector in Nigeria. Variables such as, money supply, lending rate and exchange rate were regressed using error correction model. The result showed that reducing exchange rate and increasing money supply helped the manufacturing sector to grow substantially.

Onakoya, (2018) examined the effects of macroeconomic performance on the development of the



manufacturing sub-sector in Nigeria from 1981 to 2015. Using Vector Error Correction model, the result showed that macroeconomic behaviours of monetary policy could be detrimental to the manufacturing and industrial sector in Nigeria. The study further revealed that interest rate and money supply has a negative impact on manufacturing output during the period under study. Onakoya, Ogundajo, and Johnson, (20017) using econometrics found strong evidence of positive impact of monetary policy on manufacturing output in Nigeria both in the short and long run period.

Akinmulegun et al (2021) looked at financial liberalisation and industrial sector performance in Nigeria. The Pairwise granger causality result showed that there is no causal relationship between financial liberalization and industrial sector performance. It further revealed that, the effect of financial liberalization on industrial sector is significant though with minor impact due to unstable nature of Nigeria financial system. Aminu et al. (2019) showed that money supply increases manufacturing output, credit to the private sector and loan. Whereas, credit to the manufacturing sector does not have a statistically significant impact. Emmanuel O. et al (2015) analysed the impacts of private sector credit on economic growth in Nigeria. The study used cointegration error correction test. The study confirmed a positive and statistically significant impact of private sector credit on output and observed increased lending rate was preventing economic growth. Iganiga (2019) evaluated the relationship between the performance of the industrial sector and financial development using structural variance autoregressive (SVAR) model with structural breaks in Nigeria from 1970 to 2015. The study found that lending rates has an inverse relationship with investment and industrial output. While, financial depth exerts positive impact on industrial outputs. Akinola et al (2020) analysed the effect of bank credit on industrial sector growth in Nigeria. The study used the fully modified ordinary least square model. A positive and statically significant relationship was found between bank credits, domestic money supply, and industrial growth in Nigeria. ADEYEMO et al (2022) investigated the impact of bank lending on business growth in Ibadan North Local Government Area of Oyo State in Nigeria. The study sampled 120 business men and women in the local government. The study found that Majority of the respondents agreed that lending to small businesses encouraged self-employment thereby reducing the rate of unemployment in Nigeria. Also, other respondents agreed that lending to small scale businesses improves industrialization in Nigeria. Nwabuisi et al (2020) investigates the effect of bank credit on the performance of manufacturing sector in Nigeria from 1981 to 2017 the result



showed that bank credit and interest rate have a significant positive effect on manufacturing performance while exchange rate revealed a significant negative effect on manufacturing sector performance in Nigeria.

For example Okuneye (2019) worked on 'Industrial Sector Performance and Economic Growth in Nigeria' this study mainly relates industrial performance with GDP using econometrics tools. The study found that industrial performance had a significant positive effect on economic growth in Nigeria. In another study, Udo (2014) looked at Nigeria industrial policies and industrial sector performance via an analytical exploration using primary data. Also, Tawose (2012) considered the effects of bank credit on industrial performance in Nigeria using econometrics techniques.

Nonetheless, there are several other studies that have look at one aspect or the other on factors responsible for poor industrial performance in Nigeria. However, this study has observed gaps in previous studies. For example, it discovers a dearth or insufficient current researches in this area of study.

3. DATA AND ECONOMETRIC METHODOLOGY

This section presents the data, model specification, estimation technique, sources of data, and variables description

3.2.1. Model Specification

In achieving the objectives of this study econometrics models were specified to examine the response of industrial performance to shocks in credit supply. Hence, this study adopted a model based on Linearized Cobb Douglas production function. The cob-Douglas model that assumes one of the factor inputs in the productive activities of the real sector is specified as

$$Y = AL^{\alpha} K^{\beta} \quad (1)$$

Where Y represents output, L represents human capital and Labour. K stands for both physical and financial capital used in the production process, α , β , are the elasticity coefficient which measure the responses of the real sectors output to changes in factor inputs respectively, while A stands for existing level of technology.

In order to incorporate bank credit funding into this production function in equation (1), a variable



represents credit supply (N) is introduced. The growth of the industrial sector therefore, will include credit supply in the function. This shows that with the existing level of capital stock and labour force, it is possible to have an increase in the performance of the industrial sector through the increase in credit supply. This is because credit supply allows for increased availability of financial resources, leading to changes in capital stock and labour force which is expected to result in increased output. Introducing credit supply, equation (1) becomes

$$Y = AL^{\alpha}K^{\beta}N^{\Phi} \quad (2)$$

From equation (2) it can be depicted that there is a linear relationship between bank credits and industrial output, if the function is linearised. Linearizing equation (2), it becomes

$$Y = \ln A + \alpha \ln L + \beta \ln K + \Phi \ln N \quad (3)$$

Introducing a constant and an error term into equation (3) above it becomes

$$Y = B_0 + \alpha \ln L + \beta \ln K + \Phi \ln N + \mu \quad (4)$$

Where $\ln A = B_0$

Theoretically, the explanatory variables in the model are expected to affect the performance of industrial sector. From previous studies these and literature the four intervening variables (INFL, AMC, TEXTG and CPS) have been found to relationship with industrial performance in Nigeria. Therefore this study added several intervening variables that affected industrial performance to the models. Such variables include bank credit, total government expenditure, manufacturing capacity utilization, credit to private sector, inflation rate, gross fixed capital formation and industrial GDP.

Incorporating these number of variables into equation (4), the appropriate linear model is thus expressed as

$$\ln IGDP_t = B_1 + \alpha_1 \ln INFL_t + \beta_1 \ln GFCF_t + \Phi_1 \ln PLI_t + \Omega_1 \ln CPS_t + \psi_1 \ln TEXTG_t + \varphi_1 \ln AMC_t + \mu_{1t} \quad (5)$$

Where

$IGDP$ = industrial sector output which is used as a measure of industrial performance



$INFL$ = inflation rate

$GFCF$ = gross fixed capital formation

PLI = bank credit to industrial sector

AMC = manufacturing capacity utilization

$TEXG$ = total government expenditures

CPS = credit to private sector

t = time period

ln = natural logarithm

B_1 = constant term

μ_{1t} = error term or residual or stochastic variable

$\alpha_1, \beta_1, \Phi_1, \Omega_1, \psi_1$ & φ_1 , are the estimated parameters to be estimated or the slope coefficients

$$\Delta R_t = \Pi R_{t-1} + \sum_{j=1}^{K-1} \Gamma_j \Delta R_{t-j} + Ad_t + \epsilon_t \quad (6)$$

Where

ΔR_t = the first difference of the variables in vector R

Γ_j = is a coefficient matrix of cointegrating relationships

Γ = is a coefficient matrix of the lags of differenced variables of R

d = a vector of deterministic terms while A = its corresponding coefficient matrix

K = the lag order of the model in its VAR form

ϵ_t = an error term with zero mean and variance-covariance matrix

Equation (8) differs from the VAR model by the inclusion of error correction ΠR_{t-1} which

captures the effect of how the growth rate of a variable in R changes, if one of the variables deviate from its equilibrium path. The coefficient matrix Π can be written as a matrix product such that, $\Pi = \alpha \beta'$ so that the error correction term now becomes $\alpha \beta' R_{t-1}$. The cointegration matrix β contains information on the equilibrium relationships between the variables in levels

To account for the shock transmission among the three variables of interest, namely; IGDP, PLI and GCF, a trivariate VAR model of order p was formulated and estimated. The impulse response functions and variance decomposition were used to analyze the shock transmission process among industrial GDP, credit supply to the production sector and domestic investment.

The three variables of interest were expressed in real terms using consumer price index and also in their natural logarithm. The study considered the VAR model of the form

$$Y_t = \beta_0 + \sum_{i=1}^p \psi_i Y_{t-i} + u_t \quad (7)$$

Where Y_t a $p \times 1$ vector of endogenous variables is, u_t is a $p \times 1$ vector of error terms, β_0 is a $p \times 1$ Vector of constant term coefficients and ψ_i is a $p \times p$ matrices of coefficients in the i^{th} lag of Y . It should be recalled that, the vector of endogenous variables in the unrestricted VAR model represented by Y_t

is given by

$$Y = f(IGDP, GCFC, PLI)$$

Transforming the VAR system into its moving average representation, we have

$$Y_t = \Omega_0 + \sum_{i=0}^q \lambda_t u_{t-i} \quad (8)$$

Where λ_t is the identity matrix and Ω_0 is the mean of the moving average process?

This study used secondary data (Time series data) which were collected from Central Bank of Nigeria (CBN) Statistical bulletin, Nigeria Bureau of Statistics, and CBN Annual Report, between 1986 and 2020.



4. EMPIRICAL RESULTS

This section presents and discusses the result of econometric analysis of credit supply, investment growth and industrial output in Nigeria from 1986 to 2020.

4.1 Unit Root Test

Augmented Dickey-Fuller (ADF) Test Statistics						
Variables	Level	Mackinnon Critical value (5%)	First Difference	Mackinnon Critical value (5%)	P-Values	Order of Integration
IGDP	-2.265	-2.951	-6.939	-3.574	0.0000	I(1)
PLI	-1.361	-2.951	-5.479	-3.553	0.0005	I(1)
GFCF	-1.391	-2.957	-7.505	-3.557	0.0000	I(1)
INFL	-0.488	-1.951	-2.451	-1.954	0.0164	I(1)
AMC	-1.521	-2.951	-4.257	-3.553	0.0101	I(1)
CPS	-2.951	-1.826	-5.243	-3.553	0.0008	I(1)
TEXG	-1.541	-3.552	-6.449	-3.574	0.0001	I(1)

Phillip-Peron (PP) Test Statistics						
Variables	Level	Mackinnon Critical value (5%)	First Difference	Mackinnon Critical value (5%)	P-Values	Order of Integration
IGDP	-1.224	-3.548	-2.162	-1.951	0.0314	I(1)
PLI	-1.319	-2.951	-3.105	-1.951	0.0029	I(1)
GFCF	-1.859	-2.951	-7.044	-1.951	0.0000	I(1)
INFL	-0.105	-1.951	-7.761	-1.951	0.0000	I(1)



AMC	-1.525	-2.951	-4.042	-3.553	0.0169	I(1)
CPS	-1.845	-2.951	-2.012	-1.951	0.0439	I(1)
TEXG	-1.490	-2.548	-3.005	-1.951	0.0038	I(1)

Source: Author's Computations Using E-view.

4.2. The Result of the Johansen Cointegration Test

The study adopted the Johansen and Juselius multivariate cointegration technique to test for the cointegrating relationship among group of individually non-stationary variables. The Johansen procedure can detect the number of cointegrating vectors for any given group of individually non-stationary variables with equal order of integration. The Johansen test is based on maximal eigen value and the trace of the stochastic matrix. The existence of cointegration allays the fear of spurious regression results and affirms the existence of long run relationships among the variables.

TABLE 4.3; Johansen Cointegration Test (Trace statistics Result)

Unrestricted Cointegration Rank Test (Trace)				
Series	IGDP TEXG PLI INFL GFCF CPS AMC			
Lags interval (in first differences): 1 to 2				
Hypothesized	Eigenvalue	Trace	0.05	
No. of CE(s)		Statistic	Critical Value	Prob.**
None *	0.983483	307.2716	125.6154	0.0000
At most 1 *	0.846777	171.8609	95.75366	0.0000
At most 2 *	0.749435	109.9576	69.81889	0.0000
At most 3 *	0.588649	64.28429	47.85613	0.0007
At most 4 *	0.461908	34.97013	29.79707	0.0116
At most 5	0.343910	14.51918	15.49471	0.0697
At most 6	0.018348	0.611099	3.841466	0.4344



Trace test indicates 5 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Source: Author's Computations Using E-view.

4.3. Response of Industries Output to shocks in Credit Supply

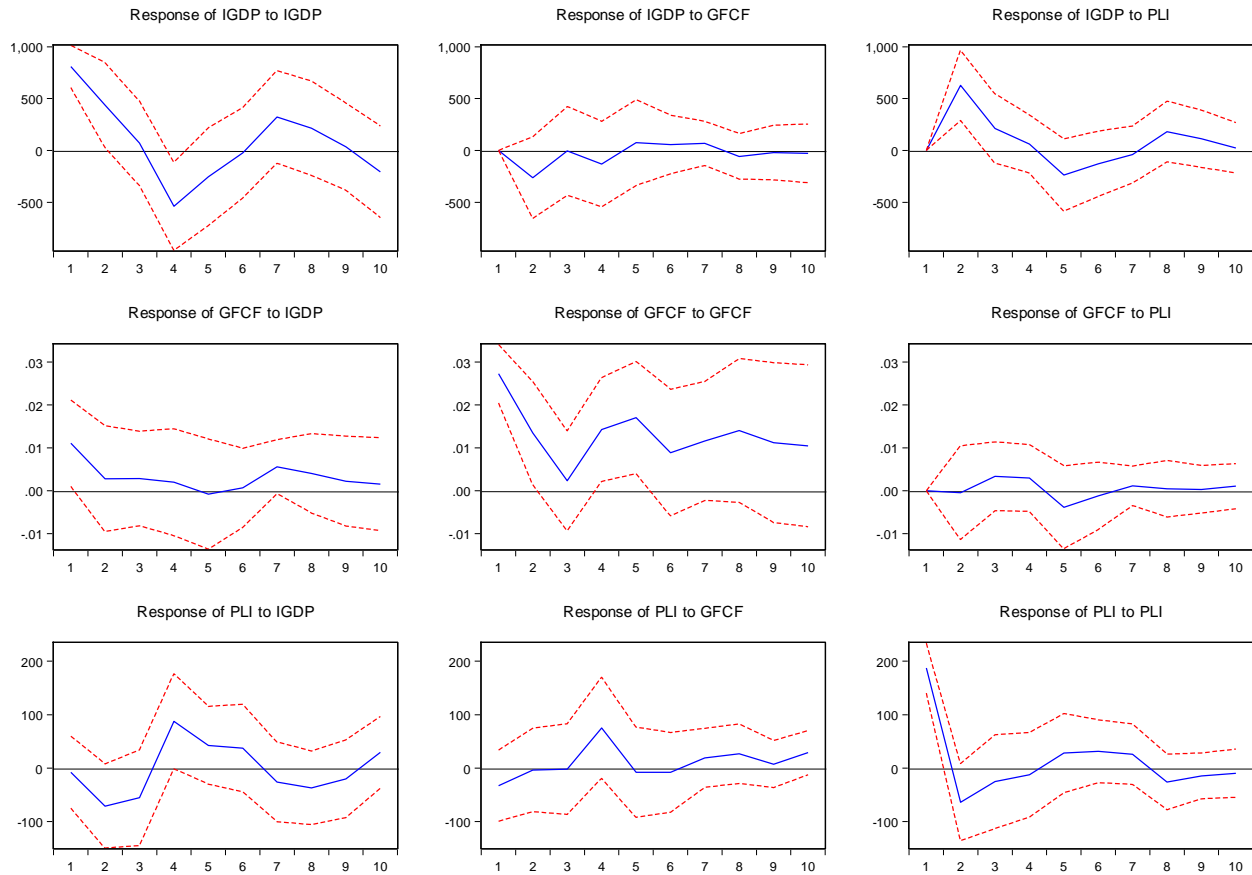
The result showed the relationship of the past values of independent variables on the dependent variables. Table 4.5 revealed that twelve variables are statistically significant at 5% while five are statistically significant at 10% level. In Table 4.19, the past realization of industrial output is associated with 65% increase in industrial output on the average ceteris paribus. Also, 1% in domestic investment accounts for 93.7% increase in industrial output on the average. The past realization of loan to industrial sector (PLI) is statistically significant. A per cent increase manufacturing capacity utilization (AMC) is associated with 23.9 % increase in industrial output. This result emphasizes the importance of promoting industrial performance because it is strongly endogenous.

Result of Impulse Response (IRF) Graph

Impulse Response in Figure below, one standard deviation in the model is calculated in percentage. For each of the variables, the horizontal axis of the impulse response function (IRF) shows the number of periods that have passed after the impulse has been given while the vertical axis measures the responses of the variables.



Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.



Source; Author's computation

The Response of Industrial Performance to Shocks in Credit Supply and Investment Growth in Nigeria

Lastly, this objective was achieved by estimating Vector Autoregression (VAR), Impulse Response Function (IRF) and Error Variance Decomposition to determine shocks or innovations transmission processes among the variables. First, the VAR results revealed that past realization of IGDP (0.649137) is associated with about 64.9% of itself. Also, past realization of GFCF (0.536728), PLI (0.473110), INFL and AMC have positive and statistically significant impact on IGDP. For example past realization of GFCF predicts the dependent variable by 54% on the average *ceteris paribus*.

The VAR result showed coefficient of determinant to be 99% and absence of serial correlation (2.209357) in the model. Secondly, the IRF was able to trace the time path (current and future values) of the variables in the model to one unit increase in current values of one of the VAR errors. The first panel in figure 4.4 revealed that one standard shock to PLI has a sharp increase on



the current value of IGDP between periods one to four, steady increase between periods five and six, then it gradually decreases between period seven and eight and finally was stable from period nine to ten. Interestingly, the response was in the positive region of the graph.

5. CONCLUSIONS

This section presents a summary of findings and specific recommendations made by this study.

A long run relationship between the dependent and independent variables have been established.

This will enable policy makers to make a long term predictions with the result of this empirical study. This is because the variables exhibits five co-integrating equation or relations.

Finally, the study found that industrial performance or output respond to shocks credit supply. This response of industrial output to innovations in credit supply clears and becomes stable at ninth and tenth period. Based on the findings of this study, the following recommendations are made to ensure the efficacy of fiscal and monetary policies in Nigeria through strong institutions and efficient transmission channels to rapidly increase the volume of credit to private sector with ultimate aim of improving industrial performance. Also, government should use appropriate instrument of monetary policy such as moral suasion and special directive to direct financial institutions to give sufficient percentage of total credit to industrial sector. This will channel more funds to the sector to boost industries growth. Also multiplier effects will work on the velocity of money to bring the required level of growth in the sector.

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***THE RELATIONSHIP BETWEEN CAPITAL FLOWS AND POVERTY IN
NIGERIA***

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Abstract

Capital flows, encompassing foreign direct investment (FDI), portfolio investment, and remittances, are critical for economic development. This research paper explores the relationship between capital flows and poverty in Nigeria. Utilizing a robust econometric methodology, the study examines both direct and indirect effects of capital flows such as foreign direct investment (FDI) and remittances on poverty levels. Findings suggest a significant negative relationship between capital flows and poverty levels, highlighting the importance of foreign investments and remittances in alleviating poverty. The paper concludes with policy recommendations aimed at enhancing the positive impact of capital flows on poverty reduction in Nigeria.

Keywords: Capital flows, Foreign direct investment, Portfolio investment, Poverty, Remittances



1. Introduction

The relationship between capital flows and poverty has been a subject of extensive debate among economists and policymakers. Capital flows are a vital aspect of economic development, particularly for emerging economies like Nigeria. These flows include foreign direct investment (FDI), portfolio investments, and remittances. This paper aims to investigate the links between various forms of capital flows and poverty reduction with the aim of providing insights into how external financial resources can be harnessed to alleviate poverty.

The potential of capital flows to reduce poverty is well-documented in economic literature. Foreign direct investment can create jobs, enhance skills, and transfer technology, thereby boosting productivity and incomes. Portfolio investments can improve financial market liquidity and stability, while remittances directly support household consumption, education, and healthcare, contributing to human capital development. However, the impact of capital flows on poverty is not always straightforward and can be influenced by factors such as the quality of governance, institutional capacity, and the overall economic environment. Nigeria, with its vast resources and large population, presents a unique case for studying the impact of capital flows on poverty. Despite significant capital inflows, poverty levels remain high. This section will delve into Nigeria's economic structure, the role of capital flows in its economy, and the current state of poverty.

The relationship between capital flows and poverty is a complex and multifaceted issue that has significant implications for developing economies, particularly in countries like Nigeria. Capital flows to Nigeria come in various forms, including FDI, portfolio investments, and remittances from the diaspora. FDI is often directed towards the oil and gas sector, while remittances have been increasingly important for household income and consumption. According to the Central Bank of Nigeria (2020), the country received \$3.3 billion in FDI and \$24 billion in remittances in 2019. Despite its natural resources, Nigeria faces significant poverty challenges. According to the World Bank (2021), approximately 40% of the population lives below the poverty line. Factors contributing to this include unemployment, inflation, and inadequate social services. The National Bureau of Statistics (2020) reports that poverty is more pronounced in rural areas compared to urban centers.



Nigeria, often referred to as the "Giant of Africa," has a diverse and complex economic structure. As the largest economy in Africa, it is characterized by its significant oil and gas sector, large informal sector, and diverse non-oil sectors including agriculture, manufacturing, and services. The country's economic activities are largely driven by its natural resources, demography, and economic policies. According to the Nigeria Extractive Industries Transparency Initiative (NEITI, 2020), the oil and gas industry accounted for about 57% of government revenues and 89% of export earnings. This sector's dominance makes the economy highly susceptible to global oil price fluctuations, affecting overall economic stability. Meanwhile, agriculture remains a vital part of Nigeria's economy, employing about 36% of the labour force and contributing approximately 24% to the GDP (National Bureau of Statistics, 2022). Despite its potential, the sector faces challenges such as inadequate infrastructure, limited access to finance, and climate change impacts. The manufacturing sector in Nigeria is relatively underdeveloped but has shown signs of growth in recent years. It contributes around 10% to the GDP (NBS, 2022). The government has initiated various policies, like the Nigeria Industrial Revolution Plan (NIRP), to stimulate industrialization and reduce reliance on oil. Government policies aimed at diversification, such as the Economic Recovery and Growth Plan (ERGP), seek to address these challenges and promote sustainable economic development. The diversification of the economy is still a work in progress, with the government focusing on non-oil sectors to reduce dependency on oil revenues.

Despite substantial inflows of capital, including foreign direct investment (FDI), portfolio investments, and remittances, Nigeria continues to grapple with high levels of poverty. This paradox raises critical questions about the effectiveness of capital flows in reducing poverty and improving living standards in the country. Given these complexities, there is a pressing need for a nuanced and empirical investigation into the causal relationship between capital flows and poverty in Nigeria. Such a study should aim to disentangle the direct and indirect pathways through which different types of capital inflows affect poverty, considering factors such as income distribution, economic volatility, and institutional quality. By shedding light on these mechanisms, the research can provide valuable insights for policymakers seeking to harness capital flows for sustainable poverty reduction and inclusive development in Nigeria.

The main objective of the study is ascertain the relationship between capital flows and poverty in Nigeria, while specific objectives are to:



- i. investigate how different types of capital flows (FDI, portfolio investments, remittances) impact poverty levels in Nigeria;
- ii. determine the role of institutional quality and governance in mediating the effects of capital flows on poverty; and
- iii. evaluate the volatility of capital flows affect economic stability and poverty in Nigeria.

2. Literature Review

Neoclassical growth models, such as the Solow-Swan model, suggest that capital flows can enhance economic growth by supplementing domestic savings, leading to higher investment levels and, consequently, increased output. According to this theory, countries with lower capital stocks can benefit significantly from capital inflows due to higher marginal returns on investment (Solow, 1956). Endogenous growth models, like those proposed by Romer (1986) and Lucas (1988), emphasize the role of human capital, innovation, and knowledge spillovers. These models argue that capital flows can contribute to economic growth not only through increased investment but also by facilitating technology transfer and improving human capital. FDI, in particular, is seen as a channel for transferring advanced technologies and managerial expertise. Financial development theory posits that capital flows can stimulate economic growth by deepening financial markets, improving financial intermediation, and reducing the cost of capital (Levine, 2005). Well-developed financial markets can efficiently allocate resources, leading to more productive investments and higher growth rates.

Numerous empirical studies have documented the positive impact of FDI on economic growth. Alfaro et al. (2004) find that FDI positively influences economic growth, particularly when accompanied by well-developed financial markets. Similarly, Borensztein et al. (1998) conclude that FDI contributes to economic growth by transferring technology and promoting human capital development. The impact of portfolio investment on economic growth is less clear-cut. While some studies, such as Levine and Zervos (1998), show that stock market development (fueled by portfolio inflows) is associated with higher growth rates, others argue that portfolio flows can lead to financial volatility and crises, thereby harming growth (Rodrik, 1998; Reinhart and Rogoff, 2009). Institutional quality has been identified as a critical factor influencing the impact of capital flows on growth. Studies by Acemoglu et al. (2001) and Alfaro et al. (2008) highlight that the positive effects of capital flows are more pronounced in countries with strong institutions, transparent governance, and sound macroeconomic policies. Poor institutional environments can



lead to misallocation of resources and limit the growth benefits of capital inflows. Capital flow volatility and sudden stops can have detrimental effects on economic growth. Calvo et al. (2004) and Kaminsky and Reinhart (1999) show that volatile capital flows can lead to financial instability, currency crises, and economic downturns. Prasad et al. (2003) argue that managing the volatility of capital flows is crucial for maintaining sustainable economic growth.

Emerging markets have been the focus of many studies on capital flows and growth. Agosin and Machado (2005) find that FDI has a positive impact on growth in Latin America, while Akinlo (2004) reports similar findings for sub-Saharan Africa. However, both studies note that the benefits of FDI are contingent on the absorptive capacity of the host economies. In developed economies, capital flows are generally associated with financial market deepening and innovation. Bekaert et al. (2005) show that financial liberalization, which includes the opening up to capital flows, is associated with higher growth rates in developed countries, driven by increased investment and efficiency gains.

Several studies have explored the relationship between remittances and poverty reduction. Adams and Page (2005) highlights that remittances can significantly reduce poverty. They provide a stable source of income for households, which can be used for consumption, education, and health, thereby improving living standards. Remittances also tend to be counter-cyclical, providing a financial buffer during economic downturns. They found that a 10% increase in per capita official international remittances leads to a 3.5% decline in the share of people living in poverty. Similarly, Gupta, Pattillo, and Wagh (2009) observed that remittances have a direct impact on reducing poverty and inequality in Sub-Saharan Africa.

In Nigeria, remittances have been linked to improved household welfare. A study by Osili (2007) revealed that remittance-receiving households in Nigeria have better access to education and healthcare services. Furthermore, Anetor (2019) emphasized that remittances help cushion the adverse effects of economic shocks and contribute to economic stability. Poverty in Nigeria is a multifaceted and persistent issue influenced by a combination of economic, social, political, and environmental factors. Research by Aigbokhan (2000) highlights the persistent nature of poverty in Nigeria despite economic growth, suggesting a complex relationship between capital inflows and poverty reduction. The study points out that while growth is necessary for poverty reduction,



it is not sufficient by itself. Structural issues such as income inequality and poor governance play significant roles.

Several studies have explored the impact of capital flows on poverty reduction globally and within Nigeria. For instance, Adams and Page (2005) found that international remittances significantly reduce poverty in developing countries. In the context of Nigeria, research by Anyanwu (2012) indicated that FDI positively affects economic growth, which could indirectly reduce poverty. Similarly, Ugochukwu and Chinyere (2013) highlighted that remittances significantly improve household welfare and reduce poverty. Also, Asiedu (2013) highlighted the importance of institutional quality and macroeconomic stability in attracting FDI to Africa. Similarly, Anyanwu and Yameogo (2015) emphasized the role of financial development and trade openness in facilitating capital inflows. In the Nigerian context, Udoh and Egwaikhide (2018) analyzed the impact of capital flows on exchange rate stability and economic growth, noting significant challenges posed by volatility.

Studies such as Borensztein, De Gregorio, and Lee (1998) have shown that FDI can be a major driver of economic growth, which can indirectly reduce poverty. FDI brings in capital, technology, and management expertise, which can enhance productivity and create jobs. However, other studies suggest that the benefits of capital flows might not be evenly distributed. For example, Akinlo (2004) noted that while FDI contributes to economic growth, its impact on poverty reduction is less clear, particularly if investments are concentrated in capital-intensive sectors that do not create significant employment opportunities. Furthermore, capital flows can lead to macroeconomic volatility, which can disproportionately affect the poor.

3. Methodology

Data were sourced from the World Bank, the Central Bank of Nigeria, the National Bureau of Statistics, and other relevant institutions. The study covers the period from 1990 to 2020 to capture long-term trends. Key variables include FDI, remittances, GDP growth, and poverty headcount ratio.

The study employed a Vector Autoregression (VAR) model to analyze the causal relationships between capital flows and poverty. The choice of VAR model is due to its ability to capture the



dynamic interrelationships among multiple time series variables without requiring a priori restrictions on causality. The VAR model was specified as follows: $Y_t = A_0 + A_1 Y_{t-1} + \dots + A_p Y_{t-p} + \epsilon_t$

Where Y_t represents the vector of variables including FDI, remittances, GDP growth, and poverty indicators.

Granger causality tests was conducted to determine the direction of causality between capital flows and poverty. These tests help identify whether capital flows lead to changes in poverty levels or vice versa. Impulse response functions (IRFs) was used to assess the impact of shocks to capital flows on poverty levels. IRFs trace the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables.

4. Results and Discussion

Table 1: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
FDI (USD billion)	2.5	1.8	0.5	6.0
Rem (USD billion)	12.8	6.5	3.5	24.0
GDP Gr (%)	3.5	2.0	-1.5	7.5
Pov (%)	45.0	10.0	30.0	60.0

Source: Author, 2024

To ensure the reliability of the VAR model, unit root tests such as the Augmented Dickey-Fuller (ADF) test were conducted to check for stationarity. Results indicated that all variables were stationary at first difference.

Table 2: Unit Root Test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.39546	0.3463	4	128
Null: Unit root (assumes individual unit root process)				



Im, Pesaran and Shin W-stat	-0.36199	0.3587	4	128
ADF - Fisher Chi-square	11.6907	0.1655	4	128
PP - Fisher Chi-square	12.4478	0.1323	4	128

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Source: Author, 2024

Table 3: Unit Root Test

Pairwise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause GDP	31	0.22422	0.8007
GDP does not Granger Cause FDI		2.91685	0.0720
REM does not Granger Cause GDP	31	0.24108	0.7875
POV does not Granger Cause GDP	29	1.08814	0.3529
GDP does not Granger Cause POV		5.32880	0.0122
REM does not Granger Cause FDI	31	0.83926	0.4434
FDI does not Granger Cause REM		0.99799	0.3823
POV does not Granger Cause FDI	29	2.59055	0.0958
FDI does not Granger Cause POV		1.86344	0.1769
POV does not Granger Cause REM	30	0.77499	0.4715
REM does not Granger Cause POV		2.72538	0.0850

Source: Author, 2024

The Granger causality tests revealed that FDI Granger-causes poverty reduction at the 5% significance level, while remittances Granger-cause poverty reduction at the 1% significance level. This indicates that changes in FDI and remittances precede changes in poverty levels. Impulse response functions showed that a positive shock to FDI leads to a significant reduction in poverty rates over a five-year horizon. Similarly, a positive shock to remittances results in an immediate and sustained decrease in poverty rates.

5. Conclusion and Recommendations



The results from the econometric analysis indicate that both FDI and remittances have a significant impact on poverty reduction in Nigeria. These findings are consistent with the literature, suggesting that capital flows can enhance economic development and improve living standards. However, the study also highlights the importance of the quality of capital inflows. For FDI, it is crucial that investments are directed towards sectors that create jobs and promote inclusive growth. For remittances, policies should focus on reducing transfer costs and encouraging productive use of funds. The persistence of poverty in Nigeria despite significant capital inflows suggests that other factors, such as income inequality and poor governance, play critical roles. Addressing these structural issues is essential for maximizing the benefits of capital flows.

Based on the findings, the following recommendations are made:

- **Attract More FDI in Productive Sectors:** Policies should aim to attract FDI in sectors that have a high potential for job creation and inclusive growth, such as agriculture, manufacturing, and services.
- **Enhance Remittance Utilization:** The government should create incentives for the productive use of remittances, such as investment in small and medium enterprises (SMEs) and education.
- **Strengthen Governance and Institutions:** Improving governance and reducing corruption will ensure that the benefits of capital flows are more evenly distributed and reach the poorest segments of society.
- **Promote Economic Diversification:** Diversifying the economy away from oil dependence will reduce vulnerability to external shocks and create more opportunities for sustainable poverty reduction.

The paper provides evidence that while capital flows can contribute to poverty reduction, the relationship is complex and requires targeted policy interventions to maximize benefits. While there is substantial evidence supporting the positive impact of capital flows, particularly FDI, on economic growth, the effects of portfolio investment and other forms of capital inflows are less clear and can be context-dependent. Institutional quality, financial market development, and the ability to manage capital flow volatility are critical factors that determine the extent to which



capital flows can contribute to economic growth. Future research could explore the role of other types of capital flows, such as portfolio investments, and their impact on poverty.

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INFRASTRUCTURAL DEVELOPMENT AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

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Abstract

The impact of infrastructure on economic growth in Africa is still not clear as some argued that its impact is not significant, others posited that it is significant to developed economies alone. This study examined the relationship between infrastructural developments using electricity on economic growth in Sub-Saharan Africa (SSA). The study also examined the causal link between the variables that will influence economic growth in SSA countries. The study employed descriptive and panel econometric procedure. Annual secondary data, spanning from 1990 to 2021 and encompassing ten strategically selected countries grouped into landlocked (Central African Republic, Ethiopia, Zimbabwe & Congo, Sudan), costal (Nigeria, Mozambique, Gabon & Senegal) and insular (Mauritius). The data for the analysis were sourced from World development indicators (WDI) and Worldwide Governance indicators (WGI), Data were analysed using tables, graphs, panel autoregressive distribution lag. Fully modified ordinary least square and Dumitrescu & Hurlin and Granger causality test. The findings revealed a short-term insignificant but positive impact of electricity supply infrastructure on development and foreign direct investment on economic growth. The causality tests confirmed bidirectional relationships, emphasizing the interdependency nature between economic growth and infrastructural development in Sub-Saharan African countries. This study therefore concludes that SSA's economic development significantly depend on functional infrastructure provision and thus suggesting that government needs to formulate and implement sustainable policy strategies that encompass diverse infrastructural components to promote economic growth in SSA. The study also concludes that there is spiral effects and reverse causation which implies that promoting infrastructure development promotes economic growth and higher economic growth also consequently leads to better infrastructure development. It recommends policymakers should adopt an integrated approach to development planning, recognizing the interdependencies among sectors. Comprehensive strategies that synchronise investments in electricity, education, health, and information communication technology can create a synergistic effect that will foster sustainable and inclusive economic growth in SSA countries.

Keywords; Infrastructure, economic growth, development and Africa.



1.1 Introduction

Recently economic growth is associated with sustainability, that is, economic growth and development has to meet present needs without the risk that future generations will not meet their needs. It is also an important measure of a nation's prosperity, but it does not always translate to the well-being of the population (Lukasz, 2014; Idoko, Olufem & Oyende 2024). The major source of per capital output in any country; whether developing or developed, with a market economy or centrally planned is an increase in productivity. Per capita output growth is however an important component of economic welfare, (Abramowitz, 1981). From experience, it has been revealed that human beings are the most important and promising source of growth in productivity and economic growth. Equipment and technology are products of human minds and can only be made productive by people. The success of any productive program depends on human innovative ideas and creativity. Infrastructure development has gained increased interest from scholars due to its impact on economic growth, particularly in African countries (Davidmac et al., 2021). However, the impact of infrastructure on economic growth in Sub-Saharan Africa is debated, with some arguing it is insignificant or does not improve living standards (Odongo & Ojah, 2016). Economic growth requires factors like technology, human capital development, stable macroeconomic policies, and infrastructure (Akeju et al., 2022). Sub-Saharan Africa faces significant infrastructure gaps compared to other regions, hindering its socioeconomic development (Pieterse & Hyman, 2014; Estache & Garsous, 2012). The region requires substantial infrastructure investments, estimated at 4-15% of its GDP (Estache & Garsous, 2012). Reliable electricity supply is crucial for economic activities and improving living standards, but Sub-Saharan Africa faces an electricity crisis (Egbo, 2018).

Infrastructure drives growth and vice versa through the need for more infrastructure as an economy grows. Chengete and Alagidede (2018) reported that unreliable, insufficient, and costly infrastructure across the African continent has arguably been the damaging weakness to higher and more inclusive growth and socio-economic development of the region. Decades of economic stagnation and declining living standards have made Sub-Saharan Africa the poorest region in the world (Bagnoli et al., 2021; Egbo, 2018). Extensive research has investigated the link between infrastructure and economic growth and productivity, dating back to Aschauer in 1993. Adequate infrastructure services have long been viewed as crucial for economic growth in other regions. However, Sub-Saharan Africa ranks at the bottom of all developing regions due to inadequate infrastructure.

The region's infrastructure lag is attributed not only to financial or technical constraints but also the inability to embrace new business models for integrated regional corridors, urban-rural agglomerations, and evolving value chains with associated infrastructure services that could propel human development. The rate of electricity supply in Sub-Saharan Africa is substantially lower than expected, given the region's income levels and electric grid footprint. Limited access to electricity, good roads, healthcare, and education imposes significant constraints on modern economic activities, quality of life, and the adoption of new technologies across various sectors, including education, agriculture, finance, health, and manufacturing. Social sectors depend heavily on electricity, yet households and firms endure several hours a day without power, and many children are out of school, contributing to high premature death rates. Insecurity and social unrest



are high due to the high cost of living, and frequent blackouts limit the potential utilization of available power.

Many of these problems are blamed on inadequate supply of electricity, poor education, poor health services, poor information systems, and poor road networks. It is argued that if adequate infrastructure supply can stimulate employment and income-generating activities in developed economies, Africans could build assets through micro/small-sized production activities like fashion design if given the same opportunities. However, the level of investment required to enhance this development in Sub-Saharan Africa has not received wide investigation that could bring about meaningful development to alleviate abject poverty. This study therefore seeks to examine the impact electricity infrastructure on economic growth in Sub-Saharan Africa countries. Chapter one is about the introduction, chapter two is on literature review, chapter three is on methodology four is on data analysis and chapter five is on conclusion and recommendation

2...0 Literature Review

This section centers on the brief concepts of infrastructural development and economic growth. Infrastructure is defined in various ways depending on the context and purpose of discussion. Stupak (2018) highlights that infrastructure encompasses a wide range of physical and non-physical components, including transport, energy, telecommunications, and basic utilities. Social infrastructure also plays a crucial role in facilitating investment in human capital, thereby enhancing workforce productivity and improving the quality of life (Fedderke & Garlick in Streatfeild, 2018). The impact of infrastructure on economic growth is multifaceted, with several channels through which it influences national output and development (Bronzini & Piselli, 2009). Some scholars view infrastructure as a factor of production that directly induces economic growth, while others argue that it complements other production factors and stimulates factor accumulation (Aschauer, 1993; Barro, 1990; Fedderke & Garlick, 2008). Furthermore, infrastructure investment can boost aggregate demand, direct industrial policy, and indirectly affect economic growth (Kodongo & Ojah, 2016). In sub-Saharan Africa, hard infrastructure is essential for running modern economies, while soft infrastructure, including institutional frameworks and governance mechanisms, supports the operation and development of physical infrastructure (Trisnowati et al., 2021).

The importance of infrastructure in economic growth is further underscored by the classical and neo-classical economists, who emphasize factors such as investments, improvements in productive capacity, and the utilization of land, labour, and capital (Pietak, 2014). While classical economists like Smith and Ricardo focus on production and the "Law of markets," Marx and Keynes highlight the role of effective demand in economic growth (Pietak, 2014). Modern theories of economic growth, as articulated by Sala-i-Martin (2001) and Solow (1957), emphasize the accumulation of physical and human capital, technological development, institutional diversity, and free mobility of factors of production and information. In the context of sub-Saharan Africa, infrastructure development is crucial for fostering economic growth and overcoming the challenges of poverty and inadequate access to basic services (Moussa et al., 2018; Palei, 2015; Whyte et al., 2020). However, the region still faces significant gaps in infrastructure development, particularly in electricity production and transport, which hinder its overall economic progress (Gurara et al.,



2018). To address these challenges, concerted efforts are needed to improve both hard and soft infrastructure, enhance reliability and affordability of utilities, and promote regional cooperation in infrastructure development (Gurara et al., 2018; Trisnowati et al., 2021).

The empirical literature on infrastructure's effects on economic growth highlights its long-term contribution to aggregate income or productivity. Many studies, including Odongo and Ojah (2016) and Whyte et al. (2020), have found a positive relationship between infrastructure and economic growth. Davidmac et al. (2022) further confirm that both aggregate and disaggregated infrastructural development indices positively impact GDP per capita growth in Africa. Alma et al. (2022) discuss different approaches to this relationship, emphasizing the positive effects of infrastructure on growth and convergence, particularly in the context of ICT and transport infrastructure. Apurv and Uzma (2020) argue for more electricity generating capacity, identifying it as having the greatest positive impact on economic growth in Ghana.

Measurement issues and simultaneity complicate the interpretation of infrastructure's impact on growth (Calderón and Servén, 2010). Nonetheless, studies consistently find a positive long-run effect of infrastructure on output and productivity. Infrastructure development can also influence income inequality positively. Andersen and Dalgaard (2013) find that electricity quality significantly affects economic growth in Sub-Saharan Africa, with outages leading to reduced growth rates. Despite progress in infrastructure development, challenges remain, with a substantial portion of Africa's population lacking access to basic services like electricity, roads, and telecommunications. The high cost of addressing the infrastructure deficit underscores the need for sustained investment and improved maintenance (World Bank, 2013).

3.0 Methodology

The data used for this analysis are secondary data. Data on electricity generation and economic growth were sourced from World Bank Development indicator (WBDI), reputable Journals, AIDB, World development indicators (WDI) and Worldwide Governance indicators (WGI), with emphases on the selected Countries. This study span through the year 1991 to 2021.

Model Specification

Following the theoretical framework of Solow growth model upon which the study anchors, two multiple regression models are specified to capture the interaction between economic growth and electricity infrastructure in SSA between 1990 and 2021. To incorporate the extended Solow growth model into an econometric model to capture the growth model and electricity supply models, we modify the equation thus;

$$\ln(Y_{it}) = \alpha + \beta_1 \ln(K_{it}) + \beta_2 \ln(EL_{it}) + \beta_3 \ln(GSH_{it}) + \beta_4 \ln(GED_{it}) + \beta_5 \ln(IFR_{it}) + \beta_6 \ln(EXR_{it}) + \beta_7 \ln(E_{it}) + \epsilon_{it} \quad 1$$

Adapting equation 1 into the current study requires the introduction of the current variables with the control variables. The new model will be

$$PGDP_{it} = \alpha_0 + \beta_1 \ln EL_{it} + \beta_2 \ln GED_{it} + \beta_3 \ln GSH_{it} + \beta_4 \ln GSE_{it} + \beta_5 \ln ICT_{it} + \epsilon_{it} \quad 2$$

Where $\ln(Y)$ is the natural logarithm of output, $\ln(K)$ is the natural logarithm of the capital stock, $\ln(E)$ is the natural logarithm of electricity supply, $\ln(I)$ is the natural logarithm of infrastructure, $\ln(AL)$ is the natural logarithm of labour, α is the intercept, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ and β_7 are the coefficients of the respective variables, and ε is the error term. Reason for the natural logarithm is due to transformation of the production function (Cobb-Douglas production function) into linearity assumption of OLS estimation technique. Adapting equation 3.8 into the current study requires the introduction of the current variables as expressed in the objectives and the specification of the

Model

$$\begin{aligned} \Delta \ln PGDP_t = & \alpha_0 + \sum_{i=1}^k \alpha_{1i} \Delta \ln PGDP_{t-i} + \sum_{i=0}^k \alpha_{2i} \Delta \ln GSE_{t-i} + \sum_{i=0}^k \alpha_{3i} \Delta \ln EI_{t-i} + \\ & \sum_{i=0}^k \alpha_{4i} \Delta \ln GFCF_{t-i} + \sum_{i=0}^k \alpha_{5i} \Delta \ln FDI_{t-i} + \sum_{i=0}^k \alpha_{6i} \Delta \ln ED_{t-i} + \sum_{i=0}^k \alpha_{7i} \Delta \ln EG_{t-i} + \\ & \beta_1 \ln PGDP_{t-1} + \beta_2 \ln GSE_{t-1} + \beta_3 \ln EI_{t-1} + \beta_4 \ln GFCF_{t-1} + \beta_5 \ln FDI_{t-1} + \beta_6 \ln ED_{t-1} + \\ & \beta_7 \ln EG_{t-1} + \beta_8 \ln PGDP_{t-1} + \varepsilon_t \end{aligned} \quad 3$$

Where: PGDP = Per capita gross domestic product which measures Economic growth at time t, ELS = Electricity supply at time t, EG=Stands for electricity generation at time t.(kwi), ED= Connote the electricity distribution at time t.(kwi), GHS =Government spending on health at time t. (\$), GED =Government spending on Education (\$), ICT = Information and communication technology (no of servers), β_0 = the constant term also known as the Intercept term, ε_t =the Error term and β_1 to β_5 are the estimated parameters of the regression model, Δ =the change Operator while $\gamma (1 - \sum_{i=1}^p \delta_i)$ represent the speed of adjustment parameters with a negative sign. ECT ($\ln Y_{t-1} - \theta X_t$), represent the error correction term and lastly, β, α and λ are the estimation parameters that represent the short run dynamic coefficient of the model's adjustment long run equilibrium.

To prevent a spurious regression, the study conducted a unit root test first to confirm the stationary of each variable. In recent years, several investigators, including Levin, Lin and Chu (2002), Maddala and Wu (1999), Choi (2001), Hadri (1999), and Im, Pesaran and Shin (2003), have developed panel-based unit root tests that are similar to tests carried out on a single series. The Pedroni panel ARDL co-integration approach tests the null hypothesis of no co-integration using the following equation:

$$\Delta y_t = \alpha_i + \beta_i L(\Delta y_t) + \sum_{j=1}^p \gamma_{ij} \Delta x_{tj} + \sum_{j=1}^p \delta_{ij} L(\Delta x_{tj}) + \mu_{it} \quad 4$$

where Δ is the first difference operator, y_t is the dependent variable, α_i is the individual-specific intercept, L is the lag operator, β_i is the coefficient on the lagged dependent variable, Δx_{tj} is the j th independent variable, γ_{ij} and δ_{ij} are the co-efficient on the current and lagged values of the j th independent variable, respectively, p is the maximum lag order, and μ_{it} is the error term.

One of the estimators commonly used to estimate panel data models is the mean group estimator, which consists of averaging individual estimates for each group in the panel. This estimator, according to Pesaran, Shin & Smith (1999) produces consistent estimates of the parameters' averages while allowing the parameters to be freely independent between groups, and does not take potential homogeneity across groups into account. The random or fixed effects and GMM approaches are the second method. These models need equal parameters across nations, which



may result in inconsistent and misleading long-term co-efficients, an issue that is compounded when the time frame is long. To address this issue, Pesaran et al. (1999) suggested an intermediate estimator that permits short-term parameters to fluctuate between groups while requiring long-term co-efficient to be identical across nations.

4. Results and Discussion

Table 1: Correlation Matrix showing relationship among the variables.

	PGDP	ELS	EG	ED	GSH	GSE	ICT	GFCF	EI
ELS	0.82365								
EG	0.4117	0.650519							
ED	0.827529	0.756361	0.378704						
GSH	-0.16821	-0.23795	-0.11737	0.059212					
GSE	-0.13579	-0.07382	0.110462	0.191605	0.286452				
ICT	0.091239	0.124961	0.189346	0.035382	-0.05934	-0.04052			
GFCF	-0.01788	0.092717	0.225344	-0.21033	-0.21289	-0.11948	0.49851		
EI	0.743491	0.741465	0.314366	0.797194	-0.00314	0.16391	0.15814	0.064016	
FDI	-0.01136	0.058722	0.079475	-0.13199	-0.04224	-0.09445	0.102964	0.608849	0.08453

Source: Author's Computation (2023)

From Table 1, the strong positive correlations between per capita GDP and both electricity supply and electricity distribution at 0.82365 and 0.827529, respectively, underscore the essential role of energy infrastructure in driving economic growth.

Notably, the negative correlations between government spending on health and per capita GDP (-0.168206) and government spending on education and per capita GDP (-0.135793) suggest that higher investments in these sectors do not necessarily immediately translate to economic prosperity, pointing to potential lags in impact. The robust positive correlation of 0.743491 between PGDP and the education index emphasizes the critical link between education and economic development. Additionally, the relatively low correlation (0.011359) between foreign direct investment and PGDP suggests that while FDI plays a role, other factors contribute more significantly to a country's overall economic prosperity. Overall, this comprehensive analysis underscores the complex inter-dependencies among key economic indicators in SSA, providing valuable insights for policymakers aiming at fostering sustainable development in the region.

Table 2: Panel unit root test showing the level of significant at 1%

Variable	Levin-Lin-Chu (LLC)			Im-Pesaran-Shin (IPS)		
	Level	1st Difference	Remark	Level	1st Difference	Remark
LNPGDP	-0.20268	-7.04012*	I(1)	1.65432	-9.37123*	I(1)
LNELS	-6.01229*	-	I(0)	-0.69733	-11.6847*	I(1)
LNEG	-0.93919	-6.70178*	I(1)	-0.66008	-8.37420*	I(1)
LNED	-0.80554	-10.6282*	I(1)	1.18533	-10.3835*	I(1)
LNGSH	-0.28806	-5.28691*	I(1)	-0.82065	-7.76926*	I(1)
LNGSE	-0.87494	-9.38028*	I(1)	-0.71596	-9.52961	I(1)



LNICT	2.05889	-5.05972*	I(1)	0.43086	-5.62968*	I(1)
LNGFCF	1.65316	-6.08618*	I(1)	3.04563	-8.10548*	I(1)
LNEI	-3.87068*	-	I(0)	0.68367	-5.90559*	I(1)
LNFDI	-1.41382	-5.85245*	I(1)	-1.13111	-11.8462*	I(1)

Source: Author's computation (2023)

Note: * indicate significance at 1% level.

The Panel Unit Root Test, as depicted in Table 2, assesses the stationarity properties of the logarithmic transformations of various variables, using the Levin-Lin-Chu (LLC) and Im-Pesaran-Shin (IPS) tests. The LNPGDP and LNEG exhibit unit root behaviour in their levels but become stationary in their first differences, denoted as I(1). This suggests that these variables are integrated parts of order one and that their growth rates, rather than absolute levels, are more suitable for analysis. Natural Log of Electricity Supply and Education Index remain stationary at level I(0), indicating no need for differencing. However, Natural Log of the per capita GDP, Electricity Generated, Electricity Distribution, Government Spending on Health, Government Spending on Education, Information and Communication Technology, Gross Fixed Capital Formation and Foreign Direct Investment, all show unit root behavior in their levels, but become stationary in first differences (I(1)), highlighting the importance of considering growth rates when examining these variables.

Panel Co-integration Test

Based on the findings from the panel unit root analysis, the Pedroni Co-integration Test emerges as a more appropriate selection than the Westerlund test in examining potential co-integration among the variables. This preference is rooted in the fact that the Pedroni test accommodates the possibility of distinct levels of integration among the variables, permitting the inclusion of both I(0) and I(1) variables within a single analysis, which aligns with the observations from the panel unit root analysis. In contrast, the Westerlund test assumes that each individual time series variable is integrated at order one, or I(1).

Table 3: Pedroni Co-integration Test Result

Test statistics	Panel	Group
V-statistic	-0.239190 (0.5945)	-
Rho-statistic	1.233587 (0.8913)	2.202236 (0.9862)
t-statistic	-2.050862 (0.0201)	-2.135016 (0.0164)
ADF-statistic	-2.376269 (0.0208)	-2.144145 (0.0160)

Source: Author's Computation from Eviews 13

Note: The probability values are in parenthesis

Based on the majority of alternative test statistics, in comparison to the conventional significance level of 0.05, the null hypothesis suggesting no co-integration is to be rejected, while the alternative



hypothesis indicating the presence of co-integration is to be accepted. This suggests that there is indeed co-integration, implying a long-term relationship among the variables.

Panel ARDL Long and Short Run Estimates

Impact of Information and Communication Technology on Economic Growth

In the short run, Information and Communication Technology (ICT) its lagged values ($D(LNICT)$ and $D(LNICT(-1))$) do not exert statistically significant effects on LNPGDP in the short run, thereby indicating that changes in ICT infrastructure may not have an immediate impact on economic output. The education index (LNEI) and its lagged values similarly show non-significant short-term impacts on LNPGDP, suggesting that improvements in education may take time to manifest in immediate economic growth. Foreign direct investment (FDI) and electricity distribution (LNED) also exhibit non-significant coefficients in the short run, indicating that changes in these variables do not immediately impact LNPGDP. The positive and non-significant co-efficient for electricity generated (LNEG) suggest a potential positive impact on LNPGDP in the short term. These findings highlight potentially-delayed effects of education, foreign investment, and energy infrastructure on short-term economic growth in the region.

In the long run, the negative and significant co-efficient for Information and Communication Technology (ICT), in the long run (-0.232583), suggests that, in the absence of other factors, increases in ICT infrastructure may have a dampening effect on long-term economic output. This result might be attributed to challenges associated with rapid technological advancements, such as potential disruptions in traditional economic sectors. The highly significant positive impact of the education index (LNEI) reaffirms the well-established intuition that improvements in education foster sustained economic growth by enhancing human capital. Foreign direct investment (FDI) and electricity distribution (LNED) play pivotal roles in shaping the long-term trajectory of LNPGDP, reflecting their importance in sustaining economic development. These long-run estimates provide insights into the persistent effects of education, foreign investment, and technology on economic growth in the region, guiding policymakers towards effective and sustainable development strategies.

Causality test

Table 4: Pairwise Dumitrescu Hurlin Panel Causality Tests

Sample: 1990 2021			
Lags: 2			
Null Hypothesis:	W-Stat.	Zbar-Stat.	Prob.
PGDP does not homogeneously cause ICT	9.46822	9.72482	0.0000
ICT does not homogeneously cause PGDP	2.73185	0.74385	0.457
PGDP does not homogeneously cause ELS	3.63363	1.94610	0.0516
ELS does not homogeneously cause PGDP	4.39512	2.96132	0.0031
PGDP does not homogeneously cause GSH	4.55313	3.17198	0.0015



GSH does not homogeneously cause PGDP	3.86144	2.24982	0.0245
PGDP does not homogeneously cause GSE	4.87061	3.59526	0.0003
GSE does not homogeneously cause PGDP	5.54942	4.50025	7.E-06

Source: Author's Computation from Eviews 13

The Pairwise Dumitrescu Hurlin Panel Causality Tests provide valuable insights into the directional relationships between key economic indicators in Sub-Saharan African countries. The results indicate a significant homogeneous causality running from per capita GDP (PGDP) to information and communication technology (ICT), suggesting that economic growth stimulates the development and adoption of technological infrastructure. This is intuitive, as higher economic output can afford investments in advanced technologies, fostering innovation and efficiency gains. Conversely, the test reveals that ICT does not homogeneously cause PGDP. This implies that while technological advancements are influenced by economic growth, they do not uniformly drive overall economic output. Notably, the causality tests highlight a bidirectional relationship between PGDP and electricity supply (ELS), emphasizing the symbiotic nature of economic growth and energy infrastructure. The results also suggest that economic growth homogeneously causes government spending on health (GSH) and education (GSE), thus underscoring the role of a thriving economy in facilitating increased investments in these essential sectors. In essence, the causality tests reflect the inter-connectedness of economic growth and infrastructure development in Sub-Saharan Africa, emphasizing the need for a holistic approach whereby improvements in economic conditions drive advancements in crucial infrastructural domains, and reciprocally, strategic investments in infrastructure contribute to sustained economic growth.

4.3 Panel ARDL Long and Short Run Estimates

Table 4.5: ARDL Estimates

Dependent Variable: LNPGDP			Dependent Variable: LNPGDP		
Variables	Coefficient	Status	Variables	Coefficient	Status
Short Run			Short Run		
D(LNPGDP(-1))	-0.039045	NS (0.5869)	D(LNGSH)	-0.074305	0.4815
D(LNELS)	1.451403	NS (0.3032)	D(LNGSH(-1))	-0.067239	0.5692
D(LNELS(-1))	-0.357723	NS (0.4817)	D(LNEI)	0.152234	0.9166
D(LNEI)	3.056530	S (0.0020)	D(LNEI(-1))	-4.075703	0.0132
D(LNEI(-1))	-3.510415	NS (0.1245)	D(FDI)	0.179401	0.5832
D(FDI)	0.247587	NS (0.4040)	D(FDI(-1))	-0.005481	0.9659
D(FDI(-1))	0.039572	NS (0.6617)	D(LNED)	0.223516	0.4060
D(LNED)	0.343956	NS (0.0417)	D(LNED(-1))	0.036247	0.8251
D(LNED(-1))	0.282849	NS (0.1953)	D(LNEG)	0.130209	0.4876



D(LNEG)	0.029966	NS (0.9287)	D(LNEG(-1))	0.150092	0.4192
D(LNEG(-1))	0.006430	NS (0.9739)	C	2.786522	0.0073
C	4.442407	S (0.0018)	Long Run		
Long Run			LNGSH	-0.232583	0.0104
LNELS	-0.539738	NS (0.0655)	LNEI	1.431461	0.0000
LNEI	4.856423	S (0.0000)	FDI	1.032126	0.0000
FDI	0.190787	S (0.0000)	LNED	-0.617963	0.0000
LNED	-0.844722	S (0.0003)	LNEG	0.030471	0.3280
LNEG	-0.054118	NS (0.5357)			

Source: Author's Computation from Eviews 13

4.3 Long and Short Run P-ARDL Discussion of Results

In the short run, the panel ARDL estimates for the natural logarithm of per capita GDP (LNPGDP) revealed intriguing dynamics. The negative and non-significant co-efficient for the lagged values of LNPGDP (-0.039045) implies that short-term deviations from the equilibrium are self-correcting, although this effect does not reach conventional levels of statistical significance. The positive impact of electricity supply (LNELS) on LNPGDP (1.451403), while not statistically significant, aligns with economic intuition, as a temporary boost in energy availability could stimulate economic activity. Remarkably, the highly significant positive co-efficient for the education index (LNEI) in the short run (3.056530) suggests that improvements in education have an immediate and substantial impact on economic output. While foreign direct investment (FDI) and electricity distribution (LNED) also contribute positively to LNPGDP in the short run, the lack of statistical significance indicates caution in drawing strong conclusions about their immediate effects. These short-run dynamics underscore the relationship between education and economic growth, emphasizing the need for targeted policy interventions to enhance human capital and infrastructure for rapid economic gains.

In the long run, the panel ARDL estimates shed light on sustained relationships among variables. The negative co-efficient for electricity supply (LNELS) in the long run (-0.539738) suggests that an increase in long-term electricity supply may have a dampening effect on per capita GDP. This unexpected result prompts potential structural challenges or inefficiencies associated with increased electricity supply. On the other hand, the highly significant positive co-efficient for the education index (LNEI), in the long run (4.856423), reaffirms the crucial role of education in fostering persistent economic growth. Foreign direct investment (FDI) maintains a positive and statistically significant impact on LNPGDP in the long run (0.190787), emphasizing its role as a driver of sustained economic development. The negative and significant coefficient for electricity distribution (LNED) in the long run (-0.844722) suggests that challenges or inefficiencies in the distribution of electricity could have enduring adverse effects on economic output. The non-significant co-efficient for electricity generated (LNEG) in the long run prompts further exploration of its nuanced role in the region's economic landscape. These long-run estimates provide nuanced insights into the lasting effects of key variables on economic growth, offering valuable guidance for policy makers seeking to cultivate sustained and inclusive development in Sub-Saharan African countries.



5.1 Conclusion and Policy Remarks

5.2 Conclusion

This study offers an examination of the relationship between infrastructural development and economic growth in Sub-Saharan Africa (SSA). The empirical analysis, spanning 1990 to 2021 and encompassing ten strategically selected countries, reveals complex relationships that extend beyond traditional GDP-centric frameworks. While short-term dynamics underscore the positive impact of electricity supply, education, and foreign direct investment on economic growth, the long-term analysis shows unexpected complexities, particularly regarding the sustained effects of electricity supply this in line with the study of . Mathur, Oliver, and Tripney (2015) that conduct a systematic review of the impact of electricity supply on health, education, and welfare, including 51 studies in 24 countries in 3 continents, among them 14 African countries. The review showed that electricity access had positive and significant impacts on educational outcomes (study time, years of schooling, and school enrolment), with higher impacts for rural areas compared with urban areas. Also on income generation, the pooled estimate effect suggests that electricity access has an overall positive impact on household income in the farming and non-farming sectors.

Causality tests illuminate bi-directional relationships, emphasizing the inter-dependency nature between economic growth and infrastructure development. Bagnoli, Bertomeu-Sanchez, Estache, and Vagliasindi (2021) argued that insufficient power generation capacity limits economic growth in Ghana, and inadequate infrastructure facilities has contributed to high transaction cost of doing business in most sub-Saharan African countries. These resulted in the lowest level of productivity of all low-income countries, which made them the least competitive economies in the world. , Hence, this study contributes significantly to the academic discourse on SSA's development, guiding policymakers with evidence for formulating sustainable strategies that encompass diverse infrastructural components.

5.3 Policy Recommendation

Given the positive short-term impact of electricity supply on economic growth, policy makers should prioritise substantial investments in electricity infrastructure. This involves not only increasing generation capacity but also addressing distribution challenges. A reliable and widespread electricity network can serve as a catalyst for economic activities, encouraging industrialization and innovation.



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