# PUBLIC POLICY, INSTITUTIONAL QUALITY, AND SUSTAINABLE DEVELOPMENT IN NIGERIA

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## ABSTRACT

*Public policy plays a critical role in shaping the socio-economic and environmental conditions of any nation. Sustainable development, which entails achieving economic growth, environmental protection, and social well-being in a balanced manner, remains a fundamental goal of Nigeria's policy framework. However, the realization of sustainable development is often contingent on the quality of public institutions. This study examined the nexus between public policy, and sustainable development while examining the effect of institutional quality (IQ) as an intervening variable in Nigeria.*
*The study used a three-layer hierarchical regression to, first, estimate the effect of public policy (PP) on sustainable development (SD), second, examine the effect of PP on IQ and third, investigate the effect of PP on SD when IQ as an intervening variable.*
*The study found that PP variables including education expenditure (EDUEXP), government budget (GBUDG), and public debt (PUBDBT) all have positive and statistically significant effects on human development (HUDIN) (0.000203' p = 0.0014; 0.000124, p = 0.0167 and 0.0000274, p = 0.0177 respectively) However, health expenditure (HEAEXP) shows a negative and significant impact on HUDIN (-0.000863, p = 0.0002). None of the variables show a statistically significant impact on government effectiveness (GOEFF). Lastly, when GOEFF was introduced an intervening variable, EDUEXP, GBUDG and PUBDBT continue still have positive and significant effects (0.000178, p = 0.0021; 0.000109, p = 0.0205 and 0.0000257, p = 0.0146 respectively). The effect of HEAEXP also remained negative and significant (-0.039420, p = 0.0265).*
*The study concluded that public policy, particularly through education expenditure, budget allocation, and managed public debt positively affects sustainable development in Nigeria. However, health expenditure remains problematic and may not currently support development objectives due to inefficiencies. The study therefore recommended that government policy should continue to prioritize sustained funding and reforms in educational infrastructure and access. Further, **there is** need for accountability, transparency, and targeted investments in the health sector to ensure efficient use of resources, borrowing should be aligned with development priorities and **g**overnment effectiveness must move beyond procedural efficiency to focus on outcome-driven service delivery.*

**Keywords:** *Public Policy, Institutional Quality, Sustainable Development, Hierarchical Regression.*

## 1. INTRODUCTION

Nigeria, often hailed as the "Giant of Africa" due to its population size and economic potential, finds itself at a critical juncture in its development trajectory. Despite vast natural and human resources, Nigeria continues to face daunting developmental challenges - poverty, inequality, environmental degradation, and a weak industrial base. These challenges persist largely because of the complex interplay between ineffective public policy and poor institutional quality, both of which impede the attainment of sustainable development goals (SDGs). In recent years, policy scholars and development economists have turned attention toward understanding how governance, institutional frameworks, and policy processes contribute to or detract from sustainable outcomes (Akinbode, 2023; Ezeani, 2022b).

Sustainable development, as defined by the Brundtland Commission (1987), emphasizes meeting the needs of the present without compromising the ability of future generations to meet theirs. It integrates three pillars - economic growth, environmental protection, and social equity. In Nigeria, the realization of this ideal remains elusive, often due to the disconnect between policy intentions and actual outcomes. The reasons for this disjunction lie in the quality of governance, administrative inefficiency, political corruption, and the underperformance of critical institutions charged with designing and implementing development strategies (World Bank, 2023).

Public policy is the framework through which governments respond to societal challenges by setting priorities, allocating resources, and managing interventions. In theory, Nigeria's policy architecture is comprehensive, with strategies spanning economic diversification, poverty alleviation, health, education, climate change, and infrastructural development. Major initiatives such as Vision 20:2020, the Economic Recovery and Growth Plan (ERGP), and more recently, the National Development Plan (2021–2025) reflect a strong commitment on paper to transformative goals (Nwankwo & Okoli, 2022).

However, these policy frameworks are frequently undermined by a combination of weak implementation capacity, political interference, and policy inconsistency. The politicization of development agendas means that new administrations often jettison the plans of their predecessors, resulting in disjointed execution and wasted resources (Ezeani, 2022). According to Iyoha and Oriakhi (2021), one of the central weaknesses of public policy in Nigeria is the absence of policy continuity and institutional memory, both of which are essential for long-term sustainable development.

Policy design itself is often top-down and fails to include critical stakeholders, especially from civil society and grassroots communities. This exclusion breeds mistrust and weakens the legitimacy of the policy process. Moreover, the enforcement mechanisms for many of Nigeria's development policies are either non-existent or poorly funded, further exacerbating the problem (Adebayo et al., 2023).

Institutions - the formal and informal rules that govern behavior—are central to sustainable development. High-quality institutions are characterized by transparency, accountability, regulatory effectiveness, judicial independence, and control of corruption. Unfortunately, institutional fragility has been the bane of Nigeria's development for decades. According to the World Governance Indicators (2023), Nigeria scores poorly in key dimensions such as government effectiveness, rule of law, and control of corruption.

Corruption, in particular, has proven to be an insidious drain on public resources and policy effectiveness. Transparency International (2023) ranked Nigeria 145 out of 180 countries in its Corruption Perceptions Index, highlighting the persistent nature of graft in public service. Corruption not only siphons off resources meant for development but also weakens the institutional checks and balances that could ensure better governance outcomes (UNDP, 2022).

Akinbode (2023) argued that institutional decay in Nigeria is systemic, affecting the judiciary, legislature, and civil service. Regulatory bodies, often lacking autonomy and adequate funding, are unable to perform oversight functions. Furthermore, institutional capture by political and economic elites has compromised the effectiveness of agencies that should otherwise act in the public interest.

This scenario has led to a growing distrust in public institutions, thereby diminishing civic engagement and weakening democratic accountability.

The relationship between public policy, institutional quality, and sustainable development is not linear but deeply interconnected. Good public policy requires robust institutions to design, implement, monitor, and evaluate its outcomes. Conversely, weak institutions dilute even the best-designed policies, rendering them ineffective.

Empirical evidence supports this connection. Nwankwo and Okoli (2022), using econometric analysis, found a strong correlation between indicators of governance quality—such as rule of law and regulatory quality - and improvements in human development indices across Nigerian states. Their findings suggest that governance reform can have a multiplier effect on education, healthcare, and poverty reduction. Similarly, a study by the Brookings Institution (Okonjo-Iweala, 2022) argued that without deep institutional reforms, Nigeria's attempts at achieving inclusive and sustainable growth will continue to flounder. Institutions are the mechanisms through which policies are translated into actions. When these mechanisms are corrupt, inefficient, or politicized, development outcomes suffer significantly.

For example, Nigeria's environmental sustainability goals, including reforestation, clean energy transition, and pollution control, have faced implementation hurdles due to conflicting mandates between agencies and poor regulatory enforcement. Adejumo (2022) showed that policy incoherence in Nigeria's environmental sector results in overlapping functions, administrative bottlenecks, and wasteful expenditure, undermining environmental protection efforts.

Given the interplay between policy failure and weak institutions, a holistic approach is required to steer Nigeria toward sustainable development. The first step is to reform the civil service - the engine room of policy implementation. As Iyoha and Oriakhi (2021) point out, a professional, merit-based bureaucracy is essential for translating policies into effective action. Reforms should focus on capacity-building, automation of public processes, and insulation from political pressures.

Second, transparency and accountability mechanisms must be strengthened. The introduction of digital platforms for budget tracking, procurement, and service delivery can minimize corruption and increase citizen trust. Civil society and the media also play a crucial role in holding public officials accountable, and their role must be institutionalized through legal protections and access to information.

Third, institutional autonomy must be guaranteed, especially for anti-corruption bodies, environmental regulators, and development agencies. When such institutions are shielded from executive interference and equipped with sufficient resources, they can function effectively as watchdogs and implementers. Fourth, Nigeria's public policy process must be reformed to be inclusive and participatory. Involving stakeholders - from academia and industry to grassroots communities - in the policy design and evaluation process enhances relevance, legitimacy, and effectiveness (Adebayo et al., 2023).

Finally, long-term development planning should be institutionalized beyond political cycles. For example, Vision 2050 and the Nigeria Agenda 2063 must be backed by legal instruments that protect them from being altered by successive administrations without broad consultation and evidence-based review. Given these scenarios, it becomes imperative to empirically examine the extent to which institutional quality mediates the impact of public policy on sustainable development in Nigeria during the post Structural Adjustment Programme (SAP) (1986-2024).

## 2. LITERATURE REVIEW

### Conceptual Clarifications

#### *Public Policy and Its Measures*

Public policy plays a foundational role in shaping the socioeconomic trajectory of nations. It encompasses the formulation, implementation, and evaluation of governmental actions intended to address specific public issues. According to Anderson (2015), public policy can be defined as a purposive course of action or inaction followed by an actor or set of actors in dealing with a problem or matter of concern. In the context of sustainable development and institutional quality, public policy is not only a framework for action but also a critical determinant of governance outcomes and institutional performance.

Globally, public policy is increasingly evaluated through multidimensional frameworks that capture its design, implementation effectiveness, and outcomes. The Policy Capacity Framework developed by Wu et al. (2015) provides one of the most prominent conceptual tools in this domain. This framework emphasizes three core capacities: analytical (evidence-based policymaking), operational (management of policy processes), and political (consensus-building and negotiation). These dimensions are considered essential for the development of resilient and adaptable policy systems, especially in contexts marked by rapid social and environmental changes.

In more recent scholarship, there is an emerging focus on policy coherence, especially in alignment with the United Nations Sustainable Development Goals (SDGs). The OECD (2021) highlights

Policy Coherence for Sustainable Development (PCSD) as a fundamental aspect of effective governance. PCSD emphasizes the need for integrated policy approaches that consider the interlinkages between economic, environmental, and social sectors. Countries like Sweden and Finland are at the forefront of this policy integration movement, having institutionalized cross-sectoral mechanisms to ensure that all government actions are aligned with sustainability principles.

From a measurement standpoint, public policy effectiveness is typically evaluated through several indicators, including policy coherence indices, public expenditure tracking surveys (PETS), citizen satisfaction ratings, and impact evaluations. For instance, the Government Effectiveness component of the World Governance Indicators (WGI) captures the quality of public services and the degree of its independence from political pressures.

In Africa, the policy landscape is shaped by a mixture of colonial legacies, resource constraints, and emerging democratic practices. Nigeria, for example, has a plethora of well-articulated policies addressing issues from education to environmental protection, yet their impact is often diluted by implementation bottlenecks (Ezeani, 2022a). Weak institutional arrangements, corruption, and low citizen engagement are recurrent themes affecting public policy performance across several Sub-Saharan African countries. In response, policy evaluation mechanisms such as Results-Based Monitoring and Evaluation (RBME) frameworks and Performance-Based Budgeting (PBB) have been introduced with varying degrees of success.

Furthermore, participatory governance has become a popular measure to evaluate the inclusiveness of public policy. The rise of digital governance tools and community-based policy platforms has enhanced transparency and accountability in countries like Kenya and Ghana. These participatory measures align with the SDG 16 agenda promoting peaceful and inclusive societies.

In sum, public policy is no longer a static tool of government decision-making but a dynamic process that must be continuously evaluated and adapted to meet evolving social and ecological challenges. The development of robust measurement systems is therefore crucial for ensuring that public policies are responsive, inclusive, and sustainable.

### *Indicators of Institutional Quality*

Institutional quality is a multidimensional concept that refers to the effectiveness of formal and informal rules and organizations in enabling socioeconomic development. It has been widely acknowledged in the development literature that institutions, both political and economic, serve as the "rules of the game" (North, 1990). High-quality institutions are associated with better governance, efficient service delivery, lower levels of corruption, and greater policy coherence.

The most widely used indicators of institutional quality are compiled by international bodies such as the World Bank, Transparency International, and the World Economic Forum. The World Governance Indicators (WGI) provide comprehensive data on six key dimensions of governance: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators are widely cited in comparative studies of governance quality across different national contexts (Sachs, 2020).

According to Ezeani (2022a), in addition to WGI, the Corruption Perceptions Index (CPI) developed by Transparency International offers a targeted focus on one of the most damaging elements of institutional weakness: corruption. Countries with low CPI scores are typically characterized by opaque public procurement systems, weak enforcement of anti-corruption laws, and low levels of judicial independence.

The academic literature emphasizes the causal relationship between institutional quality and economic development. Acemoglu and Robinson (2019) argue that inclusive institutions—those that provide equal access to economic opportunities and enforce property rights—are central to long-term development. Their work underscores how extractive institutions, often found in authoritarian or post-conflict states, limit social mobility and entrench inequality.

Institutional quality also plays a vital role in the achievement of sustainable development goals. For example, SDG 16 emphasizes the need for effective, accountable, and transparent institutions at all levels. According to the United Nations Development Programme (UNDP, 2020), countries that perform well on institutional indicators are more likely to make progress on other SDGs, such as poverty eradication (SDG 1), quality education (SDG 4), and climate action (SDG 13).

Regionally, Africa presents a diverse institutional landscape. Rwanda is often cited as a success story in institutional reform, having implemented strong anti-corruption measures, improved bureaucratic performance, and decentralized service delivery. In contrast, countries such as South Sudan and the Democratic Republic of Congo continue to struggle with institutional fragility, undermining development efforts despite international support (UN, 2023)..

Local initiatives aimed at strengthening institutional quality include judicial reform, civil service reform, and the establishment of independent anti-corruption bodies. In Nigeria, institutions like the Economic and Financial Crimes Commission (EFCC) have made efforts to curb corruption, although their effectiveness is often questioned due to political interference and limited capacity.

Overall, these review of literature indicates that improving institutional quality requires not only the enactment of formal rules but also the cultivation of trust, civic engagement, and a culture of accountability. As such, measurement should extend beyond institutional form to include functional assessments and citizen perceptions.

***Sustainable Development and Its Goals***

Sustainable development is a concept that has evolved over decades, gaining prominence after the publication of the Brundtland Report in 1987, which defined it as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Today, sustainable development is encapsulated in the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015. The agenda consists of 17 Sustainable Development Goals (SDGs) and 169 associated targets, designed to address pressing global challenges including poverty, inequality, climate change, environmental degradation, and peace and justice. These goals are universal, interconnected, and grounded in human rights principles.

To monitor and evaluate progress, the United Nations has developed the Global SDG Indicator Framework, which consists of over 230 indicators covering various domains. These indicators provide a basis for national and global reporting, with countries submitting Voluntary National Reviews (VNRs) to the UN High-Level Political Forum on Sustainable Development.

From an academic perspective, sustainable development is increasingly analyzed through the lens of systems thinking and policy integration. Scholars such as Sachs (2020) emphasize the importance of synergies and trade-offs between goals. For instance, investments in clean energy (SDG 7) can contribute to improved health outcomes (SDG 3) and reduced inequalities (SDG 10), but may also conflict with industrial development (SDG 9) if not well-coordinated.

In terms of global performance, countries like Denmark, Sweden, and Switzerland rank highest on the SDG Index due to their comprehensive policy frameworks, strong institutions, and high public awareness. These countries have embedded sustainability in their national development plans and budgetary processes.

In Africa, the implementation of SDGs faces structural and capacity-related challenges. Nigeria's performance has been mixed, with progress in areas like gender equality (SDG 5) and access to education (SDG 4), but setbacks in poverty reduction (SDG 1), climate resilience (SDG 13), and institutional accountability (SDG 16). According to the Sustainable Development Report (2023), data availability, funding, and weak institutional coordination remain the primary barriers.

Local governments and civil society organizations have played a crucial role in SDG localization through community-driven projects, grassroots monitoring, and public education campaigns. Moreover, the African Union's Agenda 2063 complements the SDG framework by offering a long-term development vision grounded in African realities.

## Theoretical Foundations

Understanding the interplay between public policy, institutional quality, and sustainable development requires grounding in robust theoretical frameworks that elucidate how institutions shape policy processes and outcomes, and how both influence developmental trajectories. Several interrelated theories from political science, economics, and development studies underpin this nexus, including institutional theory, public choice theory, good governance theory, and systems theory.

***Institutional Theory***

At the core of this nexus lies institutional theory, which emphasizes the role of formal and informal rules, norms, and organizations in shaping social and political behavior. North (1990) famously defined institutions as "the rules of the game" that structure human interaction, arguing that the quality of these institutions fundamentally determines economic performance. In development contexts, institutional theory posits that strong, credible institutions promote policy consistency, reduce transaction costs, and foster an environment conducive to sustainable growth (Rodrik, Subramanian & Trebbi, 2004).

Institutional quality, under this framework, is thus central to public policy effectiveness. The enforcement of rules, bureaucratic competence, and the legitimacy of decision-making processes influence the success of policy interventions aimed at achieving sustainable development goals (Kaufmann et al., 2007). For instance, regulatory quality and the rule of law are directly linked to the ability of governments to implement and monitor SDG-related policies.

***Public Choice Theory***

Public choice theory, developed by Buchanan and Tullock (1962), provides another lens to understand the public policy–institutional quality relationship. It views public officials and politicians as self-interested agents who operate within institutional constraints. According to this theory, the presence of institutional checks and balances, transparency, and civic oversight can curb opportunistic behaviors such as rent-seeking and policy capture, thereby enhancing policy outcomes.

This theoretical lens explains why similar policies yield different results in countries with varying institutional contexts. In weak institutional settings, public choice theory predicts policy distortion, elite capture, and corruption - factors that undermine sustainable development (Acemoglu & Robinson, 2012).

Thus, institutions not only determine policy design but also influence the incentives and behaviors of key stakeholders within the policy environment.

***Good Governance Theory***

The good governance paradigm, emerging prominently in the 1990s, integrates insights from institutional economics and political science to emphasize transparency, accountability, participation, and rule of law as prerequisites for development. According to Grindle (2004), good governance is both a means and an end to sustainable development. This theory posits that effective governance structures - underpinned by capable institutions - are vital for policy coherence, efficient service delivery, and the realization of development goals.

Within this paradigm, policy coherence for sustainable development (PCSD) is not merely a technical issue but a governance imperative (OECD, 2021). It requires institutional arrangements that promote coordination across sectors and levels of government and mechanisms for stakeholder engagement. Thus, the good governance approach tightly links institutional quality with the success of public policies targeting SDGs.

### *Systems Theory*

Systems theory provides a holistic framework for analyzing the interconnectedness of public institutions, policies, and development outcomes. Rooted in the work of Easton (1953), it views the policy process as a dynamic system with inputs (demands and supports), throughputs (decision-making processes), and outputs (policy decisions). Feedback loops are critical, as they inform policy adjustments.

Applied to sustainable development, systems theory underscores the complexity of goal interdependencies and the need for integrated institutional frameworks. Achieving sustainability requires policies that are adaptive, cross-sectoral, and informed by system-wide feedback (Meadows, 2008). The theory supports the argument that fragmented or poorly coordinated institutional structures hinder the ability of states to respond effectively to complex sustainability challenges.

## Empirical Literature

The interlinkage between public policy, institutional quality, and sustainable development has received extensive empirical attention in development studies, political economy, and public administration. The literature suggests that Ezeani (2022a), analyzing Nigeria's policy landscape, notes that frequent changes in policy direction, lack of institutional memory, and weak policy evaluation frameworks undermine sustainable development planning.

A quantitative study by Dercon (2021) examined 25 developing countries and found that the presence of accountable institutions significantly amplifies the impact of public investment on human development indicators. In countries where policy choices were made in consultation with stakeholders, and where implementation agencies were empowered and resourced, SDG progress was more visible. (Mbaku, 2021). Investigate and found that these cases demonstrate how institutional fragility undermines policy continuity and development planning.

In Nigeria, empirical work by Olaniyi and Olayemi (2021) using time-series data established that institutional quality (proxied by control of corruption and rule of law) had a significant positive relationship with environmental sustainability and poverty reduction outcomes. However, they noted that poor budget execution and lack of political will hinder policy impact, despite seemingly good policy intentions. Moreover, the work of Agyemang and Dzansi (2020) in Ghana empirically demonstrated that multi-stakeholder partnerships involving local government, private sector, and community leaders increased the sustainability of water and sanitation projects.

Empirical studies have consistently demonstrated that effective public policy is a major driver of sustainable development outcomes. For instance, Sachs et al. (2020) found that countries that integrate the Sustainable Development Goals (SDGs) into their national planning frameworks - such as Finland, Sweden, and Costa Rica - demonstrate better progress across education, health, and environmental protection metrics. The use of national development plans aligned with SDG targets provides a policy anchor for budget allocation, institutional reform, and performance monitoring.

However, in sub-Saharan Africa, countries like Rwanda and Botswana provide evidence of how institutional quality positively impacts development outcomes. According to UNDP (2020), Rwanda's significant gains in health and education have been facilitated by strong bureaucratic institutions, effective decentralization, and performance-based management systems. Meanwhile, Ghana's experience with institutional reforms and anti-corruption commissions has led to improved public sector performance, although implementation challenges persist (Gyimah-Boadi, 2019). Conversely, countries with weak institutional environments, such as South Sudan and the Democratic Republic of Congo, struggle with implementing even the most basic policies due to political instability and poor bureaucratic capacity.

At the municipal level, studies such as that of Turok and Scheba (2019) on Cape Town illustrate how urban sustainability efforts such as improved housing, waste management, and green spaces are more successful when backed by strong local governance, participatory planning processes, and stable intergovernmental relations.

There is also growing empirical evidence on how community institutions and grassroots governance influence development outcomes. A study by Okeke and Emeh (2019) in southeastern Nigeria revealed that traditional institutions, when integrated into formal policy implementation, enhanced community buy-in and improved monitoring of local development projects. This highlights the importance of institutional pluralism recognizing both formal and informal institutions in policy design.

Another notable study by Kharas, McArthur, and Rasmussen (2018) on SDG financing concluded that countries with higher governance scores are more effective at translating donor funds and domestic resources into public goods, including infrastructure and education. Additionally, a World Bank study by Andrews et al. (2017) introduced the concept of "capability traps," where governments adopt best-practice reforms in form but fail in practice due to weak institutions. This empirical insight has implications for countries like Nigeria, where policy reforms often lack institutional adaptation or contextualization. Similarly, empirical research by Asongu and Nwachukwu (2017) covering 48 African countries showed that governance quality (measured through indicators like voice and accountability and regulatory quality) enhanced the impact of education and health spending on inclusive growth. This suggests that institutional reforms can act as a multiplier of policy effectiveness.

Similarly, O'Connor et al. (2016) emphasize that policy coherence whereby different sectors and levels of government work towards consistent objectives is essential for reducing trade-offs among SDGs. In African contexts, however, the challenge of policy fragmentation remains prominent. Cross-national studies provide further empirical insights. Halleröd et al. (2013) constructed the Sustainable Development Index for OECD and non-OECD countries and found that institutional stability, press freedom, and civic engagement were strongly associated with performance on sustainability indicators. The role of institutional quality as a determinant of development success is well-documented. Acemoglu and Robinson (2012) argue that inclusive political institutions, which ensure rule of law, accountability, and citizen participation, create the foundation for sustained economic and social progress. Their theory is supported by empirical findings from the Worldwide Governance Indicators (WGI), which show a strong correlation between government effectiveness, regulatory quality, and progress on human development indicators. (Kaufmann et al., 2010).

Empirical studies that explore the interplay between public policy and institutional quality often highlight the mutually reinforcing nature of these components. Leftwich and Sen (2010) argue that well-formulated public policies cannot yield desirable outcomes in environments where institutional structures are corrupt, opaque, or dysfunctional. Conversely, strong institutions enhance policy formulation and implementation by providing regulatory oversight, reducing corruption, and promoting citizen participation. The literature suggests that strong institutions and coherent policies are critical for steering societies towards sustainable development objectives, especially in low- and middle-income countries (Rodrik, Subramanian, & Trebbi, 2004).

## 3. METHODOLOGY

This study adopts a longitudinal quantitative expo-facto research design, analyzing a time series data spanning from 2000 to 2024. It examines the relationships among public policy, institutional quality, and sustainable development outcomes using secondary data sourced from international governance, policy, and development indicators for Nigeria. The study is grounded in institutional theory and the good governance theory as earlier discussed. The study employs a hierarchical multiple regression model to examine the mediating effect of institutional quality in the relationship between public policy and sustainable development. The model is specified in three steps:

Step 1 (Model 1 – Effect of public policy (PP) on sustainable development (SD)):
$SD_i=\beta_0+\beta_1PP_i+\epsilon_i$ …………………… (i)
Step 2 (Model 2 – Effect of public policy on institutional quality (IQ)):
$IQ_i=\beta_0+\beta_1PP_i+\epsilon_i$ ……………………. (ii)

Step 3 (Model 3 – Effect of public policy and institutional quality on sustainable development)
$SD_i=\beta_0+\beta_1PP_i+\beta_2IQ_i+\epsilon_i$ …………………… (iii)

However, while SD is proxy by Human Development Index (HUDIN), PP is decomposed into education expenditure (EDUEXP), health expenditures (HEAEXP), government budget (GBUDG) and public debt (PUBDBT), IQ is proxy by into government effectiveness (GOEFF).

Therefore, the three hierarchical regression models for the study are as follows:

Model 1: Public Policy → Sustainable Development
$HUDIN = \beta_o + \beta_1EDUEXP + \beta_2HEAEXP + \beta_3GBUDG + \beta_4PUBDBT + \mathscr{E}$ …….. (iv)

Model 2: Public Policy → Institutional Quality

$$GOEFF = \alpha_0 + \alpha_1 EDUEXP + \alpha_2 HEAEXP + \alpha_3 GBUDG + \alpha_4 PUBDBT + \mathscr{E} \ldots\ldots\ldots\ldots\ldots (v)$$

Model 3: Full Mediation Test

$$HUDIN = \gamma_0 + \gamma_1 EDUEXP + \gamma_2 HEAEXP + \gamma_3 GBUDG + \gamma_4 PUBDBT + \gamma_5 GOEFF + \mathscr{E} \ldots\ldots (vi)$$

The study tests for the statistical properties of the variables (descriptive statistics), their correlations and stationarity using the Augmented Dickey Fuller (ADF) unit root test. Therefore, it employs a three-stage hierarchical multiple regression for inferential purpose.

## 4. RESULTS AND DISCUSSIONS

The analysis in this section follows the three research models: effect of public policy on sustainable development, effect of public policy on government efficiency and intervening effect of government efficiency on the nexus between public policy and sustainable development.

### *Descriptive Statistics*

Table 1 introduces us to the key variables in this study, showing their behavior across 25 observations.

**Table 1: Descriptive Statistics**

| | HUDIN | GOEFF | EDUEXP | GBUDG | HEAEXP | PUBDBT |
|---|---|---|---|---|---|---|
| Mean | 0.503000 | -1.051753 | 865.3870 | 2833.840 | 401.8695 | 8583.942 |
| Skewness | 0.174407 | -0.228348 | 0.339452 | 0.788358 | 1.394497 | 0.828151 |
| Kurtosis | 1.882507 | 2.159973 | 1.662924 | 2.813936 | 4.238503 | 2.458431 |
| Jarque-Bera | 1.427565 | 0.952308 | 2.342378 | 2.625682 | 9.700387 | 3.163158 |
| Probability | 0.489788 | 0.621168 | 0.309998 | 0.269055 | 0.007827 | 0.205650 |
| Observation | 25 | 25 | 25 | 25 | 25 | 25 |

**Source:** Author (2025).

At the heart of this analysis is the Human Development Index (HUDIN), which averages at 0.503, a modest score, suggesting that Nigeria sits in a medium human development zone. Supporting this picture, the mean value for Government Effectiveness (GOEFF) is a concerning -1.05, which highlights a perception of inefficiency or ineffectiveness in Nigeria's public institutions. For the public policy variables, we find that Education Expenditure (EDUEXP) and Health Expenditure (HEAEXP) average 865.39 and 401.87 respectively, signaling that while education receives a larger share of the public pie, overall allocations to human capital development remain limited. The Government Budget (GBUDG), at 2833.84, dwarfs these sector-specific expenses, suggesting potential fiscal space that is not fully translating into better social services. Interestingly, the Public Debt (PUBDBT) figure, an imposing 8583.94, stands out, potentially indicating Nigeria's reliance on borrowing to finance its development goals.

Examining the shape of these variables, it was found that most are positively skewed, meaning that extreme high values occasionally pull the average upwards, especially noticeable for health expenditures, which also show a leptokurtic distribution (kurtosis of 4.24), implying heavy tails and outliers. However, GOEFF has a slight negative skew, suggesting that while generally low, there have been instances of improved government performance. Normality tests reveal that most variables follow a roughly normal distribution, except health expenditure, which statistically deviates from normality (p = 0.0078). The consistent number of 25 observations across all variables ensures a balanced comparison.

***Correlations***

**Table 2 describes the degree of co-movements among the research variables.**

**Table 2: Correlation Coefficients**

| | HUDIN | GOEFF | EDUEXP | GBUDG | HEAEXP | PUBDBT |
|---|---|---|---|---|---|---|
| HUDIN | 1 | | | | | |
| GOEFF | -0.506437 | 1 | | | | |
| EDUEXP | 0.649202 | -0.278949 | 1 | | | |
| GBUDG | 0.959814 | -0.371662 | 0.6362095 | 1 | | |
| HEAEXP | 0.8622680 | -0.252067 | 0.6797833 | 0.9513363 | 1 | |
| PUBDBT | 0.9551170 | -0.377345 | 0.5316458 | 0.9789275 | 0.9122444 | 1 |

**Source:** Author (2025).

From Table 2, it is discovered that the strongest relationship exists between HUDIN and GBUDG, with a near-perfect correlation of 0.96. This powerful link suggests that as the government allocates more resources overall, human development benefits significantly. Likewise, HUDIN is strongly correlated with PUBDBT (0.96) and HEAEXP (0.86), and to a slightly lesser extent, EDUEXP (0.65). What is perhaps more intriguing is the role of Government Effectiveness, which correlates negatively with every other variable. For instance, its relationship with HUDIN is -0.51, suggesting that better government effectiveness - at least as measured here - does not necessarily translate into improved human development outcomes. This unexpected pattern could reflect a misalignment between governance processes and development delivery in Nigeria. Moreover, the interrelationships among fiscal indicators themselves are striking. Public debt and budget correlate at 0.98, highlighting how borrowing may be used to fund the government's fiscal activities. Similarly, health expenditure and the budget correlate at 0.95, indicating budget responsiveness to health financing.

***Stationarity Test***

Stationarity tests confirm that each variable is statistically stable over time. Table 3 summarizes the estimates of Augmented Dickey Fuller (ADF) stationarity test on the variables

**Table 3: Stationarity Tests Results**

| ADF @ Level | | | |
|---|---|---|---|
| Series | T-Statistic | Prob. | Decision |
| HUDIN | -3.997845 | 0.0003 | I(0) |
| GOEFF | -7.320632 | 0.0001 | I(0) |

| | | | |
|---|---|---|---|
| EDUEXP | -5.417091 | 0.0002 | I(0) |
| GBUDG | -6.012107 | 0.0001 | I(0) |
| HEAEXP | -4.024107 | 0.0005 | I(0) |
| PUBDBT | -5.032281 | 0.0001 | I(0) |

**Source:** Author (2025).

The ADF test reveals that at levels, all six variables are found to be stationary at level (I(0)), with p-values far below the 0.05 threshold. This suggests that their statistical properties (mean, variance) remain consistent, validating their use in further regression analysis without any transformation.

***Effect of Public Policy on Sustainable Development***

The first research model examines how public policy variables affect HUDIN. Table 4 contains the estimates of ordinary least squares (OLS) regression.

**Table 4 Effect of Public Policy on Sustainable Development (HUDIN) - Model 1**

Dependent Variable: HUDIN

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EDUEXP | 2.03E-05 | 5.46E-06 | 3.716485 | 0.0014 |
| GBUDG | 1.24E-05 | 4.74E-06 | 2.612523 | 0.0167 |
| HEAEXP | -8.63E-05 | 1.94E-05 | -4.443429 | 0.0002 |
| PUBDBT | 2.74E-06 | 1.06E-06 | 2.583753 | 0.0177 |
| C | 0.461568 | 0.003525 | 130.9560 | 0.0000 |
| R-squared | 0.769959 | Mean dependent var | | 0.503000 |
| Adjusted $R^2$ | 0.663950 | S.D. dependent var | | 0.034951 |
| S.E. of regression | 0.006636 | Akaike info criterion | | -7.015733 |
| Sum squared resid | 0.000881 | Schwarz criterion | | -6.771958 |
| Log likelihood | 92.69666 | Hannan-Quinn criter. | | -6.948120 |
| F-statistic | 161.4373 | Durbin-Watson stat | | 2.263958 |
| Prob(F-statistic) | 0.000000 | | | |

**Source:** Author (2025).

The results show that education expenditure, government budget, and public debt all have positive and statistically significant effects on human development. Specifically, an increase in education expenditure significantly lifts human development (p = 0.0014), while government budgeting also plays a supportive role (p = 0.0167). Even public debt has a positive, albeit smaller, impact (p = 0.0177), suggesting that borrowed funds may be channeled toward beneficial development projects. However, health expenditure shows a negative and significant impact on HUDIN (p = 0.0002). This unexpected result raises questions about the efficiency and targeting of health-related spending in Nigeria. It may reflect systemic inefficiencies or perhaps a mismatch between expenditure and actual service delivery. The model is statistically robust, with an R-squared of 0.77, indicating that around 77% of the changes in human development are explained by these fiscal variables. The Durbin-Watson statistic (2.26) suggests no significant autocorrelation in residuals, confirming model validity.

***Effect of Public Policy on Government Effectiveness- Model 2***

The second model examines how public policy variables affect GOEFF. Table 5 contains the estimates of ordinary least squares (OLS) regression for this model.

**Table 5 Effect of Public Policy on GOEFF - Model 2**

Dependent Variable: GOEFF

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EDUEXP | -6.16E-05 | 6.69E-05 | -0.921728 | 0.3677 |
| GBUDG | -3.82E-05 | 5.80E-05 | -0.657773 | 0.5182 |
| HEAEXP | 0.000439 | 0.000238 | 1.845833 | 0.0798 |
| PUBDBT | -4.36E-06 | 1.30E-05 | -0.336159 | 0.7403 |
| C | -1.029297 | 0.043190 | -23.83194 | 0.0000 |
| R-squared | 0.478525 | Mean dependent var | | -1.051753 |
| Adjusted $R^2$ | 0.334230 | S.D. dependent var | | 0.087394 |
| S.E. of regression | 0.081317 | Akaike info criterion | | -2.004058 |
| Sum squared resid | 0.132250 | Schwarz criterion | | -1.760283 |
| Log likelihood | 30.05072 | Hannan-Quinn criter. | | -1.936445 |
| F-statistic | 11.930250 | Durbin-Watson stat | | 1.605537 |
| Prob(F-statistic) | 0.000046 | | | |

**Source:** Author (2025).

Shifting focus to government effectiveness (GOEFF) as the dependent variable, this regression explores how public expenditure influences institutional quality. The findings are underwhelming. None of the variables show a statistically significant impact on government effectiveness. Apart from health expenditure which slightly drops from the significance zone, ($p = 0.0798$), all other variables produce weak and insignificant results.

Despite this, the R-squared is 0.48, indicating that nearly half of the variation in GOEFF is still explained. Yet, the weak t-statistics suggest that fiscal policies alone do not effectively account for changes in government performance, possibly pointing to deeper structural or institutional factors.

***Intervening Effect of GOEFF on the Public Policy–Sustainable Development Nexus (Model3)***

The third research model estimates the intervening effect of GOEFF on HUDIN and PP nexus. Table 6 summarizes these estimates.

**Table 6: Regression After Introduction of GOEFF – Model 3**

Dependent Variable: HUDIN

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EDUEXP | 1.78E-05 | 5.00E-06 | 3.566464 | 0.0021 |
| GBUDG | 1.09E-05 | 4.30E-06 | 2.527279 | 0.0205 |

| | | | | |
|---|---|---|---|---|
| HEAEXP | -6.90E-05 | 1.89E-05 | -3.654676 | 0.0017 |
| PUBDBT | 2.57E-06 | 9.55E-07 | 2.687795 | 0.0146 |
| GOEFF | -0.039420 | 0.016393 | -2.404687 | 0.0265 |
| C | 0.420993 | 0.017168 | 24.52242 | 0.0000 |
| | | | | |
| R-squared | 0.776968 | Mean dependent var | | 0.503000 |
| Adjusted $R^2$ | 0.670907 | S.D. dependent var | | 0.034951 |
| S.E. of regression | 0.005961 | Akaike info criterion | | -7.201433 |
| Sum squared resid | 0.000675 | Schwarz criterion | | -6.908903 |
| Log likelihood | 96.01791 | Hannan-Quinn criter. | | -7.120297 |
| F-statistic | 161.1894 | Durbin-Watson stat | | 1.563804 |
| Prob(F-statistic) | 0.000000 | | | |

**Source:** Author (2025).

This final model returns to HUDIN but now introduces GOEFF as a mediating factor. Here, the aim is to understand how institutional quality influences the link between public policy and development. The key relationships from Table 4 still hold. Education and budgetary expenditure continue to have positive and significant effects, as does public debt. Health expenditure, once again, shows a negative impact, underscoring consistent concerns about inefficiencies.

But the most striking feature is the introduction of GOEFF, which enters the model with a negative and significant coefficient ($p = 0.0265$). This suggests that, paradoxically, increases in government effectiveness may correlate with reduced human development. One possible explanation is that the GOEFF indicator might capture procedural efficiency or technocratic metrics that do not necessarily translate into better citizen well-being. The model remains robust, with an R-squared of 0.78 and well-behaved diagnostics. However, the Durbin-Watson drops to 1.56, hinting at some mild serial correlation, although it's not severe.

**Discussion of Key Findings**

This study examined the interplay between public policy, institutional quality, and sustainable development in Nigeria, using key fiscal variables such as education expenditure, health expenditure, government budget, and public debt, alongside institutional quality represented by government effectiveness. The central objective was to determine how these variables influence human development, a proxy for sustainable development.

The second model 1 results, which investigated the determinants of government effectiveness, showed that none of the policy variables had a significant effect. This suggests that institutional quality in Nigeria may not be directly influenced by public expenditure but rather by deeper systemic issues such as corruption, bureaucratic bottlenecks, or weak institutional frameworks.

In model 3, the inclusion of government effectiveness as an intervening variable in the relationship between fiscal policy and human development yielded a surprising result: government effectiveness had a statistically significant negative impact on human development. This counterintuitive finding may reflect the limitations of technocratic governance measures or a disconnect between formal governance improvements and tangible human development outcomes.

## 5. CONCLUSION, AND RECOMMENDATIONS

In narrative terms, this study shows that public expenditure, especially on education and the overall budget has a substantial and consistent role in fostering human development in Nigeria. Surprisingly, health spending not only fails to deliver but appears to hinder outcomes, perhaps due to inefficiencies or misallocation. At the same time, government effectiveness, often championed as a cornerstone of development, seems to operate on a different wavelength here. Its relationship with both fiscal inputs and development outputs is weak or even negative, suggesting a disconnect between institutional quality as measured and actual service delivery on the ground.

The study concluded that public policy, particularly through education expenditure, budget allocation, and managed public debt positively affects sustainable development in Nigeria. However, health expenditure remains problematic and may not currently support development objectives due to inefficiencies. Government effectiveness, as currently structured or measured, does not appear to enhance human development and may even undermine it, pointing to deeper governance challenges. This study finds it important to recommend that since **e**ducation consistently shows a positive impact on human development, policy should prioritize sustained funding and reforms in educational infrastructure and access. Further, **t**he negative effect of health expenditure on development suggests the need for accountability, transparency, and targeted investments in the health sector to ensure efficient use of resources. Given the positive impact of public debt, we recommend that borrowing should be aligned with development priorities and monitored for effective implementation. Additionally, government effectiveness must move beyond procedural efficiency to focus on outcome-driven service delivery. Anti-corruption frameworks, civil service reform, and accountability mechanisms should be prioritized. Finally, **i**ntegrated fiscal and institutional policies are essential. Policymakers should not treat expenditure and governance as isolated areas but as mutually reinforcing elements of sustainable development.

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