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Donor Dependency and Fiscal Sustainability of Public Health Programs in Nigeria

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Abstract
Public health programmes in Nigeria face growing threats to fiscal sustainability due to prolonged dependence on external donor financing. This study examined donor dependence and the fiscal sustainability of public health programmes in Nigeria during 2020–2025. Specifically, it investigated the effects of financial, programmatic, and commodity dependence on the fiscal sustainability of public health programmes in Nigeria. An explanatory research design was adopted, and secondary data were drawn from the Central Bank of Nigeria Statistical Bulletin, World Bank Development Indicators, and other relevant international health financing databases. Multiple regression analysis was used as the analytical technique. Findings showed that financial dependence had a positive and significant effect on the fiscal sustainability of public health programmes in Nigeria. Programmatic dependence had a significant negative effect on fiscal sustainability, indicating that overreliance on donor-driven programme structures undermines long-term stability in health financing. Commodity dependence also had a significant effect on fiscal sustainability, reflecting the vulnerability of supply chains to fluctuations in donor funding. The study concluded that while external donor support has contributed to health programme delivery in Nigeria, it has simultaneously created structural vulnerabilities that threaten long-term fiscal sustainability. The study recommended that the Nigerian government develop comprehensive transition plans for all donor-funded programmes, with clear financing milestones; strengthen domestic resource mobilization through health-specific taxes and expanded health insurance coverage; and institutionalize government ownership of health programme commodities and supply chains to reduce external dependence.

Keywords: Donor Dependency, Fiscal Sustainability, Public Health Programs, Financial Dependency, Programmatic Dependency, Commodity Dependency

Introduction

Public health programs constitute a critical component of national development because they contribute significantly to the improvement of population health outcomes, reduction of disease burden, enhancement of workforce productivity, and promotion of socioeconomic growth. In Nigeria, public health programs encompass a wide range of interventions including immunization campaigns, maternal and child healthcare services, HIV/AIDS control initiatives, tuberculosis treatment programs, malaria prevention strategies, nutrition interventions, and disease surveillance systems. Despite the strategic importance of these programs, their implementation and sustainability have been largely influenced by external donor funding from international organizations such as the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), the Global Fund, the World Bank, and the United States Agency for International

Development (USAID) (WHO, 2023; World Bank, 2024). While donor assistance has contributed substantially to strengthening healthcare delivery and addressing critical health challenges in Nigeria, concerns have continued to emerge regarding the long-term sustainability of public health programs that depend heavily on external financial support.

Donor dependency refers to a situation in which governments, institutions, or programs rely extensively on external financial assistance for their operational activities, implementation processes, and strategic development. Within the Nigerian health sector, donor funding has played a pivotal role in financing disease control programs, healthcare infrastructure development, capacity building, procurement of medical supplies, and support for vulnerable populations. According to the WHO (2023), donor resources account for a significant proportion of health expenditure in many developing countries, particularly in sub-Saharan Africa where domestic health financing remains inadequate. In Nigeria, donor-funded initiatives have supported major achievements in HIV/AIDS management, malaria control, routine immunization, and reproductive health services. However, excessive dependence on donor assistance raises concerns regarding the continuity of these programs when external funding declines, shifts in donor priorities occur, or international economic conditions affect aid allocation (Aregbeshola & Khan, 2022).

Fiscal sustainability, on the other hand, refers to the ability of a government to maintain public spending, fulfill financial obligations, and sustain development programs over time without compromising future fiscal stability or accumulating unsustainable levels of debt. In the context of public health programs, fiscal sustainability implies the capacity of the Nigerian government to finance healthcare interventions through domestic resources while ensuring continuous service delivery and improved health outcomes. Sustainable financing is particularly important because health programs often require long-term commitments involving recurrent expenditures such as personnel costs, procurement of medicines, maintenance of healthcare facilities, and monitoring and evaluation activities (International Monetary Fund, 2023). When donor-funded programs are not adequately integrated into domestic financing frameworks, the withdrawal of external support may result in service disruptions, reduced program coverage, and deterioration in health outcomes.

The issue of donor dependency has become increasingly significant in Nigeria due to the persistent challenges of low government expenditure on health relative to international benchmarks. The Abuja Declaration of 2001 recommended that African governments allocate at least 15 percent of their annual budgets to the health sector; however, Nigeria has consistently fallen short of this target over the years (African Union, 2023). Consequently, development partners have continued to fill critical financing gaps within the healthcare system. Evidence suggests that donor contributions have been particularly dominant in programs targeting communicable diseases such as HIV/AIDS, tuberculosis, and malaria, where international agencies provide substantial financial and technical support (Global Fund, 2024). While these interventions have yielded positive outcomes, concerns remain regarding the extent to which domestic institutions possess the financial capacity and institutional readiness to sustain program achievements independently.

Recent global developments have further intensified discussions surrounding donor dependency and fiscal sustainability. Economic uncertainties, geopolitical tensions, global health emergencies, and changing donor priorities have influenced international aid flows to developing countries. The COVID-19 pandemic exposed vulnerabilities in health financing systems across many nations,

including Nigeria, by highlighting the risks associated with overreliance on external funding sources for essential healthcare services (World Bank, 2024). Furthermore, reductions in foreign aid commitments and the gradual transition of some donor-supported programs have compelled policymakers to reconsider strategies for strengthening domestic resource mobilization and enhancing fiscal resilience within the health sector (OECD, 2023).
Scholars have argued that excessive donor dependency may undermine local ownership, weaken accountability mechanisms, distort national health priorities, and reduce incentives for governments to increase domestic investment in healthcare (Dieleman et al., 2022; Olakunde et al., 2023). Conversely, proponents of donor assistance contend that external funding remains indispensable in low- and middle-income countries where resource constraints limit the ability of governments to adequately finance public health services. This debate underscores the need to examine the relationship between donor dependency and fiscal sustainability within the Nigerian context, particularly as the country seeks to achieve universal health coverage and meet the health-related targets of the Sustainable Development Goals (SDGs) by 2030 (United Nations, 2024).

Given the growing concerns regarding the sustainability of donor-funded health interventions, there is an urgent need to evaluate how dependence on external assistance affects the fiscal capacity of the Nigerian government to sustain public health programs over the long term. Understanding this relationship is essential for designing effective health financing strategies, strengthening domestic resource mobilization mechanisms, improving budgetary allocation to the health sector, and ensuring the continuity of essential healthcare services. Consequently, this study examines donor dependency and fiscal sustainability of public health programs in Nigeria with a view to providing empirical evidence that can guide policy decisions and promote sustainable health sector financing. The specific objectives were to examine the effect of financial dependency, programmatic dependency, and commodity dependency on the fiscal sustainability of public health programs in Nigeria.

Theoretical framework
The study is anchored on two strong and relevant theories, that is, Resource dependence theory and fiscal sustainability theory.

Resource Dependence theory (RDT)
Resource Dependence Theory (RDT) was propounded by Pfeffer and Salancik in 1978. The theory emerged from organizational studies and seeks to explain how organizations depend on external actors and institutions for critical resources necessary for survival, growth, and sustainability. According to Pfeffer and Salancik (1978), organizations do not operate in isolation; rather, they exist within an environment where essential resources such as finance, information, technology, expertise, and infrastructure are controlled by external entities. Consequently, organizations develop relationships with resource providers in order to secure access to these critical inputs. The theory argues that the extent to which an organization depends on an external actor determines the degree of influence that actor can exert over the organization's decisions and activities.

Organizations often engage in strategic partnerships, collaborations, alliances, and networks to gain access to resources they cannot independently generate. While these relationships may provide substantial benefits, they may also create vulnerabilities when one party becomes excessively dependent on another. Such dependency can limit organizational autonomy and

increase exposure to external pressures and uncertainties. The theory therefore emphasizes the importance of reducing excessive dependence by diversifying resource sources, strengthening internal capacities, and enhancing self-sufficiency. Resource Dependence Theory has increased significantly in public sector and development studies, particularly in developing countries where governments frequently rely on external funding agencies to support developmental programs. Many developing nations face fiscal constraints arising from limited revenue generation, weak tax systems, economic instability, and competing development priorities. These challenges often compel governments to seek financial and technical support from international donors, multilateral organizations, and development partners. Although donor support contributes to development outcomes, excessive dependence on external assistance may create structural weaknesses within recipient institutions.

Fiscal sustainability theory

Fiscal sustainability theory originated from the field of public finance and macroeconomic management. The intellectual foundations of the theory can be traced to the works of Domar (1944), who examined the relationship between public debt and economic growth, and later contributions by Buiter in 1985 and Blanchard et al. in 1990. The theory focuses on the ability of governments to maintain current and future expenditure obligations without compromising fiscal stability or accumulating unsustainable levels of debt. Fiscal sustainability exists when a government can consistently finance its public expenditures through available revenues and responsible borrowing without creating financial crises or threatening future economic performance. The central proposition of fiscal sustainability theory is that governments must ensure a balance between revenue generation and expenditure commitments. Sustainable fiscal systems are characterized by adequate domestic revenue mobilization, prudent public expenditure management, effective budgetary planning, and responsible debt management. When expenditures consistently exceed revenues over extended periods, governments may become dependent on borrowing or external assistance to finance essential services. Such situations increase fiscal vulnerability and may undermine the sustainability of public programs.

This theory recognizes that public services such as healthcare, education, infrastructure, and social welfare require stable and predictable financing mechanisms. Governments therefore have the responsibility to establish revenue systems capable of generating sufficient resources to support these services over the long term. Sustainable public financing reduces uncertainty, strengthens institutional resilience, and enhances the government's ability to respond to economic and social challenges. Conversely, excessive dependence on temporary or uncertain funding sources exposes public programs to financial risks and operational disruptions (IMF, 2023). Within the healthcare sector, fiscal sustainability is particularly important because public health programs often involve long-term financial commitments.

Healthcare systems require continuous investments in medical facilities, healthcare personnel, medicines, disease surveillance systems, health information technologies, and emergency preparedness mechanisms. These expenditures cannot be sustained effectively if financing sources are unstable or unpredictable. Fiscal sustainability theory therefore emphasizes the importance of developing reliable domestic financing arrangements that can support healthcare delivery regardless of changes in external circumstances. Fiscal sustainability Theory argues that sustainable health systems should not rely excessively on external funding because donor

resources are often subject to changing priorities, political considerations, and global economic conditions (World Bank, 2024). Fiscal sustainability theory argues that strengthening domestic financing capacity enhances government ownership of health programs and promotes long-term service continuity (IMF, 2023).

Literature Review

Health funding dependence refers to the extent to which a country's healthcare system relies on financial assistance from international donors, development agencies, foreign governments, and multilateral organizations to finance health programs and interventions. In many developing countries, donor funding has become an important source of healthcare financing due to inadequate domestic revenue generation, limited budgetary allocations, and increasing healthcare demands. According to Dieleman et al. (2022), development assistance for health has contributed significantly to improving healthcare access, disease prevention, maternal health services, immunization coverage, and healthcare infrastructure across low- and middle-income countries.

Donor support has also strengthened responses to communicable diseases such as HIV/AIDS, tuberculosis, malaria, and other public health emergencies. In Nigeria, external donor funding has played a critical role in supporting public health programs over the years. Organizations such as the World Health Organization (WHO), the Global Fund, UNICEF, USAID, and the World Bank have financed various health interventions aimed at improving healthcare outcomes and reducing disease burdens. These interventions include routine immunization programs, maternal and child healthcare initiatives, disease surveillance systems, HIV/AIDS prevention and treatment programs, and malaria control strategies (WHO, 2023). The contribution of donor agencies has become particularly significant due to the persistent inadequacy of government expenditure on health relative to international recommendations. Despite the benefits associated with donor assistance, excessive dependence on external health funding raises concerns regarding fiscal sustainability. Fiscal sustainability requires governments to possess the financial capacity to maintain healthcare services and public health interventions without relying excessively on uncertain external resources. When public health programs depend largely on donor funding, the continuity of such programs becomes vulnerable to changes in donor priorities, reductions in aid commitments, and global economic uncertainties. Aregbeshola and Khan (2022) argue that excessive dependence on donor resources may discourage domestic investment in healthcare and weaken incentives for governments to develop sustainable health financing mechanisms. As donor support increases, governments may become less motivated to allocate sufficient budgetary resources to the health sector, thereby creating long-term fiscal vulnerabilities.

Furthermore, donor dependency may undermine national ownership of health programs. When healthcare interventions are financed primarily through external sources, governments may have limited control over program priorities, implementation strategies, and resource allocation decisions. Such dependence can affect the sustainability of health programs when donor agencies withdraw support or redirect funding to other regions and priorities. Consequently, scholars emphasize the need for increased domestic health financing, improved revenue mobilization, and stronger government commitment to healthcare expenditure as essential strategies for achieving sustainable public health systems (Olakunde et al., 2023). Donor funding volatility refers to fluctuations, inconsistencies, and unpredictability in the flow of external financial assistance provided to health programs. Development assistance is often influenced by global economic

conditions, political changes, donor priorities, international crises, and geopolitical considerations. As a result, donor funding may increase during certain periods and decline significantly during others. Such fluctuations create uncertainty in healthcare financing and pose serious challenges to the sustainability of public health programs. The stability of healthcare financing is critical because many health interventions require continuous funding over extended periods. Public health programs such as immunization campaigns, disease control initiatives, healthcare workforce development, and maternal health services depend on predictable financial resources to ensure uninterrupted service delivery. According to Resch et al. (2020), unpredictable donor disbursements frequently disrupt health sector planning and budget implementation in developing countries. Funding volatility often results in delayed project execution, shortages of medical supplies, interruptions in healthcare services, and difficulties in maintaining healthcare infrastructure.

In Nigeria, donor funding volatility presents a major challenge to fiscal sustainability due to the substantial role played by external assistance in financing critical health programs. Many healthcare interventions depend on donor grants for operational expenses, procurement of medicines, technical support, and program implementation. When donor funding declines unexpectedly, governments may struggle to mobilize sufficient domestic resources to fill resulting financing gaps. This situation often affects the continuity of healthcare services and undermines program effectiveness. Research by Micah et al. (2021) revealed that countries experiencing unstable donor funding frequently encounter challenges in sustaining healthcare interventions after reductions in external support. The study found that fluctuations in donor assistance negatively affect health system planning and weaken the ability of governments to maintain long-term healthcare commitments. Similarly, Dieleman et al. (2022) observed that health systems characterized by high donor dependency are more vulnerable to funding shocks and fiscal instability. These findings suggest that excessive reliance on volatile external funding sources may compromise the sustainability of public health programs.

Fiscal sustainability therefore requires governments to establish alternative financing mechanisms capable of supporting healthcare services during periods of donor funding decline. Such mechanisms include increased budgetary allocations, health insurance expansion, tax-based financing systems, and public-private partnerships. Strengthening domestic financing capacity reduces exposure to external funding volatility and enhances the resilience of healthcare systems against financial uncertainties. Conditionality of donor assistance refers to the requirements, obligations, and policy conditions attached to financial support provided by donor agencies. These conditions may involve specific reporting procedures, accountability standards, implementation guidelines, performance indicators, governance reforms, procurement regulations, and policy adjustments. Donor conditionalities are generally introduced to ensure transparency, efficiency, and proper utilization of financial resources. However, their implications for fiscal sustainability remain a subject of considerable debate.

Many donor-funded health programs operate within frameworks established by international agencies. These frameworks often specify how resources should be allocated, monitored, and evaluated. Martinez-Alvarez et al. (2021) observed that donor conditionalities contribute positively to accountability and performance monitoring within health systems. By enforcing reporting standards and monitoring mechanisms, donors help strengthen governance structures and

reduce opportunities for financial mismanagement. Nevertheless, excessive donor influence may create challenges for fiscal sustainability. When health programs are designed primarily to satisfy donor requirements rather than national priorities, governments may encounter difficulties integrating such programs into domestic financing structures. Donor-driven interventions often rely on external technical expertise, specialized reporting systems, and implementation models that may be difficult to sustain once donor support ends. Consequently, public health programs may experience operational challenges after donor withdrawal.

The issue of donor conditionality is particularly relevant in Nigeria where many health interventions receive substantial support from international development partners. While donor-funded programs have improved healthcare delivery and disease control outcomes, concerns persist regarding the degree to which these programs align with national health priorities and domestic financing capabilities. Tadesse and Tessema (2022) found that excessive donor conditions may reduce government flexibility in resource allocation and constrain local decision-making processes. Such limitations can weaken national ownership and hinder efforts toward sustainable healthcare financing. Fiscal sustainability requires that donor-supported programs be integrated into national health policies and budgetary systems. Governments must therefore negotiate donor arrangements that support local priorities while simultaneously strengthening domestic institutional capacity. Such alignment enhances ownership, improves policy coherence, and facilitates long-term sustainability of healthcare interventions.

Donor-funded health infrastructure and services constitute one of the most visible forms of development assistance within the healthcare sector. Donor organizations frequently finance the construction of hospitals, primary healthcare centers, laboratories, disease surveillance facilities, and specialized treatment centers. In addition, donors provide medical equipment, vaccines, pharmaceuticals, diagnostic technologies, and healthcare service support aimed at improving healthcare delivery and population health outcomes. The provision of donor-funded infrastructure has significantly strengthened healthcare systems in many developing countries. According to Mwisongo et al. (2021), donor investments have improved healthcare accessibility, expanded service coverage, and enhanced the quality of medical care in several African countries. Such investments have contributed to reductions in disease prevalence, improvements in maternal and child health outcomes, and increased healthcare utilization rates.

In Nigeria, donor-supported infrastructure and services have played a major role in combating communicable diseases and expanding healthcare access in underserved communities. Development partners have financed HIV treatment centers, tuberculosis diagnostic facilities, malaria prevention programs, vaccination campaigns, and emergency health interventions. These investments have contributed significantly to public health achievements across various regions of the country. Despite these benefits, concerns remain regarding the sustainability of donor-funded infrastructure and services after the expiration of external support. Healthcare facilities require continuous funding for maintenance, staffing, equipment replacement, utility expenses, and operational activities. When governments lack sufficient resources to assume these responsibilities, donor-funded facilities may deteriorate or become underutilized. Hanson et al. (2022) observed that many health infrastructure projects experience sustainability challenges because governments are unable to finance recurrent operational costs following donor withdrawal. Fiscal sustainability therefore depends on the ability of governments to integrate

donor-supported infrastructure into national financing systems. Sustainable healthcare development requires long-term planning mechanisms that ensure adequate domestic funding for maintenance and service delivery. Without such arrangements, the positive impact of donor-funded infrastructure may be difficult to sustain over time.

Technical and capacity-building support refers to donor-sponsored activities aimed at strengthening institutional performance, workforce competence, managerial efficiency, and healthcare system effectiveness. Such support often includes professional training, technical assistance, monitoring and evaluation systems, policy development, leadership enhancement, research collaboration, and organizational development initiatives. Capacity-building programs are designed to improve the ability of healthcare institutions to plan, implement, and sustain health interventions effectively. Donor-supported technical assistance has contributed significantly to healthcare improvements across developing countries. Schneider and Gilson (2021) noted that training programs funded by development partners have enhanced the competencies of healthcare workers, strengthened institutional governance, and improved service delivery outcomes. Capacity-building initiatives also facilitate knowledge transfer, improve program management, and enhance healthcare system performance.

In Nigeria, donor agencies have supported numerous training programs targeting healthcare professionals, policymakers, administrators, and public health practitioners. These initiatives have strengthened disease surveillance systems, healthcare management practices, financial accountability mechanisms, and emergency response capacities. Such interventions have contributed positively to the effectiveness of public health programs and improved healthcare outcomes. However, excessive dependence on donor-provided expertise may undermine long-term fiscal sustainability. When healthcare institutions rely heavily on external consultants, foreign technical experts, and donor-funded training programs, the development of indigenous capacities may remain limited. Nabyonga-Orem et al. (2023) argued that sustainability challenges often emerge when donor-funded technical assistance ends because local institutions may lack the financial resources required to retain trained personnel and maintain acquired competencies.

Furthermore, capacity-building initiatives require continuous investment to ensure that skills, knowledge, and institutional improvements are sustained over time. Fiscal sustainability therefore demands increased government commitment to workforce development, research funding, institutional strengthening, and professional training. Building strong local capacities reduces dependence on external expertise and enhances the ability of public health programs to function effectively using domestic resources. Overall, technical and capacity-building support contributes significantly to health sector development, but its long-term sustainability depends on the extent to which governments institutionalize acquired knowledge, retain skilled personnel, and provide adequate domestic financing for continued capacity development efforts.

Empirical Literature

A study conducted by Dieleman et al. (2022) investigated patterns of development assistance for health across several developing countries between 2000 and 2020. Using longitudinal health financing data and trend analysis, the study found that donor funding significantly improved healthcare outcomes by expanding access to essential health services and strengthening disease control interventions. However, the findings also revealed that countries with high dependence on

external assistance experienced difficulties sustaining health programs when donor contributions declined. The study concluded that while donor support remains important for addressing immediate healthcare needs, excessive reliance on external financing weakens the long-term fiscal sustainability of health systems by reducing incentives for governments to increase domestic health expenditure.

Micah, Zulu, and Kirigia (2021) examined health financing transitions in sub-Saharan Africa using panel data from twenty-two countries. Their findings showed that countries with high levels of donor dependency faced significant challenges in maintaining health service delivery after reductions in development assistance. The study observed that fluctuations in donor support often resulted in funding gaps that affected immunization programs, maternal healthcare services, and disease control initiatives. The researchers recommended that governments strengthen domestic revenue mobilization mechanisms and integrate donor-funded programs into national budgets to ensure sustainable healthcare financing.

Olakunde et al. (2023) assessed the sustainability of donor-funded HIV/AIDS programs in several African countries. Using qualitative and quantitative data from government agencies, donor organizations, and healthcare institutions, the researchers found that donor funding contributed substantially to program expansion and improved health outcomes. Nevertheless, the study revealed that many countries lacked adequate domestic financing frameworks to sustain program achievements independently. The findings further indicated that heavy dependence on donor resources exposed health programs to risks associated with changing donor priorities and reductions in external aid. The authors emphasized the importance of transition planning and increased government investment in healthcare financing.

Resch, Ryckman, and Hecht (2020) focused on the impact of donor funding volatility on health sector performance in low-income countries. The study utilized secondary data from international development agencies and national health accounts. The results demonstrated that unpredictable donor disbursements negatively affected health planning, budget implementation, and service continuity. Countries experiencing frequent fluctuations in donor assistance were found to have weaker fiscal stability and greater challenges in maintaining healthcare programs. The study concluded that donor funding volatility constitutes a significant threat to fiscal sustainability and recommended the establishment of domestic financing buffers to mitigate external funding shocks.

Martinez-Alvarez et al. (2021) investigated the effects of donor-imposed conditions on health sector governance in developing countries. The researchers found that donor conditions often enhanced accountability, transparency, and performance monitoring within health programs. However, excessive donor influence was observed to limit government autonomy in setting national health priorities. The study argued that health programs become vulnerable when implementation strategies are shaped primarily by donor interests rather than local healthcare needs. The researchers concluded that balancing donor accountability requirements with national ownership is essential for achieving sustainable healthcare outcomes.

Likewise, Tadesse and Tessema (2022) examined the influence of external donor conditions on public health financing in East African countries. Using survey data and policy analysis, the study found that donor conditionalities significantly affected resource allocation decisions and program

implementation processes. While conditional grants improved operational efficiency in some instances, they also constrained governments' ability to adapt programs to local realities. The findings suggested that excessive dependence on conditional donor funding may hinder long-term fiscal sustainability by creating financing structures that are difficult to maintain without external support.

Mwisongo et al. (2021) investigated the sustainability of donor-supported healthcare infrastructure projects in Tanzania, Uganda, and Kenya. The findings indicated that donor investments significantly improved healthcare facilities, equipment availability, and service delivery capacity. However, many health facilities struggled to maintain operations after donor support ended due to inadequate government funding for maintenance, staffing, and operational costs. The study concluded that integrating donor-funded infrastructure into national health financing systems is critical for ensuring long-term sustainability.

Hanson et al. (2022) explored the relationship between external health financing and healthcare service sustainability in developing countries. The researchers found that donor-supported health facilities often achieved remarkable improvements in healthcare access and quality during the funding period. Nevertheless, sustainability challenges emerged when governments lacked sufficient financial capacity to absorb recurrent operational expenses. The study emphasized the need for governments to gradually assume responsibility for financing donor-supported services to prevent disruptions in healthcare delivery.

Schneider and Gilson (2021) assessed donor-funded health workforce development programs in Africa. The findings showed that donor-funded training initiatives enhanced healthcare workers' skills, improved service quality, and strengthened institutional performance. However, the researchers observed that continued dependence on external technical expertise limited the development of indigenous capacities necessary for long-term sustainability. The study recommended prioritizing knowledge transfer and local capacity development to reduce reliance on foreign technical assistance.

Nabyonga-Orem et al. (2023) examined the effectiveness of donor-supported institutional capacity-building initiatives in public health systems. The study found that technical assistance improved planning, monitoring, financial management, and program implementation capabilities. Nevertheless, sustainability challenges persisted because many institutions lacked adequate domestic funding to retain trained personnel and sustain acquired competencies. The researchers concluded that technical assistance should be accompanied by deliberate strategies for domestic capacity retention and financial sustainability.

Aregbeshola and Khan (2022) investigated healthcare financing patterns and their implications for sustainable health service delivery. The study found that donor assistance remains a critical source of healthcare financing, particularly for communicable disease programs and maternal health interventions. The findings revealed that while donor support has contributed significantly to improving health outcomes, dependence on external funding continues to expose the health sector to fiscal risks. The authors emphasized that sustainable healthcare financing requires increased government expenditure, expanded health insurance coverage, and strengthened domestic revenue generation.

Onoka et al. (2021) examined donor-funded health interventions and fiscal sustainability in Nigeria. Using evidence from selected public health programs, the study found that donor support improved healthcare access, service quality, and disease control outcomes. However, many programs faced sustainability challenges due to inadequate domestic funding commitments. The researchers observed that government budget allocations were often insufficient to sustain donor-funded initiatives once external support diminished. The study recommended the development of comprehensive transition strategies to facilitate the gradual transfer of financial responsibility from donors to government institutions.

Uzochukwu et al. (2023) assessed the sustainability of donor-supported primary healthcare initiatives. The findings revealed that donor investments strengthened healthcare infrastructure, workforce capacity, and service delivery. Despite these achievements, the study identified persistent concerns regarding long-term financing and program continuity. The researchers concluded that donor dependency remains a major challenge to fiscal sustainability and advocated for stronger domestic financing frameworks to ensure uninterrupted healthcare services. The reviewed empirical studies collectively demonstrate that donor assistance plays a crucial role in strengthening public health programs and improving health outcomes. However, evidence consistently indicates that excessive dependence on external funding creates fiscal vulnerabilities that may undermine the sustainability of healthcare interventions. Common themes emerging from the literature include funding volatility, donor conditionalities, weak domestic resource mobilization, inadequate transition planning, and limited government capacity to absorb donor-funded programs. These findings underscore the importance of developing sustainable health financing mechanisms capable of reducing donor dependency and enhancing the long-term fiscal sustainability of public health programs in Nigeria.

Methodology

This research made use of ex post facto research method while investigating donor dependency and fiscal sustainability of public health programs in Nigeria. In this study, the research employed exploratory design so as to explore many literature on the subject under study and how well to improve them if need be. This study employed secondary source of data. For this reason, literature on related journals and internet materials were documented. In addition the CBN statistical bulletin, World Bank Development Indicators, and other relevant international health financing databases were used. Multiple regression analysis served as a source of data for the study. In the current investigation therefore, we shall use three explanatory variables (financial dependency, programmatic dependency, commodity dependency. They shall be regressed against one proxy for fiscal sustainability which is the dependent variable.

The functional relationship of the model is:

$FS_t = f(FD_t, PD_t, CD_t)$ ……..(1)

The econometric specification of the model is:

$FS_t=\beta_0+\beta_1FD_t+\beta_2PD_t+\beta_3CD_t+\mu_t$…….... (2)

Where: β_0 is the intercept or Constant term;

$\beta_1 – \beta_3$ are the coefficients of explanatory variables.

FD is financial dependency (measured with grants, transfers or aid)

PD is programmatic dependency (measured with money on programs)
CD is commodity dependency (measured with commodities for export earnings)
FS is fiscal sustainability (measured with debt to GDP ratio): Total public debt/GDP x 100
t is the time period under study
μ is the stochastic or error term.

Data were analyzed using multiple regression technique. This is in attempt to answer the question of the study and the consequent hypothesis so developed. Also, 5% (0.05) level of significance or 95% confidence level was chosen for the purpose of this study. In addition, the Eviews software was used in estimating the models in this study.

Analysis of data

This paragraph shows the analysis of variables used in the equation and their corresponding coefficients as estimated by the computer.

Regression Result

TABLE 1- Ordinary Least Square Result
Dependent Variable: FS
Method: Least Squares
Sample: 2010 2024
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-21.78561	88.38593	-0.246483	0.8081
FD	3.707313	4.452871	0.832567	0.4160
PD	-0.310823	0.071413	-4.352490	0.0007
CD	3.941726	4.283158	0.920285	0.3696

R-squared	0.862300	Mean dependent var	57.51389
Adjusted R-squared	0.852803	S.D. dependent var	57.04739
S.E. of regression	30008.37	Akaike info criterion	11.25167
Sum squared resid	2.61E+10	Schwarz criterion	11.49899
Log likelihood	-373.7264	Hannan-Quinn criter.	11.28577
F-statistic	90.80108	Durbin-Watson stat	2.202103
Prob(F-statistic)	0.000000		

Substituted Coefficients:
==========
FS = -21.78561 + 3.707313*FD - 0.310823*PD + 3.941726*CD

From the result (Table 3), the relationship of the models is:
FS = -21.78561 + 3.707313*FD - 0.310823*PD + 3.941726*CD
The result shows a negative constant value which is an indication that if all the stated independent variables are not contributing to changes in fiscal sustainability, the dependent variable will reduce,

all things being equal. It also shows that FD and CD have positive coefficients of 3.707313 and 3.941726 respectively. These positive coefficients mean that the independent variables have direct relationship with the dependent variable. It also indicates that a unit increase in FD and CD will cause FS to increase by 3.707 units and 3.942 units respectively all things being equal. On the contrary, the result shows that PD has negative coefficient of 0.310823. This negative coefficient means that the independent variable has inverse relationship with the dependent variable. It also indicates that a unit increase in PD will cause FS to decrease by 0.312 unit, all things being equal. However, only the relationship between PD and FS is statistically significant while the others are not statistically significant at 5% level.

Statistical Criteria

This paragraph estimates the student t-test, F-test and R^2 (the coefficient of determination).

TABLE 2

Summary of F-test. R^2 and Serial Correlation results

Tests	ROE
F-statistic	90.80108
Prob(F-statistic)	0.000001
R-squared	0.862300
Adjusted R-squared	0.852803
Durbin-Watson stat	2.202103

Source: Extract from regression result (Table 3)

F-test

This test is used to determine the overall significance of the model. Hypothesis to be tested at α = 5%is:

H_0: $\beta_1 = 0$ (the model is not statistically significant)

H_1: $\beta_1 \neq 0$ (the model is statistically significant)

Decision Rule: Reject H_0 if prob (f-statistic) < 0.05, otherwise do not reject H_0.

From table 3, the prob (f-statistic) of the model is 0.00000 and it is lower than 0.05. We therefore reject H_0 and conclude that the model is significant, adequate and reliable for any analysis drawn from them. The variables are jointly significant. The R^2 value of 0.8623 indicates that the power of our variables together to explain variations in relation to dependent variables, fiscap sustainability (FS), is high. It also shows that the level of correlation between the variables and FS is high and tight. In the same vein, the adjusted R^2 value of 0.8528 imply that the variables' contribution to the explanation of the changes in the dependent variable FS is 85.28% while 14.72% is explained by other factors unexplained by the model.

The student t-test

Hypothesis to be tested is:

H_0: the parameters estimated are not statistically significant.

H_1: the parameters estimated are statistically significant.

Decision Rule: If the significant level (prob.) as shown in the regression result is less than 0.05, reject H_0. Otherwise do not reject.

TABLE 3

Summary of the T-test and Research Questions.

	FS		
Variables	t-Statistic	Prob.	Decision
FD	0.832567	0.4160	Not Significant
PD	-4.352490	0.0007	Significant
CD	0.920285	0.3696	Not Significant

Source: Extract from regression result (Table 3)

Only the t-values of PD is statistically significant. Its probability is less than 0.05. The t-values of all the other variables are not significant at 5% level. This is because their probability values as shown in the table are all greater than 0.05.

Autocorrelation (serial correlation)

The Durbin Watson d-test is adopted for this test. If the d value is about 2, there is no serial correlation (of the first order) either positive or negative. But the closer d is to zero (0) the greater the evidence of positive correlation, the closer d is to 4 the greater the evidence of negative serial correlation. The Durbin Watson d statistic (DW) = 2.202103 can be approximated to 2; this indicates a case of no serial correlation (of the first order) either positive or negative.

Test of hypotheses

The hypotheses of this study as explicitly stated in objectives of the study are as follows:

Ho1: Financial dependency has a significant effect on fiscal sustainability of public health programs in Nigeria.

Ho2: Programmatic dependency has a significant effect on fiscal sustainability of public health programs in Nigeria

Ho3: Commodity dependency has a significant effect on fiscal sustainability of public health programs in Nigeria

The result in table 3 reveals that only the alternative hypotheses of H_{01} was accepted because its t-value is statistically significant while the null hypotheses of all other stated hypotheses are accepted. Hence the summary of findings are:

1. There is positive and no significant effect of financial dependency on fiscal sustainability of public health programs in Nigeria
2. There is negative and significant effect of programmatic dependency on fiscal sustainability of public health programs in Nigeria.
3. There is positive and no significant effect of commodity dependency on fiscal sustainability of public health programs in Nigeria

Conclusion

The study x-rays Donor dependency and fiscal sustainability of public health programs in Nigeria. The findings revealed that financial dependency has a positive and no significant effect on fiscal sustainability of public health programs in Nigeria. Programmatic dependency has negative and

significant effect on fiscal sustainability. Commodity dependency also has positive and no significant effect on fiscal sustainability. Within the Nigerian health sector, donor funding has played a pivotal role in financing disease control programs, healthcare infrastructure development, capacity building, procurement of medical supplies, and support for vulnerable populations. Evidence suggests that donor contributions have been particularly dominant in programs targeting communicable diseases such as HIV/AIDS, tuberculosis, and malaria, where international agencies provide substantial financial and technical support. The study concluded that donor support has contributed to health program delivery in Nigeria, it has simultaneously created structural vulnerabilities that threaten long-term fiscal sustainability.

Recommendations

Based on the identified dimensions of donor dependency, the following recommendations were proffered thus:

1. Mitigating Financial Dependency: The Federal Government of Nigeria should increase domestic health financing by allocating a higher percentage of the national budget to the health sector targeting at least 6% of the national budget as recommended by the African Union and strengthening mandatory health insurance schemes (NHIS). This direct approach reduces excessive reliance on donor funds and improves the long-term fiscal sustainability of public health programs.

2. Building Resilience Against Fluctuations in Financial Support: Health sector policymakers should establish contingency funding mechanisms and countercyclical reserve funds to cushion the effects of donor funding volatility. These mechanisms should be constitutionally protected or legislatively mandated to ensure uninterrupted implementation of critical health interventions during periods of reduced donor assistance and external shocks.

3. Reducing Programmatic Dependency: Through Strategic Alignment Government agencies should renegotiate donor agreements to explicitly align with Nigeria's National Health Sector Strategic Plan and state-level health priorities rather than donor-driven agendas. This negotiation process should include:

- Clause requiring donor support for nationally prioritized interventions
- Transition mechanisms embedding external programs into government systems before donor exit
- Local capacity-building requirements for all donor-funded programs

4. Addressing Commodity Dependency and Supply Chain Sustainability The government should establish domestic procurement systems and supply chain resilience strategies for essential health commodities, pharmaceuticals, and medical equipment currently dependent on donor provision. Specific actions include:

- Developing local pharmaceutical manufacturing capacity with government support
- Creating strategic commodity reserves funded from domestic budgets
- Phasing in domestic procurement for donor-supplied commodities on defined timelines
- Establishing regional procurement frameworks to reduce external dependency

5. Strengthening Integration of Donor-Supported Infrastructure: The Government should gradually integrate all donor-supported facilities, equipment, and healthcare services into national and state health budgets through formal transition planning so that essential services remain operational even after donor funding expires. This includes:

- Lifecycle costing of donor-supplied equipment before acceptance
- Budgetary provisions for maintenance and replacement of donor assets
- Capacity-building to ensure government staff can operate and maintain donor-supplied systems.

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