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GLOBALIZATION, GREEN FINANCE AND SUSTAINABLE DEVELOPMENT IN NIGERIA

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ABSTRACT

The United Nations, General Assembly, in September 2015 adopted a 17-point Sustainable Development Goals (SDG), tagged the 2030 Agenda. The attainment of the SDG is, however, dependent on various economic, social and political factors part of which are globalization and finance. This study examined the contributions of globalization and green finance to the attainment of the SDG from two perspectives, namely, environmental (CO2 emission) and social (life expectancy) from 2012 to 2022.

The study employed the Generalized Method of Moments (GMM) technique to determine the effect of three globalization (trade openness, net foreign direct investment and net foreign portfolio investment) and three green finance (green bonds, renewable energy investment and credit to agriculture) variables and the Gross Domestic Product (control variable) on CO2 emission and life expectancy.

Findings from the study revealed that among the globalization variables, none have a significant effect on CO2 emission while one of them, net foreign portfolio investment does (coefficient = 0.000135; p = 0.0002<0.05 level of significance - LOS). Two green finance variables, green bonds and renewable energy investment have reducing and significant effect on CO2 emission (coefficient = -0.000189, p = 0.0000<0.05 LOS and coefficient = -0.00000197, p = 0.0000<0.05 LOS respectively). Only one green finance variable, credit to agricultural sector had a positive and significant effect on life expectancy (coefficient = -0.0000197, p = 0.00327 LOS).

Based on these findings, this study recommends that authorities should identify globalization variables significantly reduce CO2 emissions and prioritize policies on them, there should be policy diversification approaches that include both globalization and non-globalization strategies for a more comprehensive plan to reduce CO2 emissions, encouragement of increased public and private sector investments in renewable energy projects and green bonds and tailoring of globalization and green finance policies to have a positive impact on life expectancy.

Keywords: Globalization, Green Finance, Sustainable Development, GMM

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I. Introduction

Globalization has transformed economies worldwide, bringing opportunities for growth and development but also posing challenges related to environmental sustainability (Okeke, 2020). Nigeria, as Africa's most populous country and largest economy, is particularly affected by these global dynamics. The integration of Nigeria into the global economy has brought both benefits and challenges, especially concerning sustainable development and environmental preservation. Her economy has been significantly influenced by globalization, primarily through increased trade, foreign direct investment (FDI), and technological advancements. The country's oil wealth has played a central role in its integration into the global economy, making it vulnerable to fluctuations in global oil prices. Despite economic growth fueled by oil revenues, the

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country faces persistent challenges such as poverty, inequality, and environmental degradation (Iweala & Odigbo, 2020).

The environmental impact of Nigeria's economic activities, particularly in the oil and gas sector, has been profound. Issues such as oil spills in the Niger Delta region, deforestation, and air pollution in urban centers are critical challenges that threaten environmental sustainability and public health. These challenges underscore the urgent need for Nigeria to adopt sustainable development practices that balance economic growth with environmental conservation (Ehiedu & Evanu, 2023). On its part, green finance emerged as a critical tool in promoting sustainable development globally. It involves financing activities that support environmental sustainability, such as renewable energy projects, energy-efficient infrastructure, and conservation initiatives. In Nigeria, the adoption of green finance principles can help mitigate environmental risks associated with economic activities while fostering long-term sustainable development (Zakari, 2022).

Effective implementation of green finance initiatives requires supportive policy frameworks and institutional capacity. Nigeria has made efforts to integrate environmental considerations into
its policy frameworks, including the National Climate Change Policy and the National Environmental Policy. However, institutional capacity constraints, regulatory inconsistencies, and limited access to financing remain significant barriers to achieving sustainable development goals (Kanu, et al., 2020).

The adoption of green finance principles presents opportunities for Nigeria, such as attracting green investments, promoting innovation in clean technologies, and enhancing environmental resilience (Shobanjo, 2022). However, challenges such as lack of awareness among stakeholders, inadequate regulatory frameworks, and financial barriers need to be addressed to unlock the full potential of green finance in Nigeria. According to Onuoha, (2019), Nigeria's heavy dependence on oil exports makes its economy susceptible to global market fluctuations, inadequate financing mechanisms, regulatory inconsistencies, institutional capacity constraints and limited awareness among stakeholders constitute major barriers to effective green finance that can foster sustainable development in the country.

The extent to which the interactions between globalization and green finance affect sustainable development in Nigeria is debatable. One main reason is the absence of data particularly on green finance due to its relatively new entrance into Nigeria (2012). Empirical evidence on the effect of green finance and sustainable development in Nigeria is rare, hence the need for this study. The focus of this study there is broadly divided into two objectives: (i) to examine the effect of globalization on sustainable development in Nigeria and (ii) to assess the effect of green finance on sustainable development in Nigeria. The concept of sustainable development is addressed from two perspectives: environmental sustainability (CO2 emission) and social sustainability (life expectancy).

II. Literature Review

A. Globalization, Green Finance and Sustainable Development

Okeke (2022) described globalization as a paradox that both unites and separates people, reducing the importance of traditional national boundaries. According to Islam (2020), globalization encompasses economic, cultural, political, and social dimensions, transforming the global economic system from one centered on individual nation-states to an integrated international marketplace.

Globalization has profoundly influenced Nigeria's economy through increased trade, investment, and technological integration. Nigeria's economy, heavily reliant on oil exports, has been both positively impacted by global market opportunities and challenged by volatility in oil prices (Ajide & Odusanya, 2020). The country's integration into global supply chains has facilitated economic growth but also highlighted vulnerabilities such as dependency on commodity exports (UNDP, 2022). Moreover, globalization has spurred urbanization and infrastructural development, contributing to environmental pressures and socio-economic disparities (Iweala & Odigbo, 2021).

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Green finance involves funding that promotes economic growth while safeguarding the environment. Wang and Zhi (2016) described green finance as financial practices that pursue economic gains without compromising environmental protection. These definitions highlight green finance's commitment to financing projects and activities in an environmentally conscious manner, ensuring that firms do not harm the environment in their pursuit of profits.

The literature identifies several benefits of green financing. For example, green financing can facilitate the development of smart cities (He et al., 2020). Expanding green finance can significantly reduce funding for environmentally harmful activities (Sachs et al., 2019a). It also has the potential to lower CO2 emissions (Li et al., 2021). Numerous innovative green financing instruments have been identified in existing studies, such as green bonds (Ozili, 2021; Lindenberg, 2014), community-based green funds (Sachs et al., 2019b), green bond grant schemes (Chang et al., 2019), green blended finance instruments (Mehta, 2017), and central bank digital currencies (Ozili, 2022).

Berensmann and Lindenberg (2016) proposed three strategies to boost funding for green activities: developing better standards and disclosure rules, encouraging green financing and investments through incentives, and enhancing policy coordination. Tu et al. (2020) argued that a successful green bond market requires low interest rates, favorable monetary policies, and a robust legal framework. Taghizadeh-Hesary and Yoshino (2019) suggested that private participation in green financing can be increased by creating green credit guarantee schemes and offering tax rebates to green investors.

Some studies explore the Central Bank's role in green financing. Ozili (2021) recommended measures such as capital surcharges, adjusted tier 2 capital, prohibiting lending to environmentally harmful businesses, and relocating banks' critical infrastructure to safer locations. Volz (2017) suggested that central banks should employ policy instruments like capital and interest rate controls to support green finance.

Green finance initiatives in Nigeria are emerging to address environmental challenges and promote sustainable development. The adoption of green finance principles includes investments in renewable energy, energy efficiency, and sustainable agriculture (Onuoha, 2019). However, challenges such as inadequate financing mechanisms and regulatory inconsistencies hinder widespread adoption (Iweala & Odigbo, 2021). Efforts to integrate green finance into policy frameworks, such as the National Climate Change Policy, aim to enhance environmental resilience and support low-carbon development pathways (Federal Ministry of Environment, 2013). Also, according to Ozili (2024), a key strategy for preparing Nigeria's financial system to cope with climate change shocks is to implement an intensive green finance initiative.

B. Sustainable Finance

Shobanjo (2022) stated that the European Commission defined sustainable finance as “the process of taking environmental, social and governance (ESG) considerations into account when making investment decisions in the financial sector, leading to more long-term investments in sustainable economic activities and projects.” According to the UNCTAD, three fundamental transitions exist which that can facilitate improved sustainable investment market (SIM). These are transiting sustainable investment to *market* norm from “market niche” through global sustainability integration instead of making it a subset of the existing larger market, transformation of SIM from a developed-country issue to a worldwide market that will benefit all countries, especially the developing countries, and solidification of the reliability of sustainability reporting and ratings with sound and higher regulation standards (Shobanjo, 2022).

Sustainable finance in Nigeria encompasses efforts to fund balanced economic growth with social inclusivity and environmental stewardship. Despite natural resource abundance, challenges such as poverty, inequality, and environmental degradation persist (UNDP, 2022). Sustainable development goals include enhancing access to healthcare, education, and clean water, while addressing environmental sustainability through policies like the National Environmental Policy (Federal Ministry of Environment, 2013). Achieving

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sustainable development requires addressing institutional capacity gaps and promoting inclusive economic growth that benefits all segments of society (Ajide & Odusanya, 2020).

C. Relevant Theories

i. Ecological Modernization Theory

Ecological modernization theory offers a more optimistic view, suggesting that economic growth and environmental sustainability can be mutually reinforcing through technological innovation, institutional change, and proactive environmental policy reforms. This theory argues that countries can achieve sustainable development by integrating environmental considerations into economic decision-making processes and promoting green technologies and practices (Mol & Spaargaren, 2000).

In Nigeria, efforts to promote ecological modernization align with initiatives aimed at reducing the environmental impacts of economic activities such as oil extraction. Projects focusing on renewable energy, energy-efficient infrastructure, and sustainable agricultural practices are seen as pathways to mitigate environmental degradation and enhance long-term economic resilience (Iweala & Odigbo, 2021). However, the theory's applicability in Nigeria faces challenges such as insufficient funding for green projects, limited technological capacity, and the predominance of extractive industries in the economy. Addressing these barriers is essential to fully realize the potential of ecological modernization in Nigeria

ii. Institutional Theory

Institutional theory explores the role of institutions—both formal (laws and regulations) and informal (norms and cultural practices)—in shaping behavior and outcomes within societies. In Nigeria, the effectiveness of green finance initiatives and sustainable development policies heavily relies on the strength and capacity of these institutions. Historically, weak governance structures, regulatory inconsistencies, and corruption have undermined efforts to implement sustainable practices and integrate environmental considerations into economic policies (North, 1990). For instance, Nigeria's National Environmental Standards and Regulations Enforcement Agency (NESREA) plays a crucial role in enforcing environmental laws and regulations. However, institutional weaknesses, including limited resources and capacity constraints, often impede NESREA's effectiveness in addressing environmental challenges such as oil spills in the Niger Delta, deforestation, and other forms of environmental degradation (Onuoha, 2019). Institutional theory, therefore, underscores the necessity for institutional reforms and capacity-building to support the successful implementation of green finance initiatives and sustainable development strategies in Nigeria.

iii. Dependence Theory

Developed in the 1960s by scholars such as Andre Gunder Frank, dependency theory highlights the structural disadvantages developing countries face within the global economic system. It posits that nations like Nigeria are primarily integrated into the global economy as suppliers of raw materials and cheap labor, creating a cycle of dependency on developed nations for technology, investment, and market access. This dependency impedes their ability to achieve sustainable development independently (Frank, 1966).

In Nigeria, dependency theory helps explain the country's historical reliance on oil exports. Despite being Africa's largest oil producer, Nigeria's economy remains vulnerable to global oil price fluctuations and lacks diversified economic sectors that could buffer against external shocks (Ajide & Odusanya, 2020). This reliance on a single commodity underscores the challenges posed by dependency theory in achieving sustainable development, as it limits Nigeria's capacity to invest in alternative industries and sustainable practices.

D. Empirical Literature

Globalization has deeply influenced Nigeria's economic trajectory, primarily through increased trade, foreign direct investment (FDI), and technological advancements. Ajide and Odusanya (2020) highlight that Nigeria's

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integration into the global economy, driven largely by its oil exports, has contributed to economic growth but also exposed the country to external shocks such as fluctuations in global oil prices.

According to AbdulSalam (2024), academic literature reveals a mixed impact of globalization on sustainable development, especially in less-developed economies, highlighting significant debate in the academic community. Realist theorists argue that globalization has increased access to affordable goods, promoted democratic ideals, and driven economic growth (Beribe, 2023; Shukla & Pandey, 2023; Mutalibovna, 2020). However, other scholars contend that globalization has disproportionately benefited developed nations, leaving emerging countries at a disadvantage (Benjamin & Gbenenye, 2023; Islam et al., 2021; Le & Ozturk, 2020). This disparity is particularly evident in the realm of security, where globalization has fueled activities such as banditry, leading to forced displacement and widespread suffering due to free border access and information asymmetry (Duke et al., 2020). For instance, in 2023, over 400,000 Nigerians were internally displaced due to banditry, kidnapping, and social violence, with approximately 7.1 million people in need of humanitarian assistance in the northeastern part of the country (Emina & Ikegbu, 2020; Siloko, 2024; Bamidele & Erameh, 2023).

In their study, Abdulsalam et al. (2024) investigated the feasibility of Nigeria achieving the United Nations' Sustainable Development Goals (SDGs) by 2030, focusing on the impact of globalization on the country's national development index. Utilizing an exploratory research design, the study collected data through an online survey, garnering 460 responses from members of Niger Delta communities. The data were analyzed using ANOVA and regression models. The results indicate a significant positive correlation between globalization and national development in Nigeria. The study concludes that globalization can significantly bolster sustainable development by providing access to advanced technology, financial resources, and international markets, thereby stimulating economic growth.

Chukwunweike and Ogheneotegiri (2023) analyze the relationship between green financing initiatives (GFIs) and economic stability in Nigeria from 1989 to 2021. The study uses Green Prevention Costs (GNPC), Green Evaluation Costs (GNEC), and Green Internal Failure Costs (GNIC) as proxies for GFIs, while economic stability is measured by Real Gross Domestic Product (RGDP), with Trade Openness (TROP) as a control variable. Using secondary data from the World Bank Pollution Management database and the Central Bank of Nigeria Statistical Bulletin, 2021, and analyzed via Econometric Views (E-Views) 9.0 for Robust Least Square (RLS) analysis, the study finds that both GNPC and GNIC have a direct and statistically significant impact on Nigeria's economic stability. However, GNEC has a direct but statistically insignificant effect. The study concludes that GFIs, particularly GNPC and GNIC, have a high predictive effect on Nigeria's economic stability.

Zakari (2022) investigated the impact of green finance on sustainable economic and environmental development in 26 OECD countries from 2000 to 2018. Due to the unique characteristics of the macroeconomic data, the study employs an autoregressive model with fixed effects to account for autocorrelation and unbalanced data settings. The regression analysis demonstrates that green finance significantly promotes sustainable economic and environmental development. Consequently, the study recommends enhancing green finance by fostering a robust green financial market, developing a green financial system, and accelerating the development of green financial systems in underdeveloped areas. These policies could serve as a reference for achieving the Sustainable Development Goals (SDGs) by 2030.

Tang (2020) assesses the effects of green and social finance on firms, markets, and the economy. Data from 60 countries, including major global economies, reveals that firms with access to green and social finance were more resilient during the COVID-19 pandemic. The study finds that while green and social finance do not necessarily boost economic growth during normal times, they play a critical role in stabilizing economies. Additionally, the inception of green bonds is associated with a decrease in total carbon dioxide emissions. The study concludes that green and social finance have substantial beneficial effects during both the pandemic and normal times.

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Kanu, et al., (2020) evaluate the awareness, challenges, and sustainability of green banking in Nigeria. The findings reveal that while Nigerian banks offer various green banking products, their staff possess limited knowledge about green banking. The study identifies that educational level, age group, lack of basic ICT knowledge, and illiteracy among rural and urban dwellers negatively impact green banking awareness and operations in Nigeria.

The challenge of financing a healthier society while maintaining a stable economy has been a significant global concern. In response, numerous green financing schemes have been developed by countries, financial institutions, and corporations worldwide. These schemes include green bonds, green mortgages, green banking, green homes, green insurance, and green credit. Comprehensive empirical studies evaluating the adoption and impact of green finance mechanisms in Nigeria are lacking, particularly regarding their effectiveness in addressing environmental degradation and fostering sustainable economic growth.

III. Methodology

A. Research Design, Data and model Specification

The research data used in this study is secondary, hence the design is expo-facto in nature. However, obtaining historical data for green finance variable before 2012 was difficult, hence the study only covered 2012 to 2022. Data were sourced from the World bank Development Indicators and the Organization for Economic Cooperation and Development (OECD) databanks. A total of two sustainable development, three green finance and three globalization variables were selected. The general functional relationship between globalization and green finance and sustainable development is expressed in equation (i).

SDEV = f(GLOB, GRFI, GRDP) …… (i).

SDEV is defined from two perspectives as life expectancy and CO2 emission, that is:

SDEV = (LEXP, CO2E) …… (ii)

GLOB = (TROP, NFDI, NFPI) …….. (iii), and,

GRFI = (GREB, CRAG, RENI) …… (iv)

Therefore, two models were specified for CO2E and LEXP respectively in equations (v) and (vi).

$CO2E = \Theta + \beta_1 TROP + \beta_2 NFDI + \beta_3 NFPI + \beta_4 GREB + \beta_5 CRAG + \beta_6 RENI + \beta_7 GRDP + \mu$ ……. (v), and,

$LEXP = \Theta + \beta_1 TROP + \beta_2 NFDI + \beta_3 NFPI + \beta_4 GREB + \beta_5 CRAG + \beta_6 RENI + \beta_7 GRDP + \mu$ ……. (vi).

Where:

SDEV = Sustainable development
GLOB = Globalization
GRFI = Green finance
CO2E = CO2 Emission in metric tons
NFDI = Net foreign domestic product
NFPI = Net portfolio investment
GREB = Green bonds
CRAG = Credit to agriculture, forestry and fishing
RENI = Renewable energy investment
GRDP = Gross domestic product

B. Analytical Techniques

We established the statistical properties of the Times Series data used and the correlations between the explanatory and dependent variables. We thereafter used the Generalized Methods of Moments (GMM) to ascertain the effects of each of the explanatory variables on both environmental sustainability metric (CO2

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emission) and social sustainability metric (life expectancy) from 2012 to 2022. We tested for the reliability of our results using the Durbin Watson and the J-Statistics.

IV. Results and Discussion

In this section we analyzed the data collected. First, we estimated the descriptive statistics of all the variables and the degree of correlations between the dependent and independent variables. Thereafter, we estimated the effect of globalization and green finance variables on sustainable development in Nigeria.

A. Descriptive Statistics

Table 1 contains the extracts of the descriptive statistics that are relevant to this study.

Table 1: Abridged Descriptive Statistics

	CO2E	LEXP	TROP	NFDI	NFPI	GREB	RENI	CRAG	GRDP
Mean	0.589088	51.44150	2.947983	3371.210	-4497.738	756.9000	76.35300	652564.2	68704.29
Skewness	1.126721	-0.016707	-0.086918	0.702487	-0.514133	1.144725	0.213087	1.297713	-0.996918
Kurtosis	2.953259	1.882032	1.738410	2.590644	2.251935	2.975101	2.759139	3.621107	3.136216
Jarque-Bera	2.116743	0.521237	0.675762	0.892301	0.673722	2.184250	0.099849	2.967503	1.664140
Probability	0.347020	0.770575	0.713280	0.640087	0.714008	0.335503	0.951301	0.226785	0.435148

Source: Authors (2024)

As seen in Table 1, CO2E, LEXP, TROP, NFDI, NFPI, GREB, RENI CRAG and GRDP have 0.589088, 51.44150, 2.947983, 3371.210, -4497.738, 756.9000, 76.35300, 652564.2 and 68704.29 respectively. Furthermore, while CO2E, NFDI, GREB, RENI and CRAG are skewed positively to the right of the mean (>0), LEXP, TROP, NFPI, and GRDP are all skewed negatively to the left of the mean (<0). CO2E, NFDI, GREB, RENI and GRDP are all mesokurtic, steeping around the mean because their kurtoses are all 3 approximately. LEXP, TROP and NFPI are platykurtic, having kurtosis below the mean (<3). Only CRAG is leptokurtic, having a kurtosis above the mean (>3). The Jarque-Bera probabilities revealed that all the research variables are normally distributed (>0.05).

B. Correlations

Table 2 presents the summary of correlation coefficients between the two dependent and six independent variables.

Table 2: Pearson's Correlation Coefficients

Variable	CO2E	LEXP	TROP	NFDI	NFPI	GREB	RENI	CRAG	GRDP
CO2E	1								
LEXP	NA	1							
TROP	0.0723	-0.48861	1						
NFDI	0.4842	-0.82638	0.40283	1					
NFPI	-0.0167	0.68488	-0.562953	-0.65309	1				
GREB	-0.0533	-0.54214	0.34970	0.23009	-0.42774	1			
RENI	-0.6118	0.03774	0.44394	-0.20729	-0.16105	0.06242	1		
CRAG	-0.3598	0.44827	-0.30727	-0.58239	0.38870	0.34194	-0.18142	1	
GRDP	-0.2831	0.74412	-0.62899	-0.91095	0.699612	-0.12234	-0.15442	0.73749	1

Source: Authors (2024).

From Table 2, the correlations between CO2E and TROP is 0.07239 (positive but extremely low), NFDI is 0.48420 (positive and averagely high), NFPI is -0.01678 (negative and extremely low), GREB is -0.05335 (negative and very low), RENI is -0.61189 (negative but high), CRAG is -0.35981 (negative but fairly low)

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and GRDP is -0.28310 (negative and low) respectively. On the other hand, the correlations between LEXP and TROP is -0.488617 (negative and averagely high), NFDI is -0.82630 (negative and very high), NFPI is -0.684883 (negative and very high), GREB is -0.542148 (negative and high), RENI is 0.037747 (positive but very low), CRAG is 0.448279 (positive but fairly high) and GRDP is 0.74412 (positive and very high) respectively.

C. Effect of Globalization and Green Finance on Sustainable Development

We used the GMM to estimate the regression coefficients that indicate the effect of globalization and green finance on sustainable development between 2012 and 2022. Table 3 contains the summarized version of the GMM estimates for the two models.

From the upper loop of Table 3, results of the effect of globalization on sustainable development revealed that TROP, NFDI, NFPI and GRDP have positive but insignificant effect on CO2E such that a unit increase in them contributed insignificantly to CO2 emission to the tune of 0.008066 (p = 0.1597>0.05 level of significance (LOS)), 0.0006.39 (p = 0.1730 > 0.05 LOS), 0.00001.59 (p = 0.3403 >0.05 LOS) and 0.0003.79 (p = 0.1874>0.05 LOS) respectively. However, GREB and RENI have significant negative effect on CO2E such that a unit increase in these variables led to decrease in CO2E by 0.0001.89 and 0.006559. This is expected. The effect of CRAG on CO2E is negative and insignificant such that a unit rise in the former led to an insignificant decline of about 0.000000941 (p = 0.0642>0.05 LOS).

The adjusted R^2 = 0.659732 shows that about 66% of the variations in CO2E was explained by globalization and green finance during the years under study. The J-Statistic = 1.97E-38 (approx. 0) and the Durbin Watson statistic = 2.436488 (approx. 2) connote that the variables and the estimate residuals do not have serial correlation problem.

From the lower loop of Table 3, the relationship between globalization and sustainable development shows that TROP and NFDI have negative but insignificant effect on LEXP such that a unit increase in them reduced insignificantly to LEXP by as much as 0.129393 (p = 0.2772>0.05 LOS)) and 0.001728 (p = 0.1427 > 0.05 LOS) respectively. The NFPI positively and significantly affected LEXP during the period such that a unit increase led to a significant increase of about 0.0001.35 (p = 0.0002<0.05 LOS). GRDP also had a positive effect (0.000861) but it was insignificant (p = 0.2079>0.05 LOS).

Table 3: GMM Results for Models 1 and 2

Method: Generalized Method of Moments (GMM)				
Effect of Globalization and Green Finance on CO2E – Model 1				
Dependent Variable = CO2E				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TROP	0.008066	0.003680	2.191690	0.1597
NFDI	6.39E-05	3.07E-05	2.080442	0.1730
NFPI_	1.59E-06	1.28E-06	1.241268	0.3403
GREB	-1.89E-05	2.25E-05	-0.838588	0.0100*
RENI	-0.006559	0.013718	-0.478108	0.0097*
CRAG	-9.41E-08	2.51E-08	-3.753336	0.0642
GRDP	3.79E-05	1.92E-05	1.971955	0.1874
C	-2.673859	2.452060	-1.090454	0.3894
R-squared	0.746607		J-Statistic	1.97E-38
Adjusted R^2	0.659732			
Durbin-Watson	2.436488			
Effect of Globalization and Green Finance on LEXP – Model 2				
Dependent Variable = LEXP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TROP	-0.129393	0.087472	-1.479238	0.2772
NFDI	-0.001728	0.000734	-2.354893	0.1427
NFPI_	1.35E-05	2.42E-05	0.557617	0.0002*
GREB	-0.000289	0.000565	-0.510998	0.6602

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RENI	-0.611983	0.324751	-1.884469	0.2002
CRAG	1.97E-06	6.47E-07	3.042479	0.0032*
GRDP	0.000861	0.000469	1.835389	0.2079
C	164.5125	59.04140	2.786392	0.1083
R-squared	0.735860	J-Statistic		9.27E-37
Adjusted R^2	0.571371			
Durbin-Watson	2.060192			

Source: Authors (2024).

*Significant

GREB and RENI have insignificant negative effect on LEXP. A unit increase in GREB and RENI respectively led to an insignificant reduction in LEXP by 0.000289 (p = 0.6602>0.05 LOS) and 0.611983 (p = 0.2002>0.05 LOS) respectively. CRAG had a positive and significant effect on LEXP (coefficient = 0.0000197, p = 0.0003<0.05 LOS). A unit rise in GRDP led to an insignificant 0.000861 (p = 0.2079>0.05 LOS) in LEXP.

The Adjusted R^2 of 0.57131371 means that about 57% of the variations in LEXP is explained by the GLOB and GRFI variables. The DW (2.060192) and J-Statistic (9.27E) suggest that the variables and their residuals have no serial correlation problem.

D. Discussion of Findings

A. Globalization, Green Finance and Environmental Sustainability (CO2 Emission)

On the aspect of CO2 emission, we found a negative and significant effect of green bonds on CO2 emissions. This is commendable as it implies that green bond issues effectively reduced carbon emission by promoting cleaner technologies and practices. This finding aligns with global trends that emphasize the effectiveness of green finance mechanisms and clean energy initiatives in reducing environmental (Smith & Millar, 2020). Secondly, investments in renewable energy infrastructure significantly contribute to reducing reliance on fossil fuels, thereby lowering CO2 emissions. As more investments are channeled into renewable energy, there is transitioning towards sustainable energy sources that mitigates negative environmental impact such as CO2 emission. (UNCTAD, 2024).

On the contrary, globalization metrics such as trade openness and foreign direct investment (FDI) have positive but insignificant effect on CO2 emission. These variables generally correlate with economic growth, which historically increases energy demand and emissions. However, their insignificant impact on CO2 emissions in Nigeria could be due to varying levels of regulatory enforcement, technological capabilities, and sectoral composition affecting emission outcomes (Wang & Ang, 2020). In addition, credit to agriculture reduced CO2 emission but insignificantly. Typically, agricultural credit should support productivity improvements and sustainable practices that can mitigate emissions, such as agroforestry or soil carbon sequestration. The lack of significant impact in this study suggests potential challenges in scaling up these practices or other competing factors influencing emissions in agricultural sectors (IFAD, 2021).

B. *Globalization, Green Finance and Social Sustainability Development (Life Expectancy))*

With respect to life expectancy, credit to agriculture had a positive and significant effect on life expectancy. Increased agricultural credit can enhance food security, nutrition, and rural livelihoods, thereby positively impacting overall health outcomes and life expectancy. The effect of renewable energy investment and green bonds on life expectancy are negative, though insignificant. This suggests that other social determinants of health, such as healthcare infrastructure and education, may have a more direct effect on longevity (UNDP, 2021).

Furthermore, globalization indexes, namely trade openness and foreign direct investment (FDI) have positive but insignificant effect on life expectancy. This implies that while these variables may contribute to economic growth, such impact on life expectancy could reflect varying degrees of healthcare accessibility and quality across different regions and socioeconomic groups in Nigeria. Gross domestic product had a positive (but

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insignificant) impact on life expectancy. Admittedly, GDP growth can potentially enhance healthcare spending and infrastructure development, but it is possible that healthcare resources may not be equitably distributed and that there are other social policies that are crucial for improving health outcomes, apart from the GDP (WHO, 2021). A positive and significant relationship existed between net foreign portfolio investment and life expectancy because foreign portfolio investments can bolster economic stability and healthcare infrastructure, potentially improving healthcare access and quality, thus increasing life expectancy.

V. Conclusion and Recommendations

In examining the effect of globalization and green finance on sustainable development in Nigeria, this study discovered that none of the globalization metrics have significant effect on CO2 emission which proxy environmental sustainability metric. It was also found that green finance, proxy by green bonds and renewable energy investment had significant reducing effect on CO2 emission. With respect to social sustainable development goals, net foreign portfolio investment and credit to agriculture had positive and significant effect on the life expectancy of the people. No other variable has significant effect.

Based on these heterogenous findings we recommend authorities should identify which globalization variables significantly affect CO2 emissions and prioritize policies that address these areas in their policy formulations. Further research will also be necessary in order to understand why certain globalization variables are insignificant and explore potential ways to enhance their impact on reducing CO2 emissions. There may be need for policy diversification approaches that include both globalization and non-globalization strategies for a more comprehensive plan to reduce CO2 emissions. In addition, the government should encourage increased public and private sector investments in renewable energy projects and green bonds to capitalize on their proven effectiveness in reducing CO2 emissions. For example, the government can provide incentives such as tax breaks or subsidies for renewable energy investments and green bonds to stimulate further growth in these areas. Apart from these, there is need to tailor globalization and green finance policies to have a positive impact on life expectancy, such as international healthcare collaborations, technology transfer, and access to global markets and improved green finance. Such policies should be integrated into national health prgrammes to enhance public health outcomes and life expectancy.

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