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FISCAL DEFICIT AND HUMAN DEVELOPMENT: AN EMPIRICAL EVIDENCE FROM NIGERIA

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Abstract

This study explored the influence of fiscal deficit on human development in Nigeria spanning 1981 to 2023. Data were collected on human development index, fiscal deficit as a percentage of GDP, official exchange rate, and inflation rate from the numerical reports of Nigeria's apex bank and United Nations Development Programme. The Autoregressive Distributed Lag – ARDL Bounds testing method was used as the central technique. The results revealed that all the variables have a long-term connection. The results also showed that in both the long and short terms, fiscal deficit has a positive but not significant link with human development. At the same time, exchange rate has a negative but insignificant relationship with human development in both the long and short terms. However, inflation rate has a negative but insignificant relationship human development in the long run but in the short run inflation rate has a positive but insignificant relation with human development in Nigeria during the period of study. Based on the above outcomes, this study suggested that policymakers should prioritize efficient allocation, monitoring, and evaluation of deficit-financed expenditures to ensure that fiscal deficits generate measurable improvements in human development indicators. They should also prioritize exchange rate stability, economic diversification, and investments in social sectors while implementing complementary macroeconomic policies that protect households from the welfare-reducing effects of currency depreciation. Such measures would strengthen the resilience of human development outcomes against external and domestic exchange rate shocks. In addition, policymakers should prioritize price stability while strengthening investments in human

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capital development and social infrastructure. Such an approach would ensure that economic growth and macroeconomic stability translate into meaningful and sustainable improvements in human welfare in Nigeria.

Keywords: Human Development, Fiscal Deficit, Human Development Index, Exchange Rate, Inflation Rate and ARDL

INTRODUCTION

Human development, as measured by the Human Development Index (HDI), encompasses improvements in health, education, and living standards. The impact of fiscal deficits on human development depends on the size of the deficit, the source of financing, and the efficiency with which public resources are utilized. In developing economies such as Nigeria, fiscal deficits are often employed as a policy instrument to stimulate economic activity and address developmental challenges (Todaro & Smith, 2020). One of the primary channels through which fiscal deficit affects human development is government expenditure. Fiscal deficits enable governments to spend beyond current revenues, thereby financing investments in education, healthcare, infrastructure, and social welfare programmes. According to Keynesian theory, deficit-financed public expenditure can stimulate aggregate demand and improve social welfare outcomes (Keynes, 1936). In Nigeria, increased public spending on schools, hospitals, and social intervention programmes can enhance literacy rates, improve health outcomes, and raise living standards, thereby contributing positively to human development (Akanbi & Du Toit, 2011).

Fiscal deficits are often financed through borrowing, which leads to the accumulation of public debt. While borrowing can provide resources for developmental projects in the short term, excessive debt accumulation may adversely affect human development in the long run. High debt-service obligations reduce the fiscal space available for spending on health, education, and social protection programmes. As governments allocate increasing portions of their budgets to debt servicing, fewer resources remain for human capital development (Reinhart & Rogoff, 2010). In Nigeria, rising public debt and debt-service burdens have become major concerns for sustainable development and welfare improvement.

Fiscal deficits can positively influence human development through infrastructure development. Deficit-financed investments in transportation, electricity, water supply, and communication networks will enhance economic productivity and improve access to essential services. Infrastructure development facilitates access to schools, healthcare facilities, and employment opportunities, thereby improving human welfare (Calderón & Servén, 2014). In

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Nigeria, investments in roads, power supply, and water infrastructure can significantly improve living conditions and support human development objectives.

Expansionary fiscal deficits can stimulate economic activity and create employment opportunities. Through the multiplier effect, increased government expenditure raises aggregate demand, encourages production, and generates jobs. Employment growth leads to higher household incomes, enabling individuals to afford better healthcare, education, nutrition, and housing. Consequently, improved income levels contribute directly to higher human development outcomes (Mankiw, 2021). In Nigeria, government-funded infrastructure projects and public sector programmes often serve as mechanisms for employment generation and poverty reduction.

Fiscal deficits may negatively affect human development through inflationary pressures. When deficits are financed through excessive monetary expansion or unsustainable borrowing, aggregate demand may exceed productive capacity, resulting in inflation. High inflation erodes purchasing power, particularly among low-income households, reducing access to healthcare, education, and basic necessities. Persistent inflation also increases poverty and inequality, thereby undermining human development (Fischer, 1993). In Nigeria, episodes of high inflation have often weakened the welfare benefits expected from expansionary fiscal policies.

Large fiscal deficits may crowd out private investment by increasing government demand for loanable funds. Increased government borrowing can raise interest rates, making credit more expensive for private businesses. Reduced private investment limits economic growth, employment creation, and income generation, which are essential components of human development (Blanchard, 2021). In Nigeria, extensive government borrowing from domestic financial markets has occasionally constrained private sector access to credit, thereby affecting economic performance and welfare outcomes.

Persistent fiscal deficits can influence exchange rate stability, especially when financed through external borrowing. Large deficits may reduce investor confidence and increase pressure on foreign exchange reserves, leading to currency depreciation. Exchange rate depreciation raises the cost of imported goods, including medicines, educational materials, and industrial inputs. In an import-dependent economy such as Nigeria, this can reduce access to essential goods and services, thereby adversely affecting human development (Krugman, Obstfeld, & Melitz, 2018).

Fiscal deficits can improve human development when borrowed funds are directed toward poverty alleviation and social protection programmes. Government spending on conditional cash transfers, youth empowerment schemes, rural development projects, and social safety nets can reduce poverty and vulnerability. Lower poverty levels are associated with

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better educational attainment, improved health outcomes, and enhanced living standards (Sen, 1999). In Nigeria, well-targeted deficit-financed social programmes have the potential to improve welfare among vulnerable populations.

Fiscal deficits can influence human development through economic growth. Deficit-financed investments in productive sectors can stimulate output growth, increase employment, and raise incomes. Economic growth expands the government's revenue base and improves the capacity to finance public services. Higher economic growth is generally associated with improvements in education, healthcare, and living standards, which are key dimensions of human development (Barro & Sala-i-Martin, 2004). However, the positive effects depend on the efficiency and productivity of government spending.

The effectiveness of fiscal deficit in promoting human development depends heavily on governance quality and spending efficiency. In Nigeria, weak institutional frameworks, corruption, and poor project monitoring reduce the developmental impact of deficit-financed expenditure (Transparency International, 2023). Misallocation of public funds limits improvements in education, healthcare, and social welfare delivery, thereby weakening the positive effect of fiscal deficit on human development (Ojo & Adebayo, 2018). Fiscal deficits influence human development through poverty transmission mechanisms. While expansionary fiscal policy can reduce poverty by stimulating employment and income growth, Nigeria’s fiscal deficits have often been associated with inflation, unemployment, and rising living costs, which worsen poverty incidence (Todaro & Smith, 2020; NBS, 2024). Higher poverty levels restrict access to nutrition, education, healthcare, and housing, thereby lowering human development outcomes.

Moreover, a hand full of studies has been done in and across Nigeria to understand how fiscal deficit affects human development. However, these studies have presented mixed and conflicting findings regarding the impact of fiscal deficit on human development in Nigeria, with results ranging from positive (Abdulrauf, 2015; Dang, 2016), to insignificant (Okafor, Ogbonna, & Okeke, 2017; Akanni, 2024), and even negative effects (Suotor, Ezekwu, & Wosu, 2025). This inconsistency underscores the need for further empirical validation using updated data and improved econometric techniques. Second, most Nigerian studies focus predominantly on economic development indicators such as GDP, unemployment, inflation, and balance of payments, with relatively limited emphasis on human development Index. This study therefore sought to bridge these gaps by providing a comprehensive, updated, and robust analysis of the impact of fiscal deficits on human development in Nigeria from 1981 to 2023. The rest of the paper was organized into sections that included a review of related literature, methodology, results and discussion, conclusion, and recommendations.

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LITERATURE REVIEW

Conceptual Clarifications

Fiscal Deficit

Fiscal deficit refers to the excess of government total expenditure over total revenue excluding borrowings within a given fiscal year. It represents the amount the government must borrow to finance its budgetary operations when internally generated revenue becomes insufficient. Akidi, Momodu, and Isoghom (2025) opined that a fiscal deficit happens when the government spends more than it earns in a year. George-Anokwuru (2026) explained that when a government plans to spend more than the money it expects to get, it creates a budget deficit. In such a situation, the deficit is the difference between the amount spent and the amount earned.

Fiscal deficit is seen as a key sign of how well an economy is doing financially because it shows how much money the government is spending compared to what it's taking in (Jhingan, 2010). In Nigeria, this deficit has been a regular problem in government finance. This is because the government spends a lot on things like building infrastructure, running public services, education, healthcare, security, and paying off debts. But the government isn't getting enough money in because it depends too much on selling oil, has weak tax collection, faces corruption issues, and the price of oil on the world market keeps changing (CBN, 2024).

The fiscal deficit framework in Nigeria can be expressed mathematically as: Fiscal Deficit=Total Expenditure−Total Revenue excluding borrowings. This means that a fiscal deficit happens when the government spends more than it earns, not counting loans and grants. In Nigeria, total spending includes money spent on daily operations like salaries, running costs, and paying off debts, as well as money spent on building roads, electricity, hospitals, and schools. The government gets most of its income from oil sales, taxes on companies, duties on imported goods, value-added tax, and other non-oil sources.

The ongoing issue of fiscal deficit in Nigeria became clearer after the drop in global crude oil prices and the economic slowdowns in 2016 and 2020.Nigeria's economy relies a lot on oil exports for money from other countries and government income, so changes in oil prices greatly impact the country's financial health. When oil revenue goes down, the government often has to borrow from inside and outside the country to cover budget gaps and keep the economy running (World Bank, 2023). According to the Keynesian theory by John Maynard Keynes, having a fiscal deficit can be useful during bad economic times to boost spending, create jobs, and help the economy recover (Keynes, 1936). In Nigeria, the government has used deficit financing to support projects like building infrastructure, helping people through

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social programs, and launching plans to restore economic growth and improve the well-being of citizens.

Despite its potential developmental role, excessive fiscal deficit in Nigeria has generated several macroeconomic challenges. Rising government borrowing associated with fiscal deficits has increased the country's public debt burden and debt servicing obligations. A substantial portion of government revenue is now allocated to servicing existing debts, thereby reducing the funds available for productive investments in education, healthcare, and infrastructure development. Excessive fiscal deficits have also contributed to inflationary pressures, exchange rate depreciation, and macroeconomic instability (Todaro & Smith, 2015).

Furthermore, poor fiscal discipline, corruption, and inefficient public expenditure management have weakened the effectiveness of deficit financing in Nigeria. Although the government borrows heavily to finance developmental projects, the expected improvements in infrastructure and human development outcomes have remained relatively low. Nigeria continues to experience high poverty levels, unemployment, poor healthcare services, and inadequate educational facilities despite persistent fiscal expansion (CBN, 2024).

Fiscal deficit in Nigeria may therefore produce both positive and negative effects depending on the utilization of borrowed funds. When deficit financing is directed toward productive sectors such as transportation, power supply, healthcare, and education, it can stimulate economic growth and improve human development. However, when borrowed funds are poorly managed or diverted through corruption, fiscal deficits become detrimental to sustainable economic development.

Effective management of fiscal deficit in Nigeria requires prudent fiscal discipline, diversification of revenue sources beyond crude oil, improvement in tax administration, reduction in corruption, and efficient allocation of public resources. Sustainable fiscal policies are essential for ensuring that deficit financing contributes positively to economic growth and human development in Nigeria.

Human Development

Human development refers to the process of improving the welfare, capabilities, and quality of life of individuals within a society. It emphasizes expanding people's opportunities and freedoms so that they can live long, healthy, knowledgeable, and productive lives. Unlike traditional economic measures that focus mainly on income and output growth, human development places human beings at the centre of development activities and policies (Todaro & Smith, 2015).

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The concept of human development gained international prominence through the efforts of the United Nations Development Programme in its Human Development Reports introduced in 1990. According to the UNDP, development should not merely be measured by economic growth or industrial expansion, but by the extent to which people's living standards and capabilities improve. Human development therefore focuses on enlarging people's choices through access to education, healthcare, decent income, employment opportunities, and social inclusion (UNDP, 2023).

In Nigeria, human development is seen as very important for the country's overall progress because the main goal of economic policies is to make life better and improve the quality of life for everyone. Human development in Nigeria includes making sure people have access to good healthcare, education, jobs, clean water, electricity, homes, transport, and social safety nets. Even though Nigeria has a lot of people and natural resources, the country still faces big problems like poverty, joblessness, lack of education, hunger, and poor healthcare.

Human development is usually measured using the Human Development Index (HDI), which was created by the United Nations Development Programme. The HDI looks at three main areas: how long people live, how much they know and learn, and how much money they earn. Life expectancy shows how well healthcare is working and how healthy the environment is. Education shows how many people can read and write and how many are in school. Income per person shows how much money people have and what they can buy.

The human development index framework may be expressed conceptually as: HDI = f(Life Expectancy, Education, Income). The implication of this framework is that improvements in health, education, and income levels contribute significantly to human development. In Nigeria, improvements in literacy rates, life expectancy, employment opportunities, and household income are important indicators of progress in human development.

Human development in Nigeria is closely linked to government expenditure and public policy implementation. Government investment in education contributes to human capital formation by improving skills acquisition, productivity, and innovation. Similarly, increased healthcare expenditure helps reduce mortality rates, improve life expectancy, and enhance labour productivity. Public investments in infrastructure such as electricity, transportation, and water supply also improve living standards and create opportunities for economic advancement (Jhingan, 2010).

Despite various development programmes and economic reforms introduced by successive governments, Nigeria still records relatively low human development outcomes compared to many developing economies. The country continues to experience widespread poverty, rising unemployment, poor healthcare facilities, inadequate educational infrastructure,

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and increasing inequality. According to the United Nations Development Programme, Nigeria's HDI ranking remains low due to persistent socio-economic and institutional challenges (UNDP, 2023).

One of the major obstacles to human development in Nigeria is poverty. A significant proportion of the Nigerian population lacks access to basic necessities such as food, shelter, healthcare, and education. Poverty reduces individuals' ability to improve their standard of living and limits access to opportunities necessary for personal and societal development. High poverty levels in Nigeria have been attributed to unemployment, poor governance, corruption, and uneven distribution of national wealth.

Another important challenge affecting human development in Nigeria is unemployment and underemployment, particularly among the youth population. Although Nigeria possesses a large and energetic labour force, limited employment opportunities have contributed to rising social problems such as crime, insecurity, drug abuse, and migration. Unemployment also reduces household income and weakens the overall quality of life of citizens.

The education sector in Nigeria also faces significant challenges that hinder human development. Many public schools suffer from inadequate infrastructure, shortage of qualified teachers, poor funding, and learning materials deficiency. Consequently, literacy levels and educational quality remain relatively low in many parts of the country. Since education is a major driver of human capital development, poor educational outcomes negatively affect productivity and economic progress.

Similarly, the healthcare system in Nigeria remains underdeveloped despite increased government expenditure over the years. Poor healthcare facilities, shortage of medical personnel, high cost of treatment, and inadequate rural healthcare services continue to affect citizens' well-being. These healthcare challenges contribute to low life expectancy and high mortality rates, thereby limiting human development outcomes.

Corruption and weak institutional frameworks also constitute major barriers to human development in Nigeria. Public funds meant for developmental projects are often mismanaged or diverted, thereby reducing the effectiveness of government programmes aimed at improving citizens' welfare. Corruption weakens public service delivery and limits investments in critical sectors such as healthcare, education, and infrastructure (World Bank, 2023).

Furthermore, insecurity resulting from terrorism, kidnapping, communal conflicts, and armed banditry has negatively affected human development in Nigeria. Insecurity disrupts economic activities, discourages investment, displaces populations, and reduces access to education and healthcare services in affected regions. The rising insecurity situation has therefore worsened poverty and reduced the effectiveness of development policies.

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Human development in Nigeria can only improve through sustainable and inclusive economic policies that prioritize citizens' welfare. Government must increase investment in education, healthcare, infrastructure, and job creation programmes. There is also a need for improved governance, transparency, accountability, and efficient management of public resources. By strengthening institutions and promoting inclusive growth, Nigeria can achieve sustainable human development and improve the standard of living of its population.

Theoretical Review

The Keynesian Theory of Fiscal Policy

John Maynard Keynes created the Keynesian theory of fiscal policy, which says that the government should use fiscal policy to help stabilize the economy, especially when it is going through tough times like a recession. Keynes (1936) posited that during recessions, private sector demand becomes inadequate, leading to unemployment and underutilization of resources. To counter this, government should increase public spending and reduce taxes, even if this results in fiscal deficits, in order to stimulate aggregate demand, boost production, and restore economic stability. In this framework, fiscal deficits are seen as a deliberate and necessary policy tool rather than a macroeconomic imbalance, especially when aimed at reviving economic activity and promoting social welfare (Keynes, 1936; Blinder, 2008). In Keynesian economics, fiscal deficit functions as a countercyclical policy instrument designed to offset economic contractions. When private investment and consumption decline government deficit spending injects purchasing power into the economy, thereby stimulating demand, increasing output, and generating employment (Mankiw, 2021). In developing economies like Nigeria, where structural weaknesses limit private sector dynamism, fiscal deficits become essential for sustaining economic growth and stabilizing income levels. Deficit-financed spending on public works, education, and healthcare thus plays a crucial role in promoting human development by improving access to essential services and enhancing living standards (Arestis & Sawyer, 2012; Iyoha & Oriakhi, 2013).

A key idea in Keynesian economics is the multiplier effect, which shows how an initial boost in government spending can lead to a bigger increase in the country's overall income. Keynes (1936) explained that when the government invests in public projects like schools, hospitals, and utilities, it gives money to workers and businesses. These workers and businesses then use that money to buy things, which helps the economy grow even more. In Nigeria, spending money on education and healthcare through borrowed funds can help create jobs, increase family incomes, cut down on poverty, and make social services more available. This leads to better outcomes in areas like education, health, and living conditions (UNDP,

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2024; World Bank, 2024). Keynesian theory focuses on creating jobs as a main goal of government spending. By funding public projects with borrowed money, governments can directly provide employment, lower unemployment, and raise the income of families (Keynes, 1936; Blanchard, 2017). In Nigeria, where many people are either unemployed or underemployed, using government spending to stimulate the economy can increase the need for workers, support fair growth, and reduce poverty. When poverty is lower, people have better access to food, medical care, and learning, which helps improve overall development (NBS, 2024; UNDP, 2024).

The Keynesian framework supports increased government spending on education, health, and social welfare, even if it leads to fiscal deficits, as such investments enhance human capital formation and long-term productivity. Musgrave and Musgrave (1989) argue that public finance should prioritize social investments that correct market failures and promote equitable income distribution. In Nigeria, deficit-financed spending on schools, universities, healthcare facilities, and social protection programmes can expand human capabilities, reduce inequality, and promote sustainable development, aligning fiscal policy with human development goals (UNDP, 2024; World Bank, 2024). Nigeria's fiscal policy experience reflects several Keynesian principles, particularly during economic downturns such as the 2016 and 2020 recessions. During these periods, the government adopted expansionary fiscal policies characterized by rising fiscal deficits to stimulate economic recovery, protect social spending, and stabilize employment (IMF, 2023; CBN, 2023). These interventions aimed to support human development by sustaining education funding, healthcare services, and social intervention programmes, although the effectiveness was constrained by revenue shortfalls, inflationary pressures, and governance challenges (World Bank, 2024).

Despite its theoretical benefits, the Keynesian prescription of deficit spending faces significant challenges in Nigeria**.** High inflation, rising public debt, weak institutional capacity, and inefficiencies in public expenditure management reduce the effectiveness of deficit-financed spending (Iyoha & Oriakhi, 2013; IMF, 2024). Additionally, persistent fiscal deficits have increased debt servicing obligations, crowding out critical social expenditures. These factors limit the positive impact of fiscal deficits on human development, suggesting the need for improved fiscal discipline, governance reforms, and efficient public spending (CBN, 2023; Transparency International, 2023). In summary, Keynesian theory provides a strong justification for using fiscal deficits as a policy tool to promote economic stability, employment, and human development. In Nigeria, expansionary fiscal policy financed through deficits can stimulate economic growth, create employment, reduce poverty, and improve access to education and healthcare. However, the success of this approach depends critically on effective public

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financial management, transparent governance, and strategic allocation of resources to productive and social sectors (UNDP, 2024; World Bank, 2024).

The Ricardian Equivalence Theory

The Ricardian equivalence theory, originally proposed by David Ricardo and later formalized by Robert Barro, posits that the method of government financing whether through taxation or borrowing has no significant effect on aggregate demand, consumption, or economic growth. The theory argues that rational households anticipate future tax increases that will be required to repay public debt, and therefore increase their savings in response to fiscal deficits. Consequently, deficit-financed government spending does not stimulate economic activity or welfare but merely shifts the tax burden to future generations (Ricardo, 1817; Barro, 1974). This framework suggests that fiscal deficits may have limited impact on human development, particularly if households adjust their behavior by reducing consumption and social investments.

According to Ricardian equivalence, when government runs persistent fiscal deficits, households perceive public debt as future tax liabilities and thus reduce current consumption to save for future tax obligations (Barro, 1974; Romer, 2019). In Nigeria, rising public debt and increasing debt servicing costs may lead households to adopt precautionary savings behavior, reducing spending on education, healthcare, nutrition, and housing. This contraction in household welfare expenditure negatively affects human development indicators such as school enrolment, health outcomes, and living standards (World Bank, 2024; UNDP, 2024). Ricardian theory emphasizes the intergenerational transfer of fiscal burden, arguing that today's fiscal deficits impose future tax liabilities on younger and unborn generations (Barro, 1974). In Nigeria, continuous fiscal deficits have significantly increased public debt, thereby placing heavy repayment obligations on future taxpayers. Rising debt servicing commitments reduce the government's fiscal capacity to invest in education, healthcare, and infrastructure, which are essential components of human development. This weakens long-term investments in human capital formation and perpetuates intergenerational poverty cycles (DMO, 2024; IMF, 2024).

Ricardian equivalence suggests that fiscal deficits do not significantly stimulate economic activity or welfare because increased government spending is offset by reduced private consumption. In Nigeria, where fiscal deficits are often financed through domestic and external borrowing, this neutrality effect may reduce the net impact of government intervention on human development outcomes. Even when deficit spending is targeted at social sectors, inefficiencies, corruption, and poor governance may weaken its effectiveness, reinforcing the Ricardian prediction of limited welfare improvement (Ojo & Adebayo, 2018; Transparency International, 2023). Under Ricardian assumptions, deficit-financed fiscal expansions do not

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significantly reduce poverty or improve social welfare. In Nigeria, rising fiscal deficits have frequently coincided with increasing inflation, unemployment, and living costs, which undermine poverty reduction efforts. As households save more and consume less, access to essential services such as healthcare, education, and adequate nutrition declines, worsening human development indicators. This aligns with the Ricardian view that fiscal deficits do not necessarily translate into improved welfare outcomes (NBS, 2024; World Bank, 2024).

Although Ricardian equivalence offers valuable theoretical insights, its assumptions—such as perfect capital markets, rational expectations, and intergenerational altruism—are often unrealistic in developing countries like Nigeria. High poverty levels, liquidity constraints, weak financial systems, and limited access to credit reduce households' ability to save in response to fiscal deficits (Todaro & Smith, 2020). Consequently, fiscal deficits in Nigeria may still influence consumption, investment, and human development outcomes, thereby weakening the applicability of strict Ricardian neutrality (Arestis & Sawyer, 2012; Iyoha & Oriakhi, 2013). From a Ricardian perspective, fiscal policy aimed at improving human development in Nigeria should prioritize efficient revenue mobilization, debt sustainability, and expenditure quality rather than reliance on persistent deficit financing. Reducing wasteful spending, strengthening tax administration, improving governance, and channeling resources toward education, healthcare, and social protection are critical for enhancing human development. This approach minimizes the negative expectations associated with future tax burdens while maximizing welfare outcomes (IMF, 2024; UNDP, 2024).

In summary, Ricardian equivalence theory suggests that fiscal deficits have limited effectiveness in promoting human development, as households anticipate future tax obligations and adjust their consumption and savings accordingly. In Nigeria, persistent fiscal deficits, rising public debt, and weak fiscal institutions may reinforce this neutrality effect, thereby constraining improvements in education, health, and welfare. However, relaxing the theory's strict assumptions indicates that well-targeted, transparent, and efficient fiscal spending can still promote human development, even in deficit conditions (Barro, 1974; World Bank, 2024; UNDP, 2024).

Empirical Literature

Empirical studies on how fiscal deficit relates to human development in Nigeria and other countries have given different and sometimes opposite results. For example, Abdulrauf (2015) looked at how fiscal policy affected economic development in Nigeria using a vector error correction model (VECM) from 1981 to 2013.The study showed that government spending on deficits had a positive and significant effect on economic development both in the short term

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and long term, which supports the Keynesian idea that using more spending can help boost development.

Dang (2016) studied the link between budget deficits and human development in Nigeria from 1980 to 2013 using causality analysis. The results showed a one-way long-term link from budget deficits to human development, meaning that fiscal deficits have a major influence on human development results. However, Okafor, Ogbonna and Okeke (2017), using data from 1986 to 2015, found no clear connection between fiscal deficit and human development index, showing that the evidence is still not clear in Nigeria.

Nuhu (2020) aimed to better understand how the federal government's financial activities affected economic growth in Nigeria between 1990 and 2017.They used a statistical method called Ordinary Least Square (OLS) regression. The results showed that the government's fiscal actions had a negative impact on the country's gross domestic product (GDP), but a positive and significant effect on the human development index (HDI). Government debt was found to increase GDP but decrease HDI in a significant way. Trade had a negative and significant effect on HDI, but it had a positive, though not significant, effect on GDP.

In 2022, Okere, Uzowuru, and Mbaeri studied how the federal government's financial policies influenced human development in Nigeria. They used time series data from 1986 to 2017 and an Autoregressive Distributed Lag (ARDL) method. Their findings showed a strong and positive link between the government's financial policies and human development. Recurrent expenditure was found to have a positive relationship, while capital expenditure had a positive but not significant impact. Tax revenue was linked to human development, but the relationship was negative and not significant.

Obiano (2023) looked into how fiscal rules affect human capital development in Nigeria. They used data from 1981 to 2019 and an Error Correction Model (ECM). The findings showed that non-oil revenue had a strong positive effect on human capital development. The study also found that government capital spending, debt sustainability, and how efficiently resources are used had a positive but not significant effect. On the other hand, government regular spending, oil revenue, domestic debt, foreign debt, and budget deficits had a negative but not significant effect on human capital development in Nigeria.

Akanni (2024) used the autoregressive distributed lag (ARDL) model and multivariate adaptive regression splines (MARS) to study how fiscal deficits affect human development in Nigeria between 1990 and 2021. The ARDL results showed that fiscal deficits did not have a significant impact on human development in the short or long term. However, the MARS analysis showed a nonlinear relationship. This means fiscal deficits can help human development as long as they stay below 1.34% of GDP, but become harmful if they go beyond

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that. The study also found that access to electricity is a key factor in human development, highlighting the importance of infrastructure in improving people's well-being.

Odunek and Oduneka (2025) looked at how fiscal deficits affected Nigeria's economy from 1990 to 2025.They found that Nigeria often had budget shortfalls, mostly because the government spent more on regular expenses than on long-term investments. Although these deficits helped increase income per person, boost economic growth, and improve the balance of payments, they didn't help much with lowering unemployment or inflation. Based on this, the study suggested that Nigeria should focus its spending more on projects that can bring lasting benefits to the country.

Similarly, Suotor, Ezekwu, and Wosu (2025) studied the link between deficit financing and economic development in Nigeria using a model that corrects for errors over the years 1980 to 2024. Their analysis showed that too much budget deficit had a negative effect on the Human Development Index, meaning it hurt overall human development in the country.

Looking at the global level, Malak and Demir (2025) analyzed how fiscal policies affected human development in 24 OECD countries. They used certain statistical methods to get accurate results. Their findings showed that public spending, debt levels, and budget deficits helped improve human development, but higher taxes had a negative impact. These results show that different fiscal tools affect human development in various ways depending on the country.

Research Gap

Despite extensive empirical investigations, significant gaps remain in the literature. First, existing studies present mixed and conflicting findings regarding the impact of fiscal deficits on human development in Nigeria, with results ranging from positive (Abdulrauf, 2015; Dang, 2016), to insignificant (Okafor, Ogbonna & Okeke, 2017; Akanni, 2024), and even negative effects (Suotor et al., 2025). This inconsistency underscores the need for further empirical validation using updated data and improved econometric techniques. Second, most Nigerian studies focus predominantly on economic development indicators such as GDP, unemployment, inflation, and balance of payments, with relatively limited emphasis on human development Index. There is also a methodological gap, as many previous studies relied on simple econometric techniques, thereby failing to capture the dynamic short and long terms association between fiscal deficit and human development. This study therefore sought to bridge these gaps by providing a comprehensive, updated, and robust analysis of the impact of fiscal deficits on human development in Nigeria, using advanced econometric techniques, and recent datasets,

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thereby contributing to informed fiscal policy formulation and sustainable development planning in Nigeria.

MATERIALS AND METHODS

The Study

This study used an ex-post facto research design. It also collected existing information (data) on human development index, fiscal deficit as a percentage of GDP, official exchange rate, and inflation rate beginning 1981 to 2023, sourced from the numerical reports of the apex bank in Nigeria and United Nations Development Programme. The researcher wanted to cover the period from 1960, when Nigeria gained independent from Great Britain, up to 2025. But because there wasn't enough data that was consistent and reliable, the study had to focus on a shorter time frame. So, the period starting 1990 to 2023 was selected for the study. The technique of Autoregressive Distributed Lag (ARDL) was used as the major method. The study also provided an econometric model to illustration how fiscal deficits relate to human development in Nigeria based on the Keynesian theory which states that deficit-financed investments (especially in education and healthcare) can improve employment, raise household incomes, reduce poverty, and enhance access to social services, thereby improving human development outcomes such as literacy, life expectancy, and living standards. Also, based on the conceptual and empirical literature reviewed which revealed that fiscal deficits and human development are connected; the study linked these variables as discussed in previous research. The model used in this study is explained below.

$$HDI = F(FDT, EXR, INF) \quad (1)$$

The linear form;

$$HDI_t = \dot{\alpha}_o + \dot{\alpha}_1 FDT_t + \dot{\alpha}_2 EXR_t + \dot{\alpha}_3 INF_t + \tilde{\omega}_t \quad (2)$$

Where: HDI is Human development Index, FDT is fiscal deficit as a percentage of GDP, EXR is Official Exchange Rate, INF is Inflation Rate, $\tilde{\omega}$ is Error Term, $\dot{\alpha}_1$, $\dot{\alpha}_2$, and $\dot{\alpha}_3$ are the slope parameters and $\dot{\alpha}_0$ is the constant parameter. On the apriori: $\dot{\alpha}_1 > 0$; $\dot{\alpha}_2$ and $\dot{\alpha}_3 < 0$.

Explanation of the expected signs

Under the Keynesian framework, deficit-financed investments (especially in education and healthcare) can improve employment, raise household incomes, reduce poverty, and enhance access to social services, thereby improving human development outcomes such as literacy, life expectancy, and living standards. Therefore, this study expected a positive relationship between fiscal deficit and human development ($\dot{\alpha}_1, >0$)**.**

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Furthermore, since Nigeria depends substantially on imported consumer goods, machinery, pharmaceuticals, and educational materials, persistent depreciation of the naira often weakens human welfare indicators. Therefore, this study expected a negative relationship between exchange rate and human development ($\dot{\alpha}_2 < 0$)**.**

In addition, inflation reduces human welfare by eroding the purchasing power of households. When prices of goods and services rise continuously, households can afford fewer goods and services with the same level of income. This decline in real income adversely affects access to food, healthcare, education, and housing, which are essential components of human development. Generally, inflation is considered detrimental to human development. Strictly speaking, an increase in inflation is expected to reduce human development, holding other factors constant ($\dot{\alpha}_3 > 0$).

Techniques of Data Analysis

The Augmented Dickey-Fuller (ADF) unit root test and Autoregressive Distributed Lag (ARDL) techniques were used. The ADF test was applied to determine the stationarity properties of the variables and to establish whether the time-series data were free from unit roots. The general specification of the ADF test is expressed as follows:

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \Sigma\alpha_1 \Delta y_i + \delta_t + u_t \qquad (3)$$

Where: y and t signify a time series and linear time trend respectively, Δ signifies the first difference operator, α_0 represents a constant, n denotes the optimum number of lags in the predictor variables and u signifies random error term. The Autoregressive Distributed Lag – ARDL technique was used to investigate both long and short terms associations between fiscal deficit and inflation in Nigeria This technique helps alleviate problems such as autocorrelation and endogeneity, producing unbiased and well-organized results. The ARDL model used in this investigation is presented thus:

$$\Delta HDI_{t,j} = M_0 + M_1 HDI_{t-1,j} + M_2 FDT_{t-1,j} + M_3 EXR_{t-1,j} + M_4 INF_{t-1,j} + \sum_{i=1}^{n1} Z_{1i,j} \Delta HDI_{t-1,j} + \sum_{i=0}^{n2} Z_{2i,j} \Delta FDT_{t-1,j} + \sum_{i=0}^{n3} Z_{3i,j} \Delta EXR_{t-1,j} + \sum_{i=0}^{n4} Z_{4i,j} \Delta INF_{t-1,j} + \lambda ECMt - 1 + \mu_t \quad --- (4)$$

Where; the symbol Δ signifies change operator, μ_t signifies white noise or error term, n implies best lag length, how the model behaves in the short run is denoted by Z_1, Z_2, Z_3, Z_4 and how much the variables change in the long run is explained by M_1, M_2, M_3, and M_4. ECM_{t-1} signifies the Error correction term. The error coefficients (λ1) demonstrate how fast the model corrects

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any imbalance from the preceding period to get back to the long run balance. The coefficient of ECM is expected to be negative and significant. A negative and significant ECM coefficient means that any short-term changes between the dependent and explanatory variables will eventually return to the long-term relationship.

RESULTS AND DISCUSSION

Appraising the trends of Human Development Index (HDI), Fiscal Deficits (FDT), Official Exchange Rate (EXR) and Inflation Rate (INF) in Nigeria from 1981 to 2023

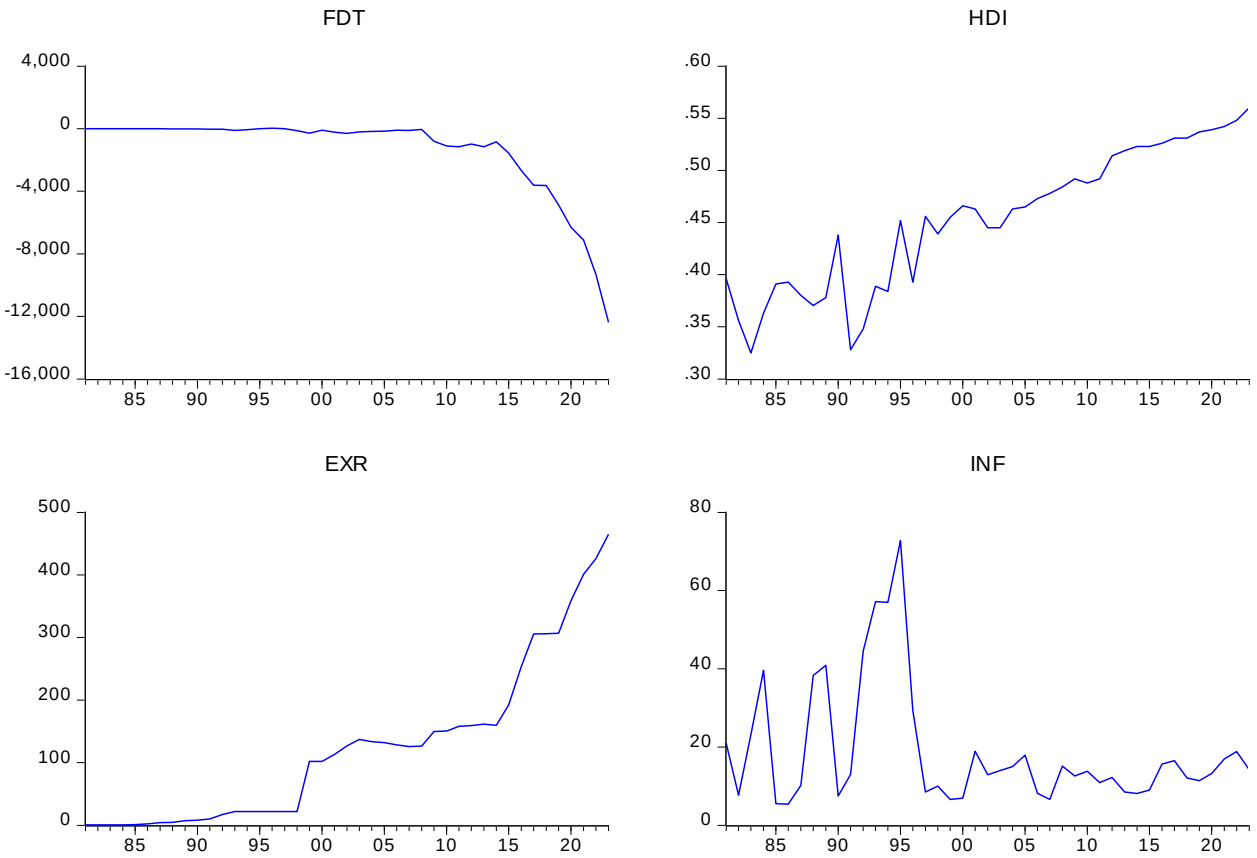


Figure 1: The trends of human development index, fiscal deficits, official exchange rate and inflation rate in Nigeria from 1981 to 2023 (E-views 12 outpur)

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Trend Analysis of Fiscal Deficit (FDT)

The Fiscal Deficit (FDT) graph shows that Nigeria maintained relatively moderate fiscal deficits from the early 1980s through the late 2000s, with fluctuations around a narrow range. However, from approximately 2010 onward, the deficit widened substantially, becoming increasingly negative and reaching its lowest level around 2022–2023. This trend reflects a growing gap between government expenditure and revenue, likely driven by declining oil

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revenues, increased recurrent expenditure, debt servicing obligations, infrastructure spending, and economic shocks such as the COVID-19 pandemic. The sharp deterioration in fiscal balance during the later years suggests that government spending increasingly relied on borrowing. While deficit financing can stimulate economic growth and fund social programmes in the short run, persistent and excessive deficits may create macroeconomic instability, increase public debt, crowd out private investment, and constrain future development spending. The trend indicates a growing fiscal sustainability challenge for Nigeria.

Trend Analysis of Human Development Index (HDI)

The Human Development Index (HDI) graph exhibits an overall upward trend throughout the study period. Although there were fluctuations and temporary declines during the 1980s and early 1990s, the index steadily improved from the mid-1990s onward, increasing from approximately 0.32 to about 0.56 by 2023. This indicates gradual improvements in key dimensions of human development, including education, health outcomes, and living standards. The noticeable rise after 2000 suggests that economic reforms, increased public investments, international development initiatives, and improvements in social welfare programmes may have contributed positively to human development outcomes. However, despite the improvement, Nigeria's HDI remains within the medium human development category, indicating that significant developmental challenges still exist.

Trend Analysis of Official Exchange Rate (EXR)

The Official Exchange Rate (EXR) graph reveals a dramatic upward trend over the study period, indicating continuous depreciation of the Nigerian Naira against major foreign currencies, particularly the U.S. dollar. Exchange rates remained relatively stable during the 1980s but began rising sharply after the implementation of the Structural Adjustment Programme (SAP) in 1986. Significant increases occurred after 1999 and especially after 2016, culminating in a steep depreciation by 2023. The sustained increase in the exchange rate reflects foreign exchange shortages, dependence on imports, declining oil export earnings, speculative pressures, capital outflows, and structural weaknesses in the Nigerian economy. The trend suggests that the purchasing power of the Naira has weakened considerably over time.

Trend Analysis of Inflation Rate (INF)

The Inflation Rate (INF) graph displays significant volatility throughout the study period. Inflation experienced several sharp spikes during the 1980s and 1990s, reaching peak levels

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above 60 percent in the mid-1990s. These episodes were likely associated with exchange rate devaluations, fiscal imbalances, monetary expansion, and economic instability. After the late 1990s, inflation generally declined and stabilized within lower ranges, although periodic increases remained evident. The relatively lower inflation rates observed after 2000 indicate some degree of macroeconomic stabilization. However, recent increases suggest continued vulnerability to exchange rate pass-through effects, food supply disruptions, insecurity, rising energy costs, and fiscal pressures.

Joint Interpretation of the Variables

When viewed together, the graphs suggest that Nigeria's HDI improved over time despite increasing fiscal deficits, exchange rate depreciation, and episodes of high inflation. This implies that government expenditure and development interventions may have contributed positively to human development even under challenging macroeconomic conditions. However, the simultaneous rise in fiscal deficits and exchange rate depreciation raises concerns about the sustainability of these improvements. Overall, the graphs suggest that while Nigeria has achieved gradual improvements in human development, sustaining these gains will require fiscal sustainability, exchange rate stability, inflation control, and continued investment in human capital development.

Unit Root Test

Table 1: Augmented Dickey-Fuller (ADF) Unit Root Test *(E-views 12 output)*

Variables	Level form		First difference		Order of integration
	ADF Statistics	5% Critical Value	ADF Statistics	5% Critical Value	
HDI	-0.664821	-2.935001	-10.32714	-2.935001	I(1)
FDT	11.33772	-2.933158	-7.277358	-2.936942	1(1)
EXR	3.071535	-2.933158	-4.408356	-2.935001	1(1)
INF	-3.143430	-2.933158	-	-	1(0)

Note: HDI, FDT, EXR and INF as earlier defined

At 5% significance level, Table 2 shows that INF is stationary at 1(0). However, FDT, EXR, and HDI become stationary after one difference. That is, 1(1). Since the variables are unified of order 1(0) and 1(1), it meets the requirement to use an ARDL model to investigate the long-run relationships.

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Table 2: ARDL Bounds Test for Co-integration *(E-views 12 output)*

Model		**F-Statistic =** 12.96558
HDI= F(FDT, EXR INF)		K = 3
Critical Values	Lower Bound	Upper Bound
5%	4.01	5.07

Note: HDI, FDT, EXR and INF as earlier defined

The result in Table 2 confirms that HDI, FDT, EXR, and INF have a long run connection because at the 5% significance level, the upper critical value is lower than the F-statistic of 12.97. Consequently, both the long and short terms' effects of the variables were determined.

Table 3: Estimated ARDL Long Run Coefficients

Dependent Variable: INF ARDL (1, 0, 0, 1) *(E-views 12 output)*

Regressors	**Coefficient**	**t-Statistic**	**P-Value**
FDT	9.62E-07	0.598236	0.5535
LOG(EXR)	-0.001657	-0.361883	0.7196
INF	-0.000297	-1.326958	0.1931

Note: HDI, FDT, EXR and INF as earlier defined

Table 3 reveals that in the extended period, fiscal deficit has a negative and insignificant association with human development in Nigeria. Also, exchange rate and inflation rate have negative and insignificant association with human development in Nigeria.

Table 4: Error Correction Representation for the

Selected ARDL Model ARDL (1, 0, 0, 1) *(E-views 12 output)*

Regressors	**Coefficients**	**t-Statistic**	**P-Value**
FDT	1.16E-06	0.600411	0.5521
LOG(EXR)	-0.002006	-0.361626	0.7198
INF	0.000443	1.706571	0.0968
ECM (-1)	-1.210718	-7.503842	0.0000
R^2 = 0.599200	**D-W stat. =** 2.054416		
Akaike info criterion = -4.929057; Schwarz criterion = -4.763565;			
F-statistic = 18.93681; Prob(F-statistic) = 0.000000			

Note: HDI, FDT, EXR and INF as earlier defined

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A careful observation of Table 4 reveals that the Error Correction Term is negative and significant as expected. The value of Durbin Watson statistic is 2.054416, confirming that the model is free from the problem of autocorrelation. At the same time, R-squared is 0.599. This suggests that 60% changes in the human development can be elucidated by the variables involved in the model, meanwhile 40 percent is elucidated by the error term.

Interestingly, the fiscal deficit has a positive and insignificant connection with human development in Nigeria. The results show that if there is an increase in fiscal deficits, it will lead to an increase in human development. This is consistent with the findings of previous studies, including Akanni (2024), who used the Autoregressive Distributed Lag (ARDL) model and to look at the link between fiscal deficit and human development in Nigeria from 1970 to 2009. The researcher discovered that fiscal deficits enhance human development in Nigeria. Strictly speaking, the positive but insignificant relationship between fiscal deficit and human development implies that fiscal deficits contribute to improvements in human welfare; however, the magnitude of the effect is not statistically significant. This suggests that deficit-financed government spending in Nigeria has not been sufficiently effective in generating substantial gains in education, health, and living standards.

In addition, exchange rate has a negative and insignificant relationship with human development in Nigeria. The negative but insignificant coefficient of exchange rate suggests that exchange rate depreciation exerts a weak adverse effect on human development in Nigeria. Although the direction of the relationship indicates that exchange rate instability may reduce welfare through higher import costs and diminished purchasing power, the lack of statistical significance implies that exchange rate movements have not been a dominant factor influencing human development during the study period. Therefore, policymakers should prioritize exchange rate stability, economic diversification, and investments in social sectors while implementing complementary macroeconomic policies that protect households from the welfare-reducing effects of currency depreciation. Such measures would strengthen the resilience of human development outcomes against external and domestic exchange rate shocks.

Inflation rate has a negative and insignificant relationship with human development in Nigeria. The positive but insignificant coefficient of inflation indicates that inflation exerts a favourable but weak influence on human development in Nigeria. Although the positive sign suggests that periods of rising prices may coincide with economic activities that support welfare improvements, the lack of statistical significance implies that inflation has not been a major determinant of human development outcomes during the study period. Consequently, policymakers should prioritize price stability while strengthening investments in human capital development and social infrastructure. Such an approach would ensure that economic growth

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and macroeconomic stability translate into meaningful and sustainable improvements in human welfare.

Post Estimation Diagnostic Test Result

Test for Serial Correlation

Table 5: Breusch-Godfrey Test for Serial Correlation *(E-views 12 output)*

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.288749	Prob. F(2,33)	0.7511
Obs*R-squared	0.722357	Prob. Chi-Square(2)	0.6969

The findings presented in Table 6 reveal that the error correction model is free from the problem of serial autocorrelation. This conclusion is supported by the fact that both the chi-square statistic and its corresponding probability value are greater than the 5% significance level (0.05). Therefore, the null hypothesis of no serial correlation cannot be rejected.

CONCLUSION AND RECOMMENDATIONS

This study explored how fiscal deficit affects human development in Nigeria starting from 1981 to 2023. The study used information on human development index, fiscal deficit as a percentage of GDP, official exchange rate, and inflation rate from the statistical reports of Nigeria's apex bank and United Nations Development Programme. The major method applied was the Autoregressive Distributed Lag (ARDL). The outcomes revealed that the variables have a long run association. The outcomes also revealed that in both the long and the short terms, fiscal deficit has a positive but not significant link with human development. At the same time, exchange rate has a negative but insignificant relationship with human development in both the long and short terms. However, inflation rate has a negative but insignificant relationship human development in the long run but in the short run inflation rate has a positive but insignificant relation with human development in Nigeria during the period of study. The insignificant effects of all the three independent variables suggest the presence of structural and institutional constraints that weaken the transmission of macroeconomic policies to human welfare. Factors such as poor governance, corruption, inadequate infrastructure, weak institutions, high unemployment, and poverty may limit the effectiveness of fiscal, monetary, and exchange rate policies in improving human development indicators. Consequently, the study recommended the following policy measures: First, the positive but statistically insignificant relationship between fiscal deficit and human development in both the long and short runs suggests the need to

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improve the effectiveness of deficit financing. The government should prioritize deficit spending on productive and human development-oriented projects, particularly education, healthcare, basic infrastructure, and social welfare programmes. Furthermore, borrowing should be guided by clear development objectives, while budget implementation should be closely monitored to ensure that borrowed funds translate into measurable improvements in human welfare. This would enhance the developmental impact of fiscal deficits and strengthen their contribution to human development. Second, the negative but statistically insignificant relationship between the official exchange rate and human development in both the long and short runs underscores the need for exchange rate stability and effective exchange rate management. The monetary authorities should pursue policies that reduce excessive exchange rate volatility and minimize its adverse implications for the prices of essential goods and services. In addition, the government should encourage domestic production and reduce excessive dependence on imported consumer goods and production inputs. These measures would help mitigate potential welfare losses associated with exchange rate depreciation and improve the purchasing power of households. Third, the negative but statistically insignificant long-run relationship between inflation and human development suggests the need for sustained price stability. The Central Bank of Nigeria should continue to implement appropriate monetary policy measures to contain inflationary pressures and maintain macroeconomic stability. The fiscal authorities should complement these efforts by avoiding excessive deficit financing that may intensify aggregate demand pressures and by strengthening domestic food production and supply chains. Particular attention should be given to the prices of food, healthcare, education, and other essential goods and services, as persistent increases in these prices may erode household welfare and undermine long-term human development. Fourth, the positive but statistically insignificant short-run relationship between inflation and human development indicates that temporary inflationary movements have not produced substantial immediate improvements in human welfare. Therefore, policymakers should avoid relying on short-term increases in economic activity or nominal income as indicators of improved human development. Instead, fiscal and monetary policy should be directed towards achieving sustainable improvements in real household purchasing power, access to essential services, and living standards. This involves closer coordination between fiscal and monetary authorities to ensure that short-run macroeconomic adjustments support, rather than undermine, long-term human development objectives. Finally, the existence of a long-run relationship among fiscal deficit, exchange rate, inflation, and human development suggests the importance of a coordinated and consistent macroeconomic policy framework. Fiscal and monetary authorities should strengthen policy coordination to ensure that fiscal deficit management, exchange rate policies, and inflation-

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control measures are mutually supportive. Government should also incorporate human development considerations into the formulation, implementation, and evaluation of macroeconomic policies. Regular assessment of the effects of fiscal and monetary interventions on education, healthcare, income, and living standards would facilitate evidence-based policymaking and ensure that macroeconomic policies are more effectively directed towards improving human development in Nigeria.

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