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NIGERIA

SELECTED ISSUES

July 2025

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May 29, 2025

Approved By
The African Department

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FISCAL FORECASTING ERRORS IN NIGERIA[1]

The Ministry of Budget and Economic Planning's budget implementation reports reveal large fiscal forecast errors over the 2011-2023 period, for a range of fiscal aggregates including total revenues, expenditures, and the fiscal deficit. Revenues forecasts errors are driven by optimistic budget projections for oil production which consistently exceed actual outturn. Capital expenditures are also subject to systematic optimism bias, with outturn falling short of budget allocations. Large fiscal forecast errors limit the usefulness of the budget in providing a framework for the authorities' fiscal policy intentions. Cross-country experience suggests that the quality of budget forecasts can be improved by enhancing the capacity of the macro-fiscal unit responsible for forecasting, publishing internal and external forecast performance reviews, and enhancing political commitment to budget targets. By improving the quality of fiscal forecasts, the authorities can enhance the credibility of the budget in serving as a guide to fiscal policy in Nigeria.

A. Motivation

1. A government's budget represents a detailed financial plan for revenue collection and expenditure allocation for a fiscal year. The budget process is important for ensuring fiscal discipline, efficient resource allocation, well-guided economic planning, and effective public service delivery. By providing a framework for fiscal decision making, the budget helps determine the direction of fiscal policies, ensures discipline with respect to approved budget targets, and promotes transparency in terms of how fiscal resources are mobilized and spent.

2. Key to the budget preparation process is the development of credible fiscal forecasts which provide a data-driven foundation for policy making. By developing realistic fiscal forecasts, budgets are less likely to run the risk of expenditure overruns or under execution, by balancing the government's ability to raise revenues and its borrowing abilities with the needs and capacities of line ministries to apply these revenues towards operational and capital expenditures. Unrealistic revenue and expenditure forecasts can contribute to budgetary imbalance which deteriorate the path of public finances, strain borrowing limits, create unplanned debt accumulation, and misallocate scarce resources. Persistent biases in budget forecasts relative to budget execution also undermine the reliability of the budget document as a guide for fiscal policy making, exacerbate fiscal policy uncertainty, and reduce the confidence of both the private sector and voters. As such, poor fiscal forecasting can have wide-ranging consequences for public finances, economic growth, and political stability.

3. In this context, we analyze fiscal forecasting errors in Nigeria over the 2011-23 period. Forecast errors are estimated for the key revenue components of oil and non-oil revenues, as well as large expenditure aggregates of recurrent and capital expenditures, by comparing budget

[1] Prepared by Salma Khalid (FAD).

appropriations with budget execution data.[2] Systematic analysis of forecast errors helps identify economics aggregates that are most likely to deviate from budget appropriations, the impact of these errors on the trajectory of the fiscal deficit and therefore debt, and highlight the need for the authorities to improve the quality of their fiscal forecasting and tie budget execution more tightly to fiscal needs and targets. We use budget implementation reports as published on the website of Nigeria's Ministry of Budget and Economic Planning.[3]

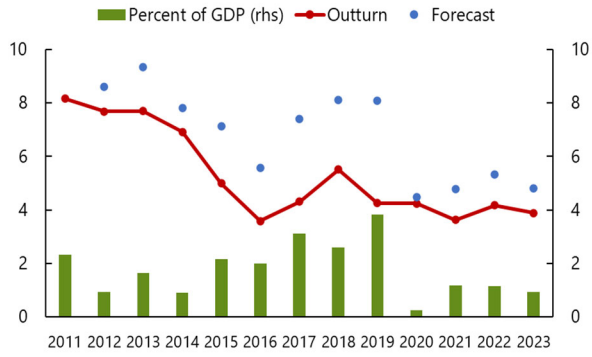
B. Revenues

4. Government revenue projections show a consistent optimism bias over 2011-2023, with the budget forecasts for revenue exceeding revenue outturn for all years except 2020, when the gap is narrow (Figure 1). The scale of forecast errors is large, averaging 1.8 percent of GDP or 36 percent of actual revenues. Though revenue forecast errors are decreasing in recent years, they remain sizable at 1.1 percent of GDP or 28 percent of revenues over the 2021-23 period. Analysis of error components (below) indicates that revenue forecast errors emerge primarily from forecast errors in oil revenues, due to optimistic oil production projections in the budget.

Text Figure 1. Revenue Forecast Errors

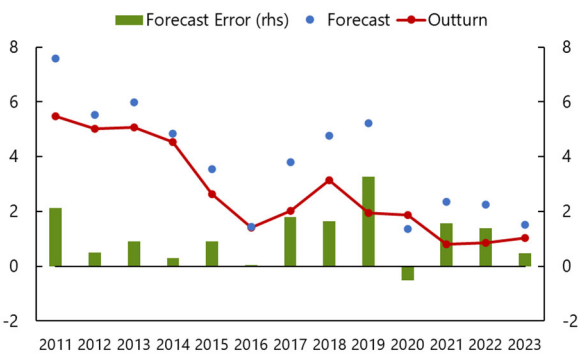
Total Revenues Forecast and Outturn, 2011-2023

(Percent of GDP)



Oil Revenues Forecast and Outturn, 2011-2023

(Percent of GDP)



Sources: Nigeria Ministry of Budget and Economic Planning and IMF Staff calculations

[2] This work extends and updates earlier work done by FAD in collaboration with AFRITAC West. Forecast errors are defined as the difference between the budget forecasts and the actual outturns, expressed as a percentage of GDP outturn for the respective year.

[3] For years in which the budget implementation report is unavailable for the 4th quarter (reflecting the full execution of the budget), we utilize the execution report for the following year which contains information on execution in the prior year. For 2023, we use information shared bilaterally by the government for the 2024 Article IV surveillance. We also use information the authorities' published MTEFs as needed.

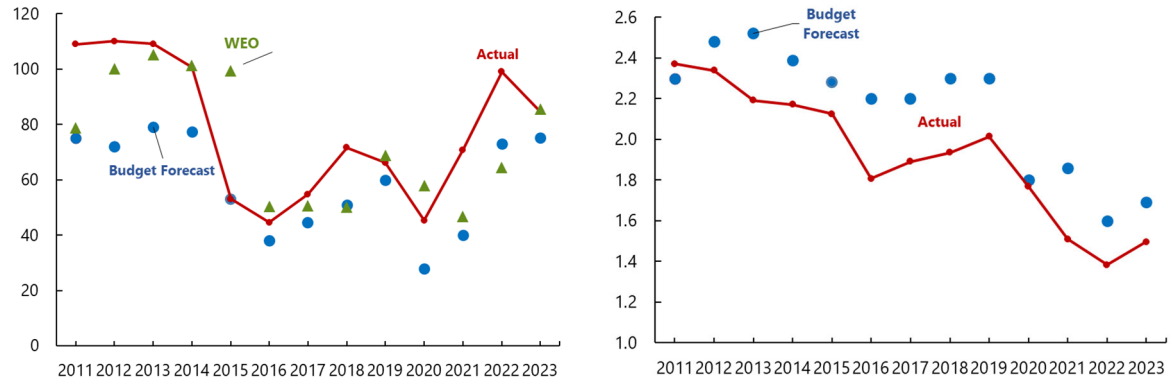
Oil Revenues

5. Oil revenues forecast errors follow a similar trend as forecast errors in overall revenues. Oil revenues are consistently overestimated over the analysis period, except for 2020. The size of forecast errors is large, explaining most of the total revenue forecast errors, averaging 1.1 percent of GDP and 61 percent of oil revenues over this period. There is significant heterogeneity year to year, with small forecast errors in the 2012-2016 period, followed by large and increasing forecast errors in the 2017-2019 period.

6. The benchmark price used by the authorities for oil revenue projections is systematically more conservative than the actual oil prices observed in global markets which serves to offset the optimism bias in oil revenue forecasts. WEO projections have borne a closer relationship with oil price outturn during the earlier years of our analysis, but the gap between the two price estimates has closed in recent years.[4] Systematic optimism in oil revenue forecasts cannot therefore be explained by systemically optimistic oil price projections. In fact, the conservative oil benchmark prices actually serve to offset errors in total oil revenues.

7. Oil revenue forecast errors are driven by production forecast errors. Comparing budget forecasts of oil revenue production against actual outturn, we find that actual production has failed to achieve budget targets in 11 of the 13 years studied. As such, consistent optimism in projections for oil production appears to be a key contributor to overall optimism in oil revenue forecasts.

Text Figure 2. Oil Price Forecast Errors



Sources: Nigeria Ministry of Budget and Economic Planning, World Economic Outlook and IMF Staff calculations

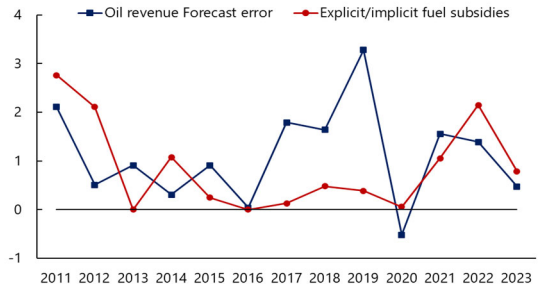
[4] We use October WEO projections from the year prior (i.e. Oct 2010 WEO vintage for 2011 Oil price)

8. Shortfall in oil revenues has been attributed variously to technical constraints as well as poor security. An analysis of the narrative of budget implementation reports indicates that shortfall in oil revenues across all years is attributed to various combinations of low oil lifting volumes, crude oil theft and pipeline vandalism, and illegal bunkering, with occasional references to low international oil prices. However, the narrative does not provide a breakdown of what proportion of the shortfall is attributable to operational/technical capacity constraints for oil lifting or leakages due to the poor security situation.

Text Figure 3. Oil Revenue Forecast Errors

Oil Revenue Forecast Errors and Explicit/Implicit Oil Subsidies

(Percent of GDP)



Sources: Nigeria Ministry of Budget and Economic Planning and IMF Staff calculations

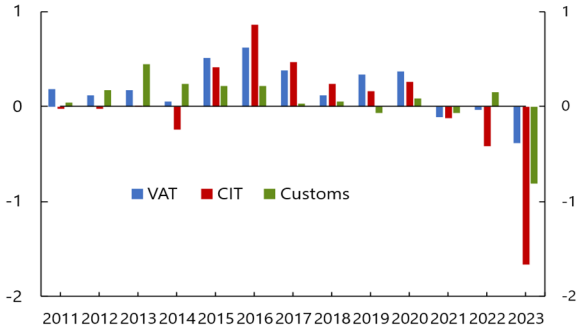
9. Budget implementation reports also cite fiscal deductions as being a cause of net oil revenue underperformance but lack sufficient details on the source of the deductions. While the 2019 budget implementation report specifically cites PMS under-recovery deductions on remittances from NNPC, the 2021 and 2022 reports broadly refer to fiscal deductions on oil revenue without elaborating on the source of these deductions and the reason for their departure from budget projections[5]. Comparing the size of explicit and implicit subsidies provided for oil consumption with the size of oil revenue forecast errors, we find that in years where the subsidy is large, such as 2011 and 2021/2022, the size of forecast errors is commensurately large, suggesting that these subsidies may be contributing to forecast errors in form of unbudgeted fiscal deductions.[6]

[5] PMS under-recovery deduction is the mechanism by which the government covers the cost of the implicit fuel subsidy through remittances from the federation accounts to National Nigerian Petroleum Company (NNPC) Limited.

[6] The explicit and implicit subsidies on oil arise from the price setting mechanism for oil products in Nigeria, where the price of petroleum products is set by the government and not allowed to vary with respect to international price movements.

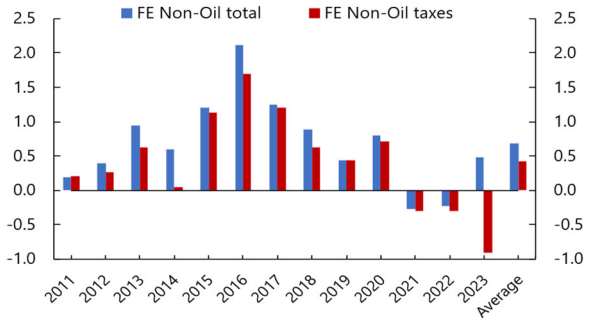
Text Figure 4. VAT and Non-Oil Revenue Forecast Errors

VAT, CIT And Customs Revenue Forecast Errors, 2011-23 (Percent of GDP)



Non-Oil Revenue Forecast Error, 2011-2023

(Percent of GDP)



Sources: Nigeria Ministry of Budget and Economic Planning and IMF Staff calculations

Non-Oil Revenues

10. Three taxes comprise the bulk of non-oil revenue streams: VAT, CIT and Customs taxes. Forecast errors in VAT are also characterized by an optimism bias for the years prior to 2020, with VAT overperformance thereafter reversing the direction of forecast errors. While forecast errors are large as a percentage of VAT revenues, averaging 25 percent of VAT revenue, they are small in percent of GDP averaging only 0.2 percent of GDP. CIT forecast errors follow a similar pattern of optimism bias for the years 2015-2020 followed by strong growth of CIT revenues which is not captured in projections for this period, resulting in pessimism bias. Customs revenue forecast errors, unlike VAT and CIT, remain positive and large in recent years, with optimism bias in budget projections for this revenue item, which is not borne out by the revenue outturns, particularly in 2022 and 2023.

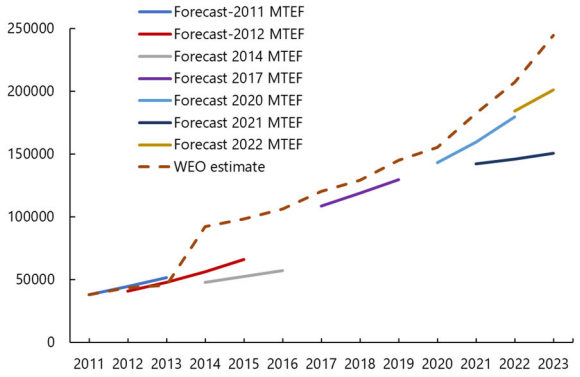
11. Forecast errors in total non-oil revenues exceed forecast errors in non-oil revenues from taxes. Comparing non-oil revenue from taxes against net non-oil revenues, we find that forecast errors are, on average, larger for net non-oil revenues, suggesting that deductions and other non-tax lines of revenue also optimism bias in budget projections, therefore compounding forecasting errors in the calculation of net non-oil revenues.[7]

[7] Analysis of budget implementation reports indicates that deviations between total CIT, VAT and Customs collections and the Net Non-Oil revenue are attributable to federation account levies, cost of collection and refunds, transfer to other accounts (such as Nigerian Police Trust Fund, North East Development Commission) and exceptional sources of revenue (e.g. surcharge on luxury items)

12. An analysis of the narrative of budget implementation reports indicates that in some years shortfalls in non-oil revenue outturns relative to budget forecasts have been attributed to leakages. The leakages are attributed to lack of remittance from Ministries, Departments and Agencies (MDAs), weaknesses in tax collection, administrative challenges faced by the Federal Inland Revenue Service (FIRS), and delays in implementation of revenue-enhancing policies. However, most budget implementation reports lack an in-depth analysis of sources of forecast errors or revenue underperformance in the non-oil sectors.

Text Figure 5. Nominal GDP Forecasts vs. WEO Estimates

(Billion Naira)



Sources: Nigeria Ministry of Budget and Economic Planning, World Economic Outlook and IMF Staff calculations

13. Examining nominal GDP assumptions from Medium Term Economic Framework (MTEF) documents, we do not find systematic evidence for optimism bias in the projections, with outturn exceeding authorities' projections. Insofar as nominal GDP growth underlies non-oil revenue forecasts, the forecast optimism in non-oil revenue projections does not arise from optimistic assumptions regarding the nominal growth rate of the economy.

C. Expenditures

14. The government budget projections for total federal government expenditures also reflect consistent positive forecast errors, averaging 0.8 percent of GDP over the 2011-23 period and exhibiting an upwards trend since 2020. Hence, budget forecasts consistently overestimate federal government expenditures relative to the actual outturn, in line with the optimism in revenue forecasts. Analysis of expenditure components indicates that expenditure forecast errors are predominantly driven by optimistic projections regarding capital expenditures, with capex execution falling short in nearly all years analyzed.

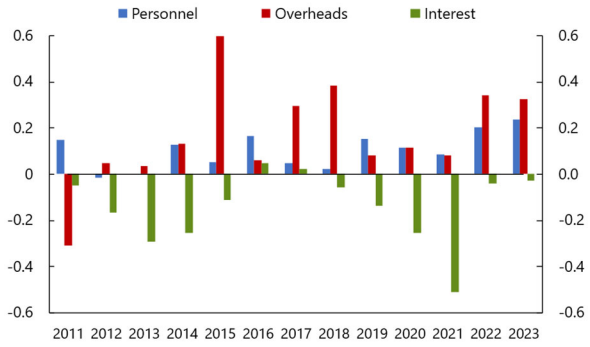
Recurrent Expenditures

15. Forecast errors in recurrent expenditures are a small proportion of the total expenditure forecast errors. Evaluating expenditure components, we find that personnel expenditures have very small forecast errors on average, though the size of the errors has increased in recent years. While forecast errors are large in overheads and other non-debt/non-personnel expenditures in percent of expenditures, they do not form a large proportion of forecast errors in

percent of GDP, averaging 0.2 percent of GDP in the 2011-23 period.[8] Both personnel and overheads errors imply that the government budget appropriation exceed actual outlays. In contrast, debt service payments have mostly negative forecast errors with budget projections frequently underestimating the true size of interest payments during the year. These errors are small however, averaging -0.1 percent of GDP over the 2011-2023 period, with negligible errors in 2022/23 in spite of large fluctuations in the interest bill. Taken together, budgets have tended to overestimate recurrent expenditures, driven by projections for overheads and personnel costs in recent years.

Text Figure 7. Recurrent Expenditures Forecast Errors, 2011-23

(Percent of GDP)

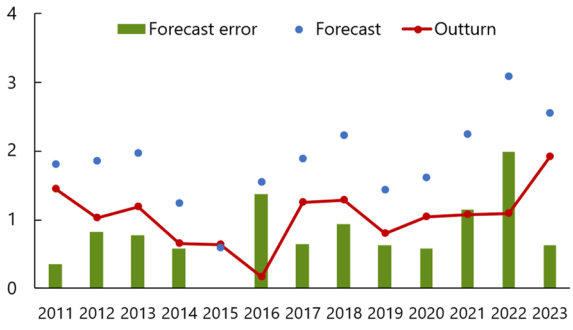


Sources: Nigeria Ministry of Budget and Economic Planning and IMF Staff calculations

16. Budget implementation reports note that the government prioritizes limiting recurrent expenditures in the face of weak revenue performance and to reverse the trend of escalating recurrent expenditures as a proportion of total expenditures. Hence, the positive forecast errors in overhead costs and personnel expenditures are likely a reflection of the government's need to restrict in-year spending as revenue mobilization outturns miss targets.

Text Figure 8. Capital Expenditures Forecast and Outturn, 2011-2023

(Percent of GDP)



Sources: Nigeria Ministry of Budget and Economic Planning and IMF Staff calculations

17. Increasing gaps between recurrent expenditure execution and the budget envelope may be attributable to public financial management reforms. The rollout of an electronic database systems for managing payroll to reduce leakage in personnel costs, and restrictions on unauthorized recruitment by MDAs since 2021 are highlighted in budget implementation reports as administrative measures for reducing recurrent expenditures, which can account for the increasing savings between personnel expenditure outturns and budget forecasts in recent years. Rationalization of overheads using an efficiency unit, freezing of overheads, the use of an IT system for public financial management and the use of the Treasury Single Account are all cited as contributing to reduction in overheads. On the other hand, overruns

[8] For the purpose of this presentation, overheads include Other Service Wide Votes, Presidential Amnesty Program, Tetfund and Special interventions.

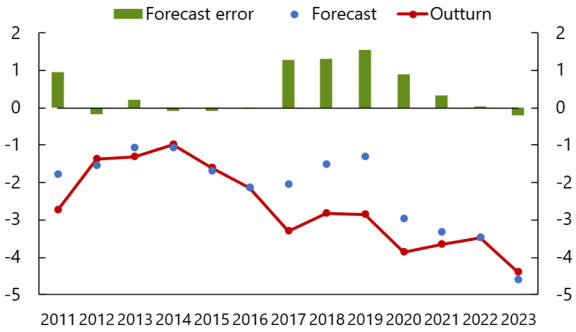
in interest expenditures are attributed to higher issuances or increasing costs of rolling over existing issuances.

Capital Expenditures

18. Budget forecasts of federal government capital expenditure are very optimistic considering low execution. Forecast errors in capital expenditures average over 70 percent of the actual executed values, and 0.8 percent of GDP over the 2011-2023 period. These projection errors reflect optimism bias, with budgeted capital expenditures far exceeding actual execution in all but one year in the period examined.

Text Figure 9. Fiscal Balance Forecast and Outturn, 2011-2023

(Percent of GDP)



Sources: Nigeria Ministry of Budget and Economic Planning and IMF Staff calculations

19. Despite capital budgets appropriations being extended to the following fiscal year, giving rise to concurrent budgets, underutilization is persistent. Underutilized capital budgets from the year can be extended to the subsequent year to allow MDAs greater time to execute on their capital projects. However, this comes at the expense of delaying implementation of the capital expenditures budget of the current year, suggesting that MDAs do not have the capacity to execute both budgets simultaneously. This would suggest that forecast errors in one year have a snowball effect of generating larger forecast errors in the subsequent year. The budget implementation report also notes financing constraints at the project level despite underutilization of the budget, and frequent recommendations for MDAs to prioritize project completion over managing recurrent projects. This would suggest that MDAs are capacity constrained in their ability to effectively manage multiple recurrent projects, leading to incomplete and abandoned projects.

D. Fiscal Deficit

20. Forecast errors in the fiscal balance rose between the 2017-2021 period, but have shrunk thereafter, with the fiscal balance outturn being higher than budgeted in the most recent year of data. When comparing the fiscal balance forecast errors with their components, we can see that years with large forecast errors are characterized by strong optimism bias in revenue projections, both oil-and non-oil. Following 2021, oil revenue forecast errors – though sizable – have been on a declining trend, which has helped reduce forecast errors. However, part of the reason for shrinking forecast errors in the fiscal balance is under execution of budgeted expenditures which offsets revenue underperformance. As such, while the fiscal balance errors may appear small, they mask large, off-setting errors in their components, suggesting gaps in the government's ability to project its revenues and needs accurately.

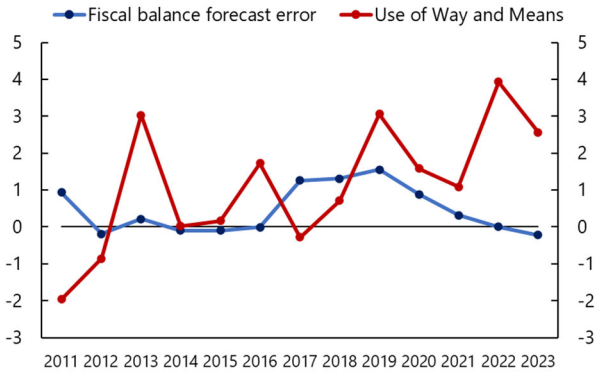
21. The relationship between fiscal balance forecast errors and central bank financing of the deficit is not consistent. However, we do find that a period of large fiscal balance forecast errors during 2017-2021 coincides with an increasing trend in the use of ways and means during the 2018- 2023 period. Hence, fiscal forecast errors may be a contributor to the government resorting to central bank financing due to unbudgeted shortfalls in revenue.[9]

E. Conclusion and Policy Advice

22. Forecast errors in Nigeria's budgeting process indicate persistent optimism with respect to the government's ability to mobilize revenue. While an analysis of 16 economies in Eastern and Southern Africa indicates the presence of positive forecast errors in revenue projections across the majority of the countries, the size of forecast errors in Nigeria's revenue place it at the top by size of average revenue forecast errors (Figure11, Battersby & Lienert, 2021).

Text Figure 10. Fiscal Balance Forecast Errors and Use of Ways and Means

(Percent of GDP)



Sources: Nigeria Ministry of Budget and Economic Planning and IMF Staff calculations

23. Positive revenue forecast errors have had limited impact on the fiscal deficit due to expenditure compression. Revenue optimism should ostensibly result in large errors in fiscal deficit forecasts if the government experiences no borrowing constraints. In Nigeria's situation, despite revenue shortfall, forecast errors in the deficit are relatively contained in most years, which can be attributed to in-year expenditure reduction. We see evidence for such expenditure compression in payroll and overheads, and this is also indicated in budget implementation reports.

24. Large and persistent forecast errors in budget revenue projections run the risk of underfunding of essential expenditures during the budget year when shortfalls occur, due to constraints on the borrowing envelope. Expenditure compression on overheads and personnel can harm the ability of MDAs to finance their personnel and operational needs and therefore exert a direct impact on the ability of MDAs to execute on their capital expenditure allocations and can compromise the quality of their spending and investment. Persistent shortfall of capital expenditure execution, and the use of concurrent budgets, indicate capacity constraints at the level of executing agencies, with budget implementation reports indicating weakness in expenditure management and cash flow. As noted in budget implementation reports, this is manifested in the form of capital expenditures projects that are abandoned before completion. With capital expenditures constrained

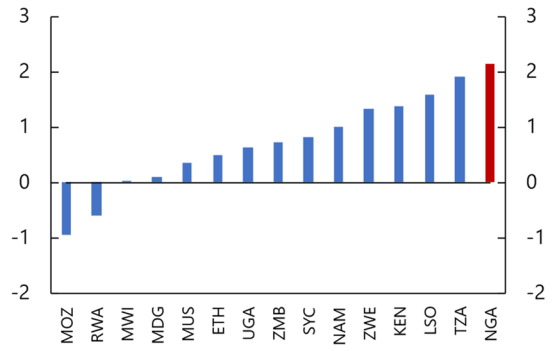
[9] Use of ways and means is proxied by evaluating the change in net central bank claims on the central government, in the monetary and financial account statistics.

by MDA capacity, the task of correctly budgeting limited resources to the most pressing needs, and the most capable ministries for execution, is critical. This requires more accurate and realistic accounting of government revenues and expenditures.

25. Cross-country experience from other African economies indicates that forecasting performance can be improved if the macro-fiscal unit conducts ex post assessments of the accuracy and quality of their budget forecasts. For example, in Kenya the macro-fiscal department analyzes the quality of macro-fiscal forecasts and publishes their analysis as an annex to its annual Budget Policy Statement. Their analysis includes a table discussing of the size of divergences between forecasts and outcomes and their main causes. Malawi's MoF has also calculated the forecasts errors for nominal GDP growth and government revenue, and used these to present confidence intervals around their macro-fiscal forecasts, as part of their development of their fiscal risk-statement.

Text Figure 11. Average Revenue Forecast Errors

(2012/13-2018/19, Percent of GDP)



Sources: Battersby & Lienert, 2021 and IMF staff calculations

26. Best practices for improving the budget forecasting function include:

- Recognizing the importance of producing clear and credible forecasts of fiscal aggregates and placing the macro-fiscal departments responsible for budget forecasts on par with other MoF and Budget departments
- Ensuring coordination between all fiscal departments to ensure data sharing and collaboration and enhancing quality and timeliness of data. Formal memoranda of understanding for data exchange can be drawn up between relevant agencies.
- Ensuring staff training and use of tools for forecasting which are compatible with the skill sets of staff.
- Conducting and publishing forecast performance reviews, to enhance transparency, create incentives for improving accuracy, and build public and market confidence in the credibility of the budget documents as a guide for fiscal policy.
- Enhancing political commitment to budget targets, by conducting periodic reviews of forecasts, internally highlighting the fiscal cost of different policy choices, and encouraging reviews by external consultants or stakeholders to mitigate political pressure on forecasters. In the case of Nigeria, these reviews can be conducted by the Fiscal responsibility Council on a regular basis and presented to the Ministries and to Parliament.

27. Reducing errors in the budget forecasting process can enhance government function. Accurate budget forecasts ensure that the government makes budget choices that are consistent with its economic policy priorities and set MDAs up to deliver on these priorities. Improving budget credibility can generate benefits for the government across multiple domains and with a range of stakeholders including:

- *Enhancing public expenditure management*. By aligning annual spending with medium and long-term spending priorities, and ensuring spending plans are subject to macroeconomic constraints, credible budgets can enhance the efficiency of resource allocation and improve public service delivery

- *Enhancing debt management*. Persistent deviations between the budget and execution as a result of revenue underperformance or expenditure over execution can result in unanticipated debt accumulation and put fiscal sustainability at risk. Lack of fiscal transparency can also influence borrowing costs by increasing risk perceptions.

- *Reducing uncertainty among investors regarding the direction of economic policies*. Timely, transparent, and credible budgeting, accompanied by effective implementation are crucial for engendering private sector confidence and allowing greater public-private partnership.

- *Enhancing public trust in government institutions and the budget process*. Credible budgeting, upholding budget commitments and clearly demonstrating why deviations from these commitments occur can help deliver greater trust in government and greater public willingness for policy reforms.

References

Battersby, B., & Lienert, M. I. (2021). *Macro-Fiscal Management Practices in Eastern and Southern Africa*. International Monetary Fund.

REGULATING THE CRYPTO MARKET IN NIGERIA[1]

In recent years, the trading of crypto assets has surged among individuals and businesses in Nigeria. The authorities are strengthening the regulatory and supervisory framework for crypto assets to address potential risks including undetected capital outflows and currency speculation, money laundering, terrorism financing and consumer fraud. Moving forward, they should enforce this framework by identifying unlicensed crypto firms and preventing them from operating in Nigeria, collecting taxes on capital gains, and preventing crypto platforms from serving as informal channels to bypass capital flow restrictions. Authorities should also continue to develop robust analytical tools for effective market surveillance, ensure AML/CFT supervisory activity commensurate with *money laundering and terrorism financing risks, and actively cooperate and share information with international counterparts.*

A. Introduction

1. The market for crypto assets has grown substantially in the past few years. According to Coingecko, a firm tracking crypto assets and exchanges globally, the global market capitalization of crypto assets increased from US $211 billion in January 2020 to $3.4 trillion at the end of December 2024. This surge is driven by various factors, including the potential for high returns, diversification benefits for investors, and the growing acceptance of crypto assets in mainstream finance.

2. Nigeria is considered one of the top three countries globally in terms of crypto adoption. According to the Chainalysis 2023 Global Report (Chainalysis, 2023), India, Nigeria, and Indonesia ranked as the top three countries in crypto adoption. Chainalysis' data reveals that from July 2023 to June 2024, Nigeria recorded a volume of $59 billion in crypto transactions. These transactions included cases where both the buyer and seller were registered in Nigeria, or where either the buyer or seller was registered in Nigeria.

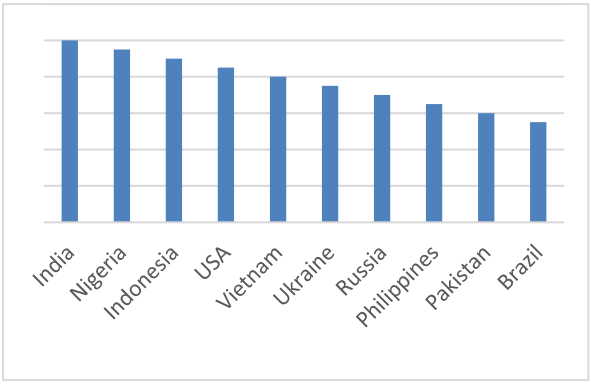
3. Bitcoin is the most popular crypto asset owned and traded by Nigerians. According to the 2024 Global Survey by Consensys and YouGov (Consensys, 2024), about 62% of Nigerian crypto investors own or have owned Bitcoin, followed by Binance (51%), Ethereum (41%), Dogecoin (30%), Tether (28%), Solana (25%), USD coin (22%), Shiba Inui (18%), XRP (18%), and so on. Until recently, all crypto assets traded by Nigerians were assets issued overseas. In early 2025, the Securities and Exchange Commission (SEC) of Nigeria authorized the launch of cNGN, the first stablecoin issued in Nigeria, which is being purchased and sold via the two licensed local crypto exchanges.

[1] Prepared by Jose De Luna Martinez (MCM) and Deeksha Kale (SPR).

Figure 1. Market Capitalization of Crypto Assets (2020 to 25)

Source: Coingeko. Global Charts.
https://www.coingecko.com/en/global-charts

Figure 2. Chainalysis' Global Crypto Adoption Index, 2024 (Top 10 countries)



Source: The 2024 Geography of Crypto Report

4. Most crypto asset trades are of relatively small value. According to Chainalysis (Chainalysis, 2024), from July 2023 to June 2024, 12.6 percent of all trades were below the equivalent of $1,000 per trade, 11.6 percent were between $1,000 and $10,000, 60.4 percent fell between $10,000 and $1 million, 15.2 percent ranged from $1 million to $10 million, and only 0.2 percent exceeded $10 million per trade. Reportedly, most Nigerian investors (73%) purchase crypto assets using local currency. They can transfer funds into their digital wallets at crypto firms directly via credit or debit cards, and in some cases, from their bank accounts.

5. Given the growing volume of the crypto asset market activity in Nigeria, a comprehensive policy and regulatory framework is necessary to address the underlying risks. Unlicensed crypto-trading platforms can be used to move capital out of Nigeria without being detected by domestic authorities. Crypto assets could potentially be utilized to speculate against the naira.[2] Moreover, unregulated crypto asset markets pose a challenge for authorities in their efforts to prevent illicit financial flows. Crypto assets trading also constitutes a potential source of fraud and scams for Nigerian investors.[3] These challenges are not unique for Nigeria. Many advanced and emerging market economies are facing similar challenges.

6. This paper examines the recent initiatives adopted by the Nigerian authorities to regulate the crypto asset activity. It formulates a series of recommendations to continue strengthening the incipient regulatory and supervisory regime along the elements recommended by the IMF in its 2023 Policy Paper titled "Elements of Effective Policies for Crypto Assets".[4] In this

[2] Crypto as a Marketplace for Capital Flight (IMF, 2024)

[3] U.S. SEC Press Release (2024)

[4] Elements of Effective Policies for Crypto Assets (IMF, 2023)

paper, crypto assets are defined as "a privately issued digital representation of value, cryptographically secured, and deployed using a distributed ledger technology (DLT)". Common examples of crypto assets include cryptocurrencies including Bitcoin and Ethereum; stablecoins including Tether (USDT), USD Coin (USDC) and Pax Dollar (USDP); tokens including digital, non-fungible tokens (NFTs) and security tokens. Central bank digital currencies, such as the eNaira, issued by the Central Bank of Nigeria in 2021, are not classified as crypto asset.

7. Despite the increasing volume of crypto asset activity, data on the use of crypto assets in Nigeria remains scarce. Neither the authorities nor the main crypto exchanges publish data about the volume of crypto transactions, the type of investors trading crypto assets, the assets most frequently traded, etc. This paper relies on data from Chainalysis, a global blockchain analysis firm that collects data across the global crypto market since 2014.

B. Nigeria's Regulatory Response to Crypto Assets

8. In 2023, the IMF published the Policy Paper titled "Elements of Effective Policies for Crypto Assets" to provide guidance to IMF member countries on key elements of an appropriate policy response to crypto assets.[5] The paper sets forth a framework of nine elements that can guide members to develop a comprehensive, consistent, and coordinated policy response. This section assesses Nigeria's response under the lenses of these nine elements.

Element 1: Safeguard Monetary Sovereignty and Stability by Strengthening Monetary Policy Frameworks and do not Grant Crypto Assets Official Currency or Legal Tender Status.

9. The authorities' policies and regulatory response to crypto assets align with this element. The naira remains the country's official currency, and the CBN has no intention of granting any crypto asset official currency or legal tender status. Banks and other licensed financial intermediaries are prohibited from holding assets or liabilities denominated in or linked to crypto assets. Additionally, crypto assets cannot be used as collateral for loans. On February 5, 2021, the CBN issued a circular barring banks from offering deposit accounts and other financial services to crypto exchanges or related firms.[6] In December 2023, this circular was revised allowing banks to provide accounts to crypto firms that are licensed by the SEC.

10. The current payment system regulations in Nigeria prohibit the use of crypto assets to pay for goods and services. However, preventing the use of Bitcoin and other crypto assets to pay for goods and services in the informal sectors of the economy is likely to remain a challenge. Authorities should remain vigilant and responsive to the risks associated with these practices, taking prompt action to address any violations that are identified.

11. As part of its efforts to advance financial inclusion and accelerate the digitalization of the financial system, the CBN launched the eNaira in 2021. The eNaira is not a crypto asset, it is

[5] Elements of Effective Policies for Crypto Assets (IMF, 2023)

[6] CBN Circular BSD/DIR/PUB/LAB/014/001, dated February 5, 2021.

a digital currency issued by CBN. It is designed to provide a digital form of the Naira, Nigeria's national currency, and it is linked to the value of the naira on a relation of one to one. The eNaira aims to offer a more efficient and secure means of payment, enhancing financial inclusion and reducing the costs associated with physical cash transactions. Users can create individual or business wallets to transact with eNaira, which can be used for various purposes such as retail transactions, bill payments, and more. The eNaira is accessible through multiple channels, including a mobile app, web wallet, and USSD code.

Element 2: Guard Against Excessive Capital Flow Volatility and Maintain Effectiveness of Capital Flow Management Measures.

12. The use of crypto assets to transfer money across borders while bypassing existing capital control measures poses a significant risk. The global crypto market has introduced various channels that enable investors to move funds internationally without detection. For instance, a simple scheme for transferring money overseas could involve investor A in Nigeria topping up his digital wallet with naira via (typically) an unlicensed crypto exchange and purchasing assets from anonymous sources in Nigeria or abroad (the un-licensed crypto exchange can match the order with another investor or even re-route the order to another exchange overseas to execute the transaction). Subsequently, investor A contacts investor B in a foreign jurisdiction to sell this asset at an agreed upon price - with the understanding that investor B will pay investor A in USD at an offshore bank account of investor A.

13. Under such schemes, money is transferred across borders without the physical movement of cash or a naira/USD settlement, as would occur in a typical bank transfer. In jurisdictions where crypto exchanges are unlicensed or unregulated, it is challenging for financial authorities to detect and record such capital flow transactions since they cannot observe the full flow of funds; they may only see one leg of the transaction involving a bank or regulated financial institution, without realizing it is part of a cross-border transfer. By using such methods—or more sophisticated variations—investors have been able to move money overseas through the crypto market, effectively circumventing capital flow regulations.[7]

14. The movement of funds from deposit accounts in local banks to digital wallets offered by crypto exchanges can also pose risks. IMF research has found that, as crypto trading grows, transferring funds from deposit accounts in domestic banks to fx-denominated stablecoins (e.g. Tether or USDT) in digital wallets in crypto exchanges often creates not only a decline in bank deposits but also capital outflows from the local banks in emerging economies to the reserve assets managed by the custodian in advanced economies.[8] When the volume of such outflows becomes significant, they could potentially trigger higher volatility of the local currency and exert pressure on

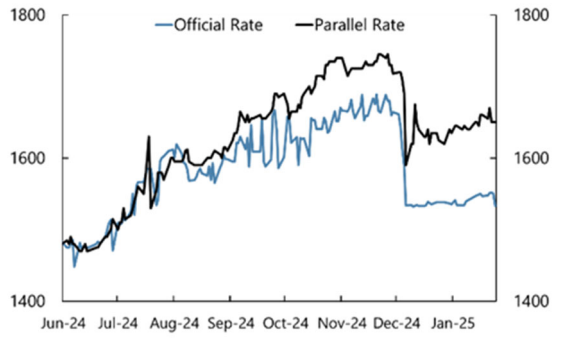
[7] There are other more sophisticated schemes in which crypto markets can facilitate capital flight. For a more detailed description of these schemes, please refer to Graf von Luckner et al. (2024).

[8] Graf von Luckner et al. (2024).

macroeconomic growth. They could potentially undermine the effectiveness of monetary policy, as people prefer to save and invest in assets that are not denominated in local currency.

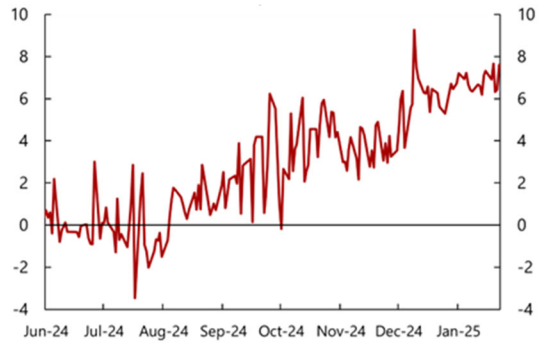
15. Crypto markets also provide a means for Nigerian investors to purchase stablecoins linked to the USD. Nigerian investors can transfer funds to their digital wallets in crypto exchanges and purchase stablecoins whose value is linked to the USD, such as Tether (USDT), USD Coin (USDC), and Pax Dollar (USDP). In this way, they can practically acquire and hold "foreign currency". The purchase of stablecoins linked to the USD became attractive for small businesses and investors in Nigeria at the end of 2023 and the first half of 2024 when the availability of USD became limited in banks and other licensed financial institutions. In addition, because the USD/Naira exchange rate quoted in global crypto exchanges diverged, sometimes by wide margins, from the exchange rate in the formal FX market, investors have had the door open to arbitrage and speculate against the naira through the crypto market.

Figure 3. Exchange Rates
(Naira/US$)



Source: CBN

Figure 4. Parallel Market Premium
(In percent)



Source: CBN

16. From the authorities' standpoint, the activities of global crypto platforms have allowed users to acquire foreign currency outside the formal FX market and facilitated speculative activities against the naira via peer-to-peer (P2P) transactions, thereby posing currency stability risks. Those exchanges also quoted daily exchange rate information of the naira versus USD, which diverged from the exchange rate quotes available in the formal FX market. In response, the authorities shut down some of the global crypto platforms that operated in Nigeria without a license in 2024. The authorities acknowledged that approximately $26 billion in crypto transactions had passed through those exchanges from sources and users that the authorities could not properly identify. In 2024, authorities also banned peer-to-peer (P2P) crypto transactions citing concerns that these platforms obscure the identities of transacting parties, creating opportunities for

illegal activities. Additionally, P2P transactions pose a risk of fraud, as one party may fail to fulfill its part of the transaction.[9]

17. The authorities have started monitoring crypto markets daily and issued guidance for the use of the exchange rate in licensed crypto platforms. The authorities access daily data provided by Chainalysis to monitor daily turnover in the crypto market, including inflows, outflows, and domestic trading volumes. They are also putting in place a new regulatory framework to identify large or suspicious transactions and take appropriate action when needed. The Nigerian authorities have also defined a band for pricing crypto assets in naira/USD at +/-5 percent around the CBN announced exchange rate, in principle, allowing assets to be priced around the parallel market rate, but without much divergence from the CBN exchange rate. The authorities view crypto market activity as one of several factors that may have contributed to exchange rate volatility in 2023 and 2024. However, in the absence of detailed data, it is difficult to validate the extent to which crypto markets may have influenced exchange rate movements in Nigeria.

18. We recommend that authorities continue to monitor developments in the crypto marketplace and ensure that all exchanges operating in Nigeria meet the regulatory standards set by the SEC. These exchanges should provide timely and comprehensive information about their business activities to the relevant authorities, including suspicious transactions. Financial authorities should also continue building their supervisory and enforcement capacity. This, combined with the implementation of sound macroeconomic policies and ongoing efforts to improve the efficiency and transparency of the formal FX market, while addressing the still large informal FX market, will help strengthen the confidence of both domestic and foreign investors in Nigeria's currency.

Element 3: Analyze and Disclose Fiscal Risks and Adopt Unambiguous Tax Treatment of Crypto Assets.

19. Crypto assets are subject to capital gains taxes, but enforcement remains a challenge. The Finance Act of 2023 introduced a 10% tax on gains from the disposal of digital assets, including crypto assets. This means that any profit made from selling crypto assets is subject to this tax. However, currently, the Federal Inland Revenue Service (FIRS) of Nigeria does not have a formal approach to track crypto ownership and usage in Nigeria and relies on individual self-reporting of gains in crypto assets for tax purposes which is sub-optimal as most crypto users have consistently eluded the FIRS or its activities in the crypto space.

20. Going forward, the FIRS should strengthen its capacity to enforce existing tax regulations on crypto assets. This will require collaboration with major crypto intermediaries to identify individuals and firms engaged in crypto trading and ensure proper tax collection. The authorities could also consider mandating firms to withhold taxes on capital gains. Additionally, the

[9] P2P platforms enable users to bypass the traditional financial sector when conducting crypto exchanges. In a P2P transaction, the sender inputs the recipient's wallet address, specifies the amount, and signs the transaction to transfer the asset.

FIRS should enhance cooperation with international agencies to identify and penalize tax defaulters, as many traders use offshore exchanges, making tax collection even more challenging.

Element 4: Establish Legal Certainty of Crypto Assets and Address Legal Risks.

21. The authorities have established legal certainty of crypto assets in alignment with this element. The legal framework for crypto assets has been evolving and it currently has the following five characteristics.

- The SEC is the designated government entity responsible for regulating and supervising the crypto asset industry.
- The SEC has developed regulation that classifies all digital crypto assets as securities. The current SEC regulation defines a crypto asset as a digital representation of value that can be digitally traded and functions as a medium of exchange and/or a unit of account and/or a store of value but does not have legal tender status in any jurisdiction. It goes further to provide that such a crypto asset is one that (a) is neither issued nor guaranteed by any jurisdiction, (b) fulfills the above-stated functions merely by agreement within its community of users, and (c) is distinguished from national currency and e-money.[10]
- The SEC has established a regulatory framework for digital assets, which includes guidelines for the issuance, offering platforms, and custody of these assets, and aims to ensure transparency and protect investors.
- The SEC oversees Virtual Financial Assets (VFAs) exchanges operating within Nigeria. This includes both domestic and foreign exchanges targeting Nigerian investors.
- And lastly, entities dealing with digital assets must comply with the SEC's rules and regulations, including anti-money laundering (AML) and counter-terrorism financing (CFT) obligations.

Element 5: Develop and Enforce Prudential, Conduct, and Oversight Requirements to all Crypto Market Actors.

22. Among emerging market economies, Nigeria is a pioneer in the development of a regulatory framework for the crypto asset industry. Since 2024, all crypto exchanges are required to be incorporated in Nigeria and be licensed by the SEC. Once licensed, crypto exchanges/platforms are subject to Nigerian laws and regulatory and supervisory standards. Licensed entities are given the right to open accounts at banks to facilitate their business operations. Additionally, the SEC has stated that licensing will only be granted if the platform/exchange has a license issued by a financial sector authority in its home country, thus requiring foreign crypto platforms to be incorporated in Nigeria as a subsidiary in order to be eligible to operate in Nigeria.

[10] SEC Nigeria. 2022.

23. The SEC has set up accelerated incubation programs to enable local platforms to ensure compliance with basic regulatory rules and obtain authorization to be able to operate lawfully. So far, two firms, Busha and Quidax, have been granted provisional authorization to operate. The SEC has another program to help firms test their technology and business models. Currently, five firms are participating in it.

- In August 2024, the SEC granted an *Approval-in Principle* to Quidax and Busha, giving them the status of legally recognized crypto trading platforms. *Approvals-in-Principle* is a precursor to the grant of full registration by the SEC, but these two platforms can legally function as crypto-trading platforms in Nigeria. The Commission also admitted four companies to test their models and technology under its Regulatory Incubation (RI) Program. The four firms are digital assets offering platforms, which include Trovotech, Wrapped CBDC, Dream City Capital, and HousingExhangeNG.

- With the help of these two programs, the SEC expects trading platforms to present themselves to the SEC and gain formal registration. It is noteworthy that the above firms are not the only entities that have applied to those programs. Other applications received are being assessed and would be granted Approval-in-Principle on a case-by-case basis as they meet all SEC requirements.

24. To ensure the effectiveness of regulation, it must be enforced. The authorities need to continue shutting down the operations of un-licensed exchanges operating in Nigeria in collaboration with foreign authorities. This move will send a strong signal to market participants that the authorities are committed to cracking down on illegal crypto trading. In practice, however, the SEC has acknowledged the challenges it faces in identifying foreign exchanges that provide services to Nigerian residents. Some platforms operate from neighboring countries and continue to serve investors in Nigeria. Additionally, Nigerian investors can use virtual private networks (VPNs) to avoid detection by authorities. For that reason, the collaboration of the Nigerian authorities with their foreign counterparts in order to prevent the operation of unlicensed crypto firms is critical.

25. The surveillance of the crypto market is still in early stages in Nigeria. Both the SEC and CBN have recently established their own specialized units to monitor flows and market activity. Data is collected from the registered local exchanges along with other registered players (Fintech firms) in the Nigerian marketplace. They have also subscribed to the global database Chainalysis to monitor daily transactions into and out of Nigeria.

26. Addressing the money laundering, terrorism financing, and proliferation financing risks posed by crypto asset activity is critical. The anonymity of investors buying or selling crypto assets in the global market, as well as the speed and relative ease of transacting globally make the crypto market highly susceptible to criminal abuse. Under the FATF standards, countries are required to identify and assess ML/TF/PF risks associated with crypto assets and take appropriate steps to mitigate those risks. With a view to implement the FATF standards, Nigeria has amended its legal and regulatory framework to require crypto asset service providers to apply AML/CFT preventive measures (including customer due diligence, record-keeping, and reporting suspicious transactions).

The SEC also mandates entities to appoint a compliance officer, maintain a compliance manual, and implement employee education and training programs. Nigeria is also undertaking broader reforms to strengthen its AML/CFT framework, following its public listing by the FATF in 2023 for strategic AML/CFT deficiencies (FATF's "grey listing").

27. Effective risk-based AML/CFT supervision is key to ensure that crypto asset service providers apply mitigation measures in line with their ML/TF risk exposure. Moving forward, the authorities should ensure that licensed crypto asset service providers comply with the new AML/CFT requirements, through risk-based AML/CFT supervision. Specifically, the SEC should ensure that their AML/CFT supervisory tools are appropriately tailored for effective engagement with the crypto asset sector and undertake supervisory activity commensurate with the ML/TF risks levels of these institutions.[10]

28. Consumer protection is another critical component of the emerging regulatory regime for crypto assets. Existing SEC regulations aim to safeguard investors from fraud and scams in the crypto space, whether originating domestically or internationally. Crypto exchanges and wallets are frequent targets of cyberattacks, posing significant risks of financial loss to investors. Due to the global and decentralized nature of crypto markets, tracing and recovering funds in cases of fraud can be extremely challenging. In January 2025, the SEC updated its crypto regulations to strengthen oversight of crypto-related marketing activities by virtual asset service providers (VASPs) and social media influencers. Under the revised Digital Asset Rules, VASPs must obtain prior approval from the SEC before engaging third-party service providers to promote their crypto products. Additionally, VASPs are required to ensure that these third-party providers comply with all SEC marketing regulations. These rules apply to any VASP offering services to Nigerian residents and are scheduled to take effect on June 30, 2025.

29. The SEC's revisions also address the role of social media influencers, or "Finfluencers," in promoting cryptocurrency products and services. Crypto influencers must obtain a "no-objection authorization" from the SEC before publishing their digital asset ads. In addition, they must verify whether the company they are promoting is licensed by the SEC. These efforts to educate consumers about the risks of trading in the crypto market are positive, because Nigerian consumers are more likely to become victims of fraud in exchanges or firms that are not licensed by the SEC.

[10] The Travel Rule in Nigeria, aligned with the Financial Action Task Force (FATF) guidelines, mandates that any crypto transaction exceeding $1,000 must include detailed information about the originator and beneficiary. According to this rule, the names, digital wallet addresses, and other identifying details of the parties involved in a crypto transaction must be collected and verified. Transactions below this threshold ($1,000) are exempt but must still include the names and wallet addresses of both the originator and the beneficiary.

Element 6: Establish a Joint Monitoring Framework Across Different Domestic Agencies and Authorities.

30. The authorities have established an inter-governmental group to coordinate their actions on crypto issues. The SEC is the main regulator and supervisor of the crypto industry, and other relevant institutions include the CBN, the Financial Intelligence Unit (FIU), and the Office of the National Security Adviser. The working group meets on a regular basis, sharing information and discussing progress on their policy initiatives. To be effective, authorities must build and implement a formal monitoring framework that is comprehensive, covers a wide range of risks, including money laundering, terrorism financing, consumer fraud, tax evasion, and other relevant risks. The framework must be supported by availability of relevant market data.

Element 7: Establish International Collaborative Arrangements to Enhance Supervision and Enforcement of Crypto Asset Regulations.

31. The SEC has been an active member of the International Organization of Securities Commissions (IOSCO) and has participated in several key international fora to discuss policy and regulatory responses to crypto assets. SEC officials have been in regular communication with their peers in other jurisdictions about crypto issues. Moreover, the authorities are envisioning several enhancements to regulation in line with the IOSCO's Policy Recommendations for Crypto and Digital Assets.[11] The Nigerian authorities are also analyzing regulatory approaches and developments in other jurisdictions. They are also discussing cooperation with various foreign authorities on crypto issues.

Element 8: Monitor the Impact of Crypto Assets on the Stability of the International Monetary System.

32. The global marketplace for crypto assets is growing and evolving rapidly. At the end of December 2024, the global cryptocurrency market capitalization amounted to $3.9 trillion.[12] This represents a significant growth of 97 percent over the previous year, with Bitcoin (BTC) holding a dominant share of around 55.72%.[13] Given the active role that Nigerian residents, firms and individuals, play in the crypto market, it is important that Nigerian authorities continue monitoring the impact of crypto assets on the stability of the international monetary system and on their own financial system.

33. Because crypto assets could amplify existing vulnerabilities and pose new risks to global financial stability, the IMF recommends to closely monitor the following areas:[14] (i) crypto assets' impacts on gross and net cross-border capital flows; (ii) changes in financial

[11] FR11/23 Policy Recommendations for Crypto and Digital Asset Markets

[12] 2024 Annual Crypto Industry Report | CoinGecko2024 Annual Crypto Industry Report (CoinGecko, 2024)

[13] 2024 Annual Crypto Industry Report | CoinGeckoAnnual Crypto Industry Report (CoinGecko, 2024)

[14] Elements of Effective Policies for Crypto Assets

intermediation, currency substitution, and international currency use; (iii) effects of exchange rate and capital account regimes as well as capital flow management measures; (iv) financial integrity risks; and (v) demand for and supply of global financial safety net resources.

Element 9: Strengthen Global Cooperation to Develop Digital Infrastructures and Alternative Solutions for Cross-border Payments and Finance.

34. Nigeria has an innovative marketplace composed of more than 600 Fintech firms providing financial services ranging from retail payments to loans and insurance products. In the area of cross-border payments, Fintech firms offer products to enable individuals and firms to receive payments from overseas at attractive fees. Fintech firms reach out to users in both urban and rural areas. Nigeria also licenses money transfer operators (MTOs) which play an important role in providing remittance payments to beneficiaries in Nigeria.

35. However, there are various challenges that hinder the development of more robust and digitalized cross-border payment system for Nigeria. One challenge is related to correspondent banking. Fintech firms and other non-bank financial intermediaries often have difficulties in finding correspondent banks willing to work with them to execute cross-border transactions due to perceptions (or assessment) of high ML/TF risks associated with these firms and/or significant weaknesses in their AML/CFT policies and procedures. Another challenge is that the prudential regulation applicable to Fintech firms tends to be laxer than the regulation applied to commercial banks for similar products and services, causing distrust among banks and even concerns about unfair competition and regulatory arbitrage. Finally, the occurrence of scams and fraudulent activities for users of Fintech companies has created distrust among segments of the population. Under this environment, crypto remains an attractive alternative for many users for their cross-border payment needs.

36. The IMF recommends that, in addition to putting in place an effective policy framework for crypto assets, the authorities should take advantage of progress in digital technology to meet other financial inclusion objectives.[15] Some of the underlying technologies of crypto assets could be used to facilitate the development of digital infrastructures and address existing inefficiencies in financial services. Digital public infrastructure, such as interoperable digital platforms, digital identification systems, digital payments, and trusted data sharing, can help solve problems, such as persistent inefficiencies in cross-border payments.

C. Conclusions

37. The widespread adoption of crypto assets in Nigeria presents serious potential challenges related to financial stability via capital outflows, currency speculation, money laundering, terrorism and proliferation financing, and consumer fraud. To address these risks, effective enforcement of the regulatory framework is essential and will require new efforts by regulators to shut down all crypto firms that are unwilling or unable to meet the licensing

[15] Elements of Effective Policies for Crypto Assets (IMF, 2023)

requirements of the SEC. Coordinated efforts with foreign authorities will be required to suspend the operations of institutions offering services to Nigerian residents from foreign jurisdictions. The authorities should continue to strengthen market surveillance by monitoring daily market turnover, including inflows, outflows, and domestic trading volumes. Gathering and analyzing data from existing market participants in Nigeria is critical to establishing an effective regulatory and supervisory regime. In addition, the SEC should regularly publish key statistics on the Nigerian crypto market—such as the number of licensed institutions, the number of crypto accounts, and daily crypto asset turnover. Lastly, ensuring the enforcement of the taxation regime for crypto investors is a crucial priority. This will require a concerted effort to ensure that capital gains are accurately reported and that investors are not using the crypto market to evade tax obligations.

References

Central Bank of Nigeria. 2021. CBN Circular BSD/DIR/PUB/LAB/014/001, dated February 5, 2021.

Chainalysis. 2023. Sub-Saharan Africa: Nigeria Takes # 2. Sub-Saharan Africa: Nigeria Takes #2, South Africa Grows Crypto-TradFi

Chainalysis. 2024. *The 2024 Geography of Crypto Report*. The 2024 Geography of Crypto Report

Coingecko. 2025. *2024 Annual Crypto Industry Report*. 2024 Annual Crypto Industry Report | CoinGecko

Consensys and YouGov (2024): A Global Survey on Crypto and Web3. A Study by Consensus with YouGov data. ES26516661 Consensys Web 3 - Nigeria.pptx

Graf von Luckner et al. (2024). *Crypto as a Marketplace for Capital Flight*. IMF Working Paper 24/133.

International Bar Association. 2024. *Overview of Nigeria's dynamic cryptocurrency regulatory landscape*. Overview of Nigeria's dynamic cryptocurrency regulatory landscape | International Bar Association

International Monetary Fund (2025): Note for the Coverage of Crypto Assets in Article IV surveillance.

International Monetary Fund. 2023. Elements of Effective Policies for Crypto Assets. Policy Paper No. 2023/004. Elements of Effective Policies for Crypto Assets

International Organization of Securities Commissions. 2023. *Policy Recommendations for Crypto and Digital Asset Markets*. FR11/23 Policy Recommendations for Crypto and Digital Asset Markets

Reguerra, Ezra. 2024. *Nigeria SEC tightens crypto marketing rules*. Cointelegraph. Nigerian SEC tightens crypto marketing rules

Securities and Exchange Commission of Nigeria. 2022. *New Rules on Issuance, Offering Platform, and Custody of Digital Assets. The Securities and Exchange Commission, Nigeria*

Securities and Exchange Commission of Nigeria. 2024. *Press Release: Update on the SEC's Accelerated Regulatory Incubation Program and Regulatory Incubation Program.* Nigeria SEC Press Release (2024/08/29)

Sing, SHailey. 2023. An overview of Cryptocurrency regulations in Nigeria. Cointelegraph. An overview of cryptocurrency regulations in Nigeria

Shyft Network. 2024. *A guide to FATF travel rule compliance in Nigeria*. A Guide to FATF Travel Rule Compliance in Nigeria | by Shyft Network | Shyft Network | Medium

Unini, Chiona. 2020. *An analysis of the new SEC regulations on cryptocurrency in Nigeria: A new dawn*. The Nigeria Lawyer. An Analysis Of The New Sec Regulations On Cryptocurrency In Nigeria: A New Dawn - TheNigeriaLawyer

US Securities and Exchange Commission. 2024. *Press Release 2024-194*. U.S. SEC Press Release (2024)

MACROECONOMIC IMPLICATIONS OF CLIMATE CHALLENGES[1]

Climate events significantly impact Nigeria's growth outlook, fiscal sustainability, balance of payments and financial sector, potentially undermining macroeconomic stability. Extreme weather events and their frequency have a direct effect on growth and the balance of payments. An expected sea level rise would pose significant economic cost for Nigeria, damaging infrastructure in coastal areas such as Lagos—the main commercial and financial center. While relatively small, the financial sector is exposed to spillovers to asset quality and may even be directly impacted via its physical presence in Lagos. Fiscal policy will have to address lower tax revenues from lower growth and higher demands for spending on disaster relief, infrastructure repair, and investments in climate adaptation and mitigation. As a result, Nigeria will face fiscal and associated external financing gaps.

A. Executive Summary

1. **Growth Impact**: Increasing temperatures and more intense precipitations are expected to reduce growth. In a worst-case scenario, the fastest global warming scenario and with slow adaptation, GDP is projected to be 8 percent lower by 2100 than in a hypothetical scenario without global warming, raising unemployment, worsening food insecurity, and increasing poverty. Adaptation investments in agriculture and resilient infrastructure can reduce this impact of climate events to 3 percent, albeit at a fiscal cost (below). Sea level rise is estimated to cost between 0.1 and 0.4 percent of GDP annually due to loss of life and capital from storm surges in coastal areas. Pursuing Nigeria's mitigation objectives would take another 0.06 to over 0.4 percentage points off GDP growth, depending on the policy design.

2. **Fiscal Impact:** Fiscal revenues would be reduced with lower growth (unit buoyancy). In parallel, the government faces higher spending needs for disaster relief which could reach up to 1½ percent of GDP and adaptation investments of 1 percent of GDP—adaption costs are up to 3 percent of GDP in the authorities' estimates which may include other development spending. These pressures come on top the need to strengthen revenue mobilization to create space for priority spending. However, if Nigeria were to proceed with its 2030 mitigation objectives, associated policy changes could generate 0.2 to 0.6 percent of GDP in additional revenue, some of this could be used to compensate vulnerable households. Taken together, climate events and rising sea levels will give rise to potential fiscal financing gaps.

3. **Balance of Payments Impact:** Extreme weather events, such as floods and droughts, can significantly disrupt agricultural and hydrocarbon production in Nigeria, leading to lower export volumes and at the same time requiring increased imports of food and other essentials. This could put pressure on the exchange rate and reserves. Fiscal financing needs may translate into external

[1] This SIP is prepared by Reginald Darius (AFR), Aurelien Billot, Emanuele Massetti, Nate Vernon-Lin (FAD), and is based on in-depth technical background papers on climate adaptation and mitigation.

financing needs. The authorities are exploring options to tap available external climate financing sources.

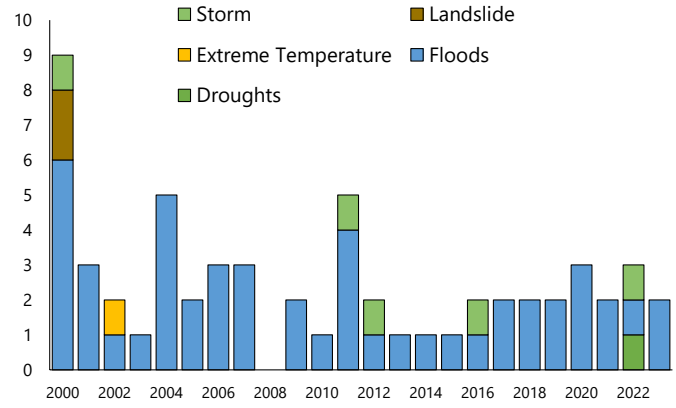
4. Financial Sector Impact: Extreme weather events and sea level rise would damage physical assets leading to higher claims and financial losses for insurers and worsening private sector balance sheets, potentially stressing banks' asset quality. At present, Nigeria's financial sector is small, but is expected to play an increasing role in driving growth over time which would raise its exposure to risks from climate events. The financial sector's physical presence will have to adjust to the projected sea level rise.

B. Introduction

5. Nigeria is vulnerable to extreme weather events which pose risks to macroeconomic stability. Rising temperatures, greater frequency of extreme heat days, and increasing frequency of high-intensity rainfall has resulted in frequent and significant flooding resulting in increased public spending for disaster relief and higher imports. Climate events are projected to create long term challenges for Nigeria, with the expected intensification of heating and precipitations estimated to reduce GDP by 8 percent by 2100, while the projected global sea-level rise is likely to impose cost from 0.1 and 0.4 percent of GDP annually for Nigeria. Fiscal cost associated with disaster relief, adaptation investment and mitigation will place significant pressure on the fiscal position and generate external financing gaps.

6. Nigeria, despite being a low emitter is committed to reducing its carbon footprint, which will generate significant external financing needs. Nigeria has pledged to reduce emissions by 20 percent by 2030 and reach net zero emissions by 2060. However, achieving these ambitious targets, would require rapid uptake of renewable energy, while addressing emissions in the forestry, agriculture, transport, and other sectors. Economic, external financing needs, and fiscal costs of the transition can be large unless mitigation policies are well-designed. Nigeria will require significant international finance to fill the fiscal financing gap and technology flows to implement its Energy Transition Plan (ETP), estimated to require additional investment of USD 410 billion, and achieve its climate targets.

Figure 1. Climate Disasters



Sources: FADCP and IMF staff calculations

7. To support implementation of adaptation measures and meet its emissions target, Nigeria has established relevant climate frameworks. The National Adaptation Plan Framework (NAPF) and the National Strategy and Plan of Action on Climate Change in Nigeria (NASPA-CCN)

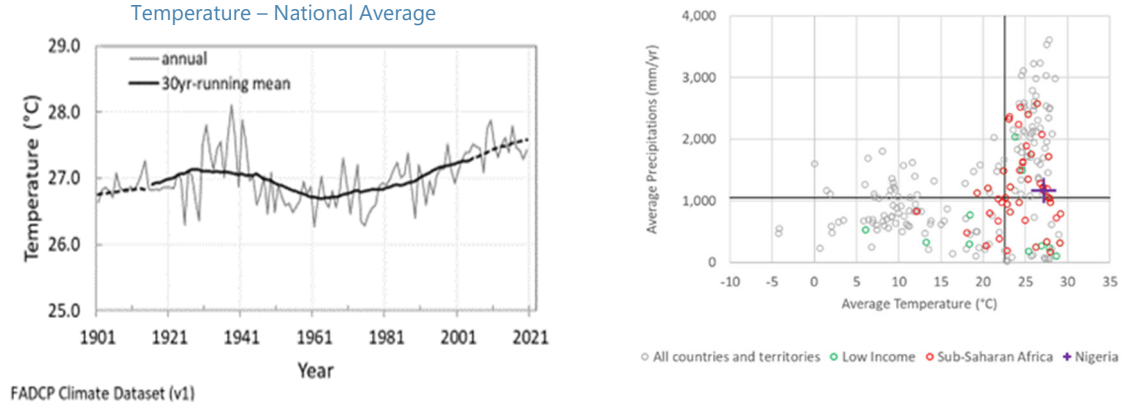
was established to guide the country's adaptation efforts and aligns with Nigeria's Nationally Determined Contributions (NDCs) under the Paris Agreement. The 2021 Climate Change Act established a framework to meet climate targets, with the creation of a coordinating National Council on Climate Change (NCC), chaired by the President, and mandating five-year Paris Agreement aligned carbon budgets and action plans. Nigeria has also contributed to global and regional efforts through its leadership role in the Global Methane Pledge and active participation in the Coalition of Finance Ministers for Climate Action.[2] In its NDC, Nigeria pledged an unconditional 20 percent reduction in emissions by 2030 below business-as-usual and a 47 percent reduction conditional on international support, with a long-term objective of net zero emissions by 2060.

C. Adaptation

Climate Trends and Projections

8. Nigeria's climate is mainly tropical with three distinct zones. The average annual mean temperature of 27-28 °C is unform across Nigeria (**Error! Reference source not found.**). Temperatures have been rising from the mid 1970's, with estimates indicating a total increase of 0.7 °C through 2020 relative to the period 1901-1930. The north and west of Nigeria have been warming at a faster pace compared to the south and east. Nigeria is projected to experience further temperature increases between 1.2 and 1.6 °C in 2036-2065 and between 1.4 and 3.2 °C in 2071-2100, with respect to the 1985-2014 period (commonly used reference for climate projections), depending on the emission scenario. Warming will likely be more intense in the north.

Figure 2. Temperature - National Average



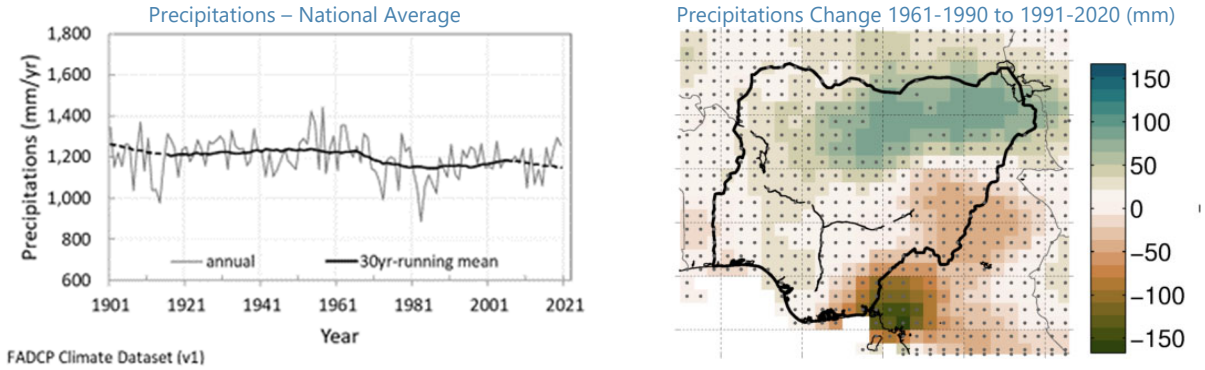
Sources: FADCP Climate Dataset (Massetti and Tagklis, 2024), using CRU data (Harris et al., 2020).
Notes: Average annual temperature (left) and global distribution of average annual temperature and total annual precipitation s during the period 1985-2014 (right).

9. Precipitation levels have remained stable on average since the 1960s (Figure 3), with diverging regional trends. The significant increase in precipitation in the north-east has been

[2] Nigeria was the first African country to include methane in its emissions reduction targets and a "champion" member of the Global Methane Pledge due to its strong existing policies and contributions.

balanced by a modest, decline in the southeast. Southern coastal areas have a Tropical Monsoon Climate, with precipitations of 2,000-3,000 mm. Central areas have Tropical Savannah Climate with wet and dry seasons with total annual rainfall of 1,000-1,500 mm per year on average. Northern regions have Sahelian Hot and Semiarid Climates, with low annual rainfall of around 500-1,000 mm per year on average. Nation-wide precipitations are projected to increase modestly.

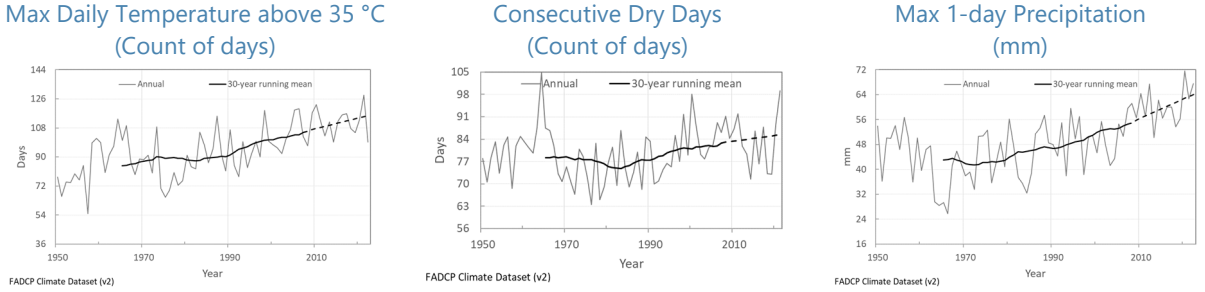
Figure 3. Precipitation



Sources: FADCP Climate Dataset (Massetti and Tagklis, 2024), using CRU data (Harris et al., 2020).
Notes: Total annual precipitations (left) and total annual precipitations change, 1961-1990 to 1991-2020 (mm) (right). Dots in the maps indicate non-significant changes.

10. Extreme temperatures have become more frequent (**Error! Reference source not found.**). The number of "hot" days (maximum daily temperature above 35 °C) has increased, dry periods have become longer along the coastline, and intense precipitations (annual maximum rainfall recorded in one single day) has increased nationally and stronger in coastal areas. Most of the country is expected to register significant increases in intense rainfall events which will contribute to increased flood risks.

Figure 4. Historical Time Series of Selected Indicators of Extreme Weather



Sources: FADCP and IMF staff estimates.
Notes: The solid line displays the 30-year average centered around each 30-year period. Edge effects near the beginning and end of the time series may affect the accuracy of the mean in those regions (dashed). Change: 1991-2020 relative to 1961-1990. Dots indicate grid cells with non significant change.

11. The sea-level is increasing slowly with the upward trend likely to continue for centuries. Median projections for Nigeria using a moderate emission scenario (RCP 4.5) indicate

that by the end of the century sea-level will increase by 0.71 m with respect to its level in 2000 (Table 1 and Figure 8). With an emission scenario in line with the Paris goal of keeping global mean temperature increase below 2 °C (RCP 2.6), sea-level is projected to increase by 0.60 m. Under the very high emission scenario (RCP 8.5), sea-level is projected to increase by 0.90 m. Staff estimates the annual average cost of SLR without adaptation of about 0.3 percent of GDP for Nigeria between 2020 to 2099, under moderate emission scenario. Costs range between 0.1 and 0.4 percent of GDP annually with the best and worst sea-level rise projections. Most of the cost is attributed to loss of life and capital during storm surges in the densely populated coastal areas of Nigeria.

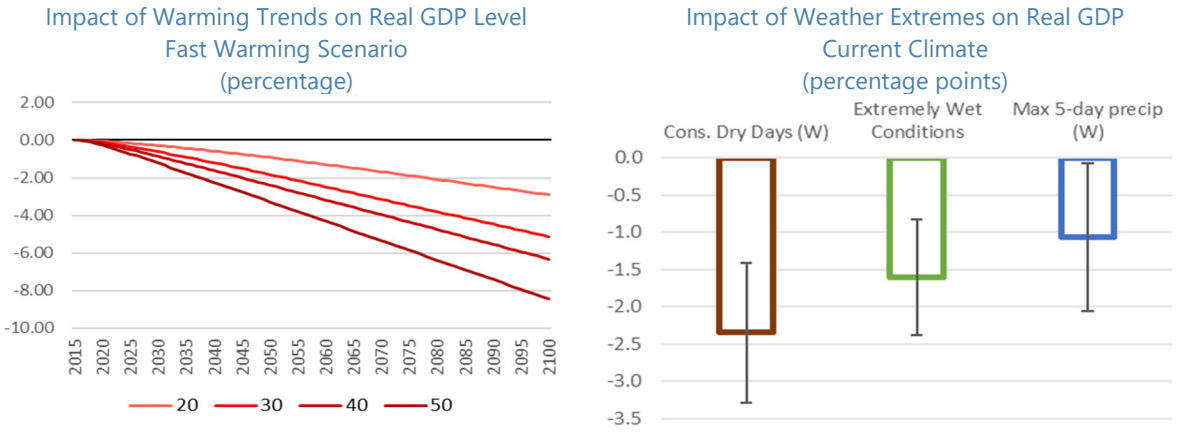
Macro-Economic Implications

Impact of Slow-Moving Warming and Weather Shocks

12. Climate change is projected to dampen GDP growth with associated reduction in fiscal revenues. Lower growth would further impede per-capita income growth, increase poverty and weaken fiscal revenues further constraining the governments' ability to respond to climate events, and scaling up needed development spending. Under the fastest global warming scenario and with slow adaptation, GDP is projected to decline by up to 8 percent annually by 2100 (**Error! Reference source not found.Error! Reference source not found.**). While the top-down macro-economic outlook does not allow for quantification of sectoral impacts and transmission channels, bottom-up studies indicate that warming reduces agricultural output by lowering yields, reducing animal welfare, and increasing desertification. Higher temperatures also lower labor productivity across sectors, especially those with mostly outdoor activities, as both manual and cognitive functions decline.

13. Staff estimates suggest that faster adoption can lower costs to 3 percent of GDP but would require higher fiscal spending Error! Reference source not found.**.** Adaptation, in the form of increasing use of heat tolerant crops, increased irrigation, better management practices, measures against desertification, changes from day to night work in construction, and widespread adoption of air conditioning in private and public buildings, can mitigate these losses. Requiring increase government spending to incentivize private sector interventions. Relatedly increased government spending would raise imports in the near term given rise to increase balance of payments pressures. Further challenges may come from changes in extreme weather. Empirical analysis using "big data", and machine learning methods finds that prolonged periods of consecutive dry days, extremely wet conditions, and intense precipitation events already reduce GDP growth in Nigeria by 1 to 2.5 percentage points for each standard deviation above normal levels.

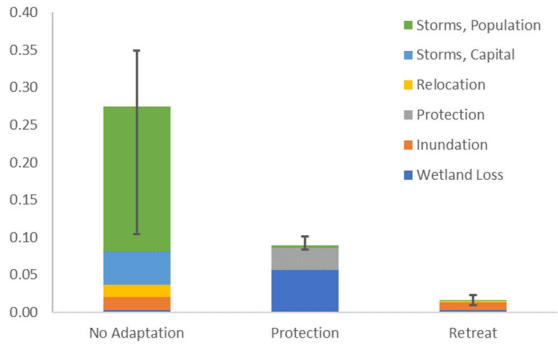
Figure 5. Macro-economic Impact of Warming and Extreme Weather Events



Sources: Staff estimates using Kahn et al. (2021) and Akyapi, Bellon, and Massetti (2025).
Note: Left panel - Impact of the warming trend implied by the 90th percentile of the SSP3-7.0 CMIP6 ensemble using Kahn et al. (2021) under the assumption that adaptation can offset the warming trend after 20, 30, 40, or 50 years. Right panel – impact of one standard deviation of each climate variable from its long-run average. Consecutive. Dry Days (W): population weighted number of consecutive dry days; Extremely Wet Conditions: PDSI index larger than +4; Max 5-day precip (W): population weighted total precipitations during the 5-day period with the largest total rainfall in Nigeria during a year. Variables selected using the LASSO as in Akyapi, Bellon, and Massetti (2025).

14. Sea level rise would be damaging to growth and place significant pressure on the financial sector particularly insurance companies (Figure 6). Losses are mostly due to storm-surge events becoming more impactful as sea level rises. This will result in increased damages and higher insurance claims. Adaptation can reduce costs substantially but would require additional investments though protection of the coastline, for example by means of beach nourishment, coastal dunes, and dykes, avoid loss of land and storm-surge losses. Planned retreat from the coastline by allowing slow depreciation of existing capital, no construction of new capital, and slow relocation of the population further reduces costs. This strategy does not require investment in physical, and environmental-disrupting protection measures. However, it does require long-term planning, coastal land use regulations, and careful scrutiny of the distributional impacts on the population.

Figure 6. Costs of Sea-Level Rise
(in percentage of GDP)



Source: IMF Staff using the CIAM model (Diaz, 2016).
Notes: Average annual cost using RCP4.5 (Moderate). Whiskers on top of each bar indicate the range of total cost using the 5th and 95th percentile of the probabilistic distribution of sea-level rise. Due to the highly non-linear nature of coastal impacts, adaptation costs, and effectiveness of adaptation measures, ranges are not always symmetric around total costs.

Fiscal and External Financing Implications of Adaptation Policies

15. The authorities are focusing on mainstreaming the 2021 Climate Change Act, by enhancing agency cohesion, and improving stakeholder participation. The NDC is currently

under review with a project steering committee established to help broaden ownership. The Ministry of Finance and the Ministry of Budget and Planning aim to set realistic targets, with private funding through private public partnerships (PPPs) being a key part of the financing strategy. Challenges such as inadequate financing, weak infrastructure, and the need for more inclusive planning remain. Addressing these challenges aided by development of a robust monitoring and evaluation systems is crucial for the successful implementation of Nigeria's climate adaptation strategy. With limited fiscal space, widening external current deficits due to higher imports from rehabilitation following more frequent climate events and large climate related infrastructure spending would generate significant external financing gaps. Which would require external low-cost climate funding from external sources, including through having well designed project proposals.

16. Nigeria's climate adaptation strategy focuses on actions to lessen the impacts of climate events. It includes Climate-Smart Agriculture which seeks to integrate seed improvement, hybridization, and sustainable land management practices. The plan also seeks to expand and conserve ecosystems and maintaining the ecological structure of natural habitats. Local adaptation initiatives are being implemented, focusing on community-based projects that promotes sustainable agriculture, water management, and disaster risk reduction. Supported by efforts to build capacity of local communities, government agencies, and other stakeholders through training programs and workshops to enhance implementation of climate adaptation measure.

17. Adapting to climate events will increase fiscal spending and generate external funding needs. Investment needs for adaptation is uncertain due to differences in methods, definitions, and future scenarios. The authorities estimate climate change adaptation needs at $3.6 billion per year for agriculture and water, $3.6 billion for health, and $6.5 billion for transportation, rising to $24.3 billion per year by 2050, totaling about 3 percent of 2020 GDP [3]. This would represent spending needs in addition to what is required for broader development spending. Implementing adaptation expenditure of that magnitude, would increase fiscal financing needs and import demand generating additional external financing needs. IMF staff estimates are lower, with reinforcing new infrastructure exposed to floods estimated to cost 0.02 percent of GDP annually.

18. Adaptation is most effective when integrated into development planning, and priority is given to policies with positive externalities. Removing market inefficiencies and promoting reforms such as improving access to credit and agricultural extension services can facilitate private adaptation as has occurred in Nigeria (Haider, 2019; Oluwole et al., 2016; Federal Ministry of Environment, 2014). By addressing market inefficiencies, the government enables local communities to plan for climate impacts and set adaptation goals, aligning with the National Adaptation Plan. Nigeria's National Adaptation Plan appropriately highlights the importance of viewing adaptation as a cross-cutting developmental issue and sets the foundation for mainstreaming adaptation. Progress has been made in agriculture through diversifying crops, changing planting dates and implementing management strategies that reduce heat stress (Ifeanyi-obi and Nnadi, 2014).

[3] Source: Federal Ministry of Environment (2010). The same figures are reported in the Adaptation Communication to the United Nations Framework Convention on Climate Change (UNFCCC) (Federal Republic of Nigeria, 2021).

However, there is a clear role for enhancing irrigation facilities to offset natural rainfall variability (Haider, 2019).

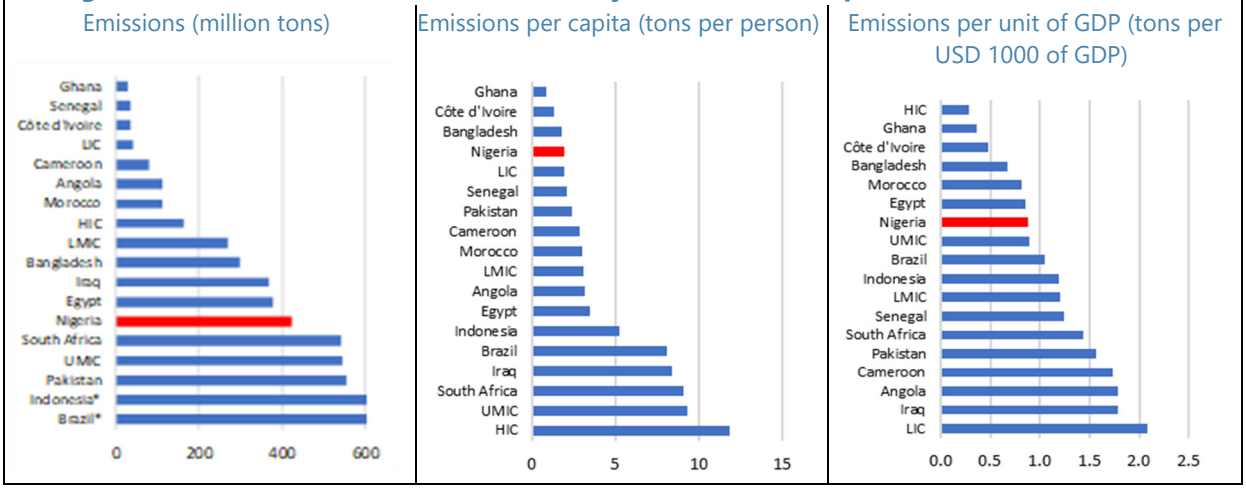
19. Despite limitations, cost-benefit analysis (CBA) can play an important role in helping decision makers to consistently collect, aggregate, and compare information on public adaptation projects. The NAP recognizes the possibility of trade-offs between development and adaptation, and the need to properly manage adaptation to prevent unintended consequences (NAP, p. 19). As exemplified by the analysis of sea-level rise, adaptation investment and policy may entail trade-offs. Investing in stronger infrastructure reduces damages in case of floods but subtracts resources from other development goals. These trade-offs would be better assessed by comparing social costs and benefits using a systematic approach. What to do, when, how, and at what cost ultimately relies on ethical choices that should reflect the preferences of each society. However, CBA, complemented by analysis and correction of distributional impacts, can help decision makers maximize overall social welfare by avoiding wasting scarce resources. To achieve this goal, it is essential that CBA is applied to adaptation as well as to all other development programs in a consistent manner (Bellon and Massetti, 2022a). This is in line with the principle of evidence-based climate change adaptation articulated in the National Adaptation Plan (FME, 2020, p. 20).

D. Mitigation

Background

20. Nigeria accounts for 0.9 percent of global emissions, with emissions per-capita and per unit of GDP broadly in line with that of neighboring and other lower middle-income countries (Error! Reference source not found.**).** About half of Nigeria's emissions are from fossil fuel extraction and agriculture. Power generation, transport, buildings, land-use, land-use change, forestry (LULUCF), and waste accounts for the other half of emissions (**Error! Reference source not found.**, left panel). The methane and flaring-intensity of oil and gas production are above that of many other hydrocarbon producing countries.

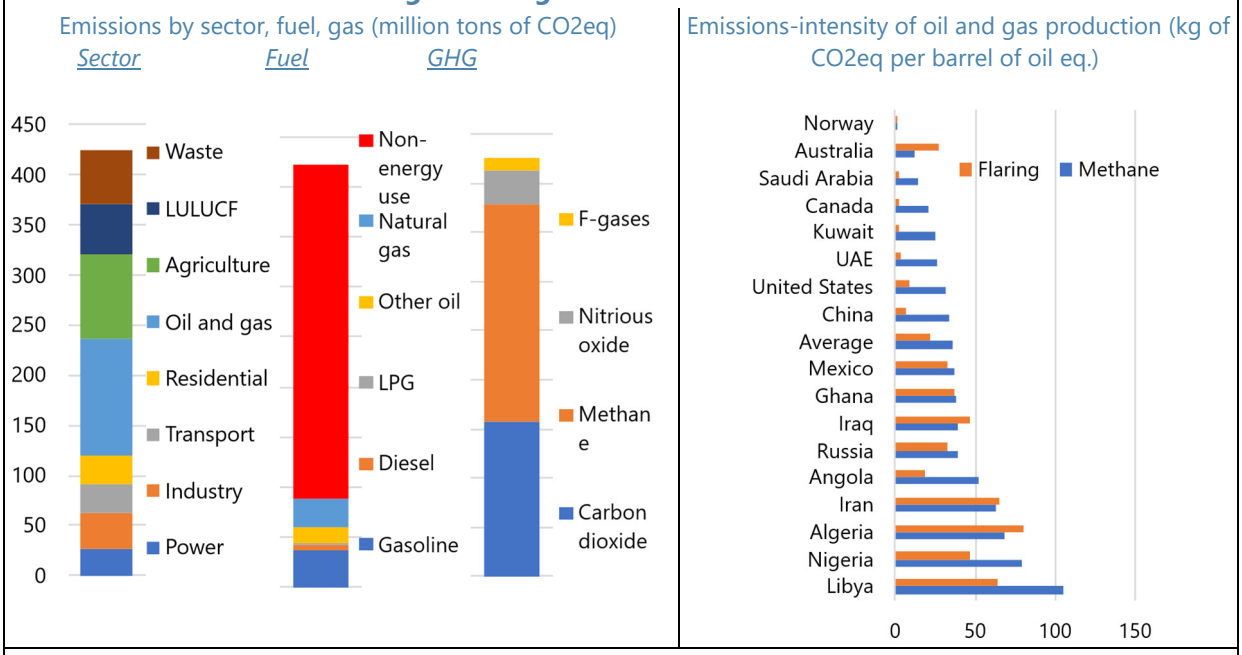
Figure 7. Emissions and Emissions-Intensity Relative to Comparator Countries in 2022



Sources: IMF staff estimates using the Climate Change Indicators Dashboard. Note: emissions include all greenhouse gases. HIC = high income country; UMIC = upper middle-income country; LMIC = lower middle-income country; LIC = low-income country. Total emissions chart capped at 600 million tons, but Brazil and Indonesia's emissions were above 1,400 in 2022 (*).

21. Nigeria's current emissions and economic profile presents opportunities for low-carbon growth. Reducing gas flaring, venting, and leaks would reduce the emissions intensity of fossil fuel production and strengthen the reliability and quantity of gas supply, promoting investment in energy-intensive sectors like heavy industry and power generation, strengthening Nigeria's export competitiveness raising exports with positive impact on the balance of payments, and improving energy security. Addressing low access to and undersupply of electricity and high reliance on off-grid generators would help improve electricity reliability and costs, would promote growth, boost fiscal revenues and exports while reducing greenhouse gas and harmful local pollutants. Supporting cleaner cookstoves would reduce deforestation and help lower premature deaths from air pollution.

Figure 8. Nigeria's Emissions Profile



Source: IMF staff estimates using IMF-WB Climate Policy Assessment Tool (CPAT), IEA 2024, and WB 2024a. Note: methane emissions are converted to CO2 equivalent assuming a 100-year global warming potential of 29.8 and emissions from flaring assume 98 percent destructive efficiency. F-gases = fluorinated gases. See Black et al 2023 for details on CPAT.

Current Policies and Projections

22. Nigeria has a suite of policies to reduce emissions (Table 1). This includes recent regulatory reforms to improve the investment environment through the 2023 Electricity Act[4] and increasing tariffs towards cost-reflective levels. Implicit fuel subsidies were eliminated in

[4] The 2023 Electricity Act provides greater investor protections, allows for bilateral power purchase agreements, expands feed in tariffs, among others. Several of the reforms are not specific to renewables but meant to improve the functioning of the power sector but may indirectly encourage investment in low-carbon power.

September/October of 2024, although all fossil fuels remain free of VAT. The National Climate Change Policy, Long-Term, Low-Emissions Development Strategy (LT-LEDS), and the 2021 Climate Change Act provide the direction of future policies, including the introduction of a carbon tax and carbon credits issued through both voluntary and Paris Agreement Article 6 carbon markets. To achieve targets of zero routine flaring and a 60 percent reduction in methane emissions, the government issued a strong package of guidelines and regulations in 2022-23. Efforts to develop transparent markets for the sale of captured natural gas markets and address barriers for domestic supply includes adjustments to better align domestic natural gas prices with export-parity levels.

Table 1. Nigeria: Summary of Nigeria's Mitigation Main Policies

Policy	Sector	Details	Macro implications
Renewable energy tax exemptions	Power	Solar panels are exempt from import duties; wind- and solar-powered generators and solar panels are exempted from VAT	Fiscal cost, increased imports
Renewable energy auctions	Power	Developing a framework to conduct auctions for large-scale renewable energy projects	Increased investment, limits fiscal costs
Fossil fuel price increases	Transport and power	Gasoline price increase of LCU 238 to 1189 (USD 0.51 to 0.76) per liter; diesel price increase of LCU 844 to 1,441 (USD 1.81 to 0.92) per liter; and natural gas increase of LCU 1116 to 4429 (USD 2.43 to 2.83) per GJ	Fiscal benefit, more fossil fuel available for export
Clean vehicles import and VAT exemption	Transport	Electric and compressed natural gas (CNG) vehicles are exempt from import duties and VAT	Fiscal cost, increased imports
Tax on flared natural gas	Oil and gas	Tax of USD 2 per thousand cubic feet of flared natural gas	Fiscal benefit, more gas for export/domestic use
Emissions related regulations	Oil and gas	Requirements for clean technologies and processes, emissions measurement, a minimum flare efficiency, and more	Fiscal benefit, more gas for export/domestic use

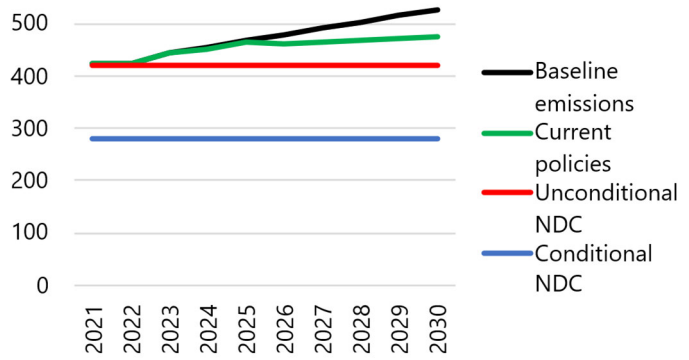
Source: IMF staff. Notes: the table only shows the main mitigation policies and is not comprehensive. GJ = gigajoule.

23. Additional measures are needed to achieve Nigeria's mitigation targets. Using the IMF-World Bank's Climate Policy Assessment Tool (CPAT),[5] baseline emissions are projected assuming no change in policies after 2021. Current policies include the impact of increased fossil fuel prices and emissions regulations in the oil and gas production sector introduced since 2021 (**Error! Reference source not found.**). Baseline emissions increase by around 2 percent per year and reach 515 mt of CO2e in 2030. Under current policies, emissions are 10 percent below the baseline, mostly due to oil and gas sector emissions regulations but also increases in gasoline, diesel, and natural gas prices. This implies that a further 10 percent reduction in emissions would be needed to achieve the NDC.

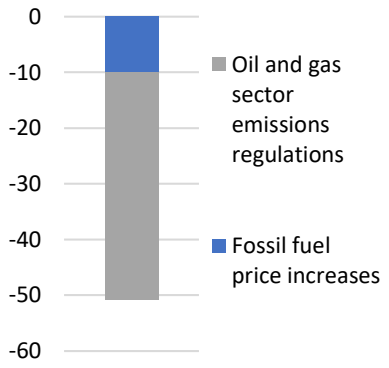
[5] See Black and others 2023 for more information on CPAT. CPAT assesses the impact of mitigation policies on fiscal revenue, emissions, and other macro indicators considering the country-specific structure of the energy, forestry, agricultural, and waste sectors.

Figure 9. Emissions Projections and Impact of Recent Reforms

Emissions under business as usual and current policies (mt of CO2 equivalent)



Impact of recent reforms on emissions in 2030 (mt of CO2 equivalent)



Source: IMF staff estimates using CPAT and IEA 2024. Note: see Table 1 for descriptions of current policies. Only the fossil fuel price increases and oil and gas sector emissions regulations are modelled here. This approach could overestimate emissions reductions if fossil fuel pricing and the oil and gas sector regulations are reversed or have limited enforcement or understate emissions reductions if the non-modelled policies significantly reduced emissions.

Macroeconomic Impact of Policy Options to Achieve Emissions Target

Mitigation Costs, Fiscal and Price Impacts

24. The design of mitigation policies significantly affects the size and distribution of economic costs, social acceptability, and fiscal implications of achieving targets. Emissions pricing minimizes economic costs and raises fiscal revenue but can impact international competitiveness and social equity through higher prices. If revenue is used progressively, it can benefit the poor. Emissions-intensity pricing, which taxes dirtier firms and capital and subsidizes cleaner ones, has higher economic costs but smaller price impacts, reducing distributional and competitiveness concerns. Subsidies are fiscally costly and economically inefficient, while regulatory approaches are more costly than pricing and likely do not significantly increase end-user prices.[6] A combination of policies is likely preferred, with the policy mix varying across sectors to balance economic, social, and environmental goals.[7]

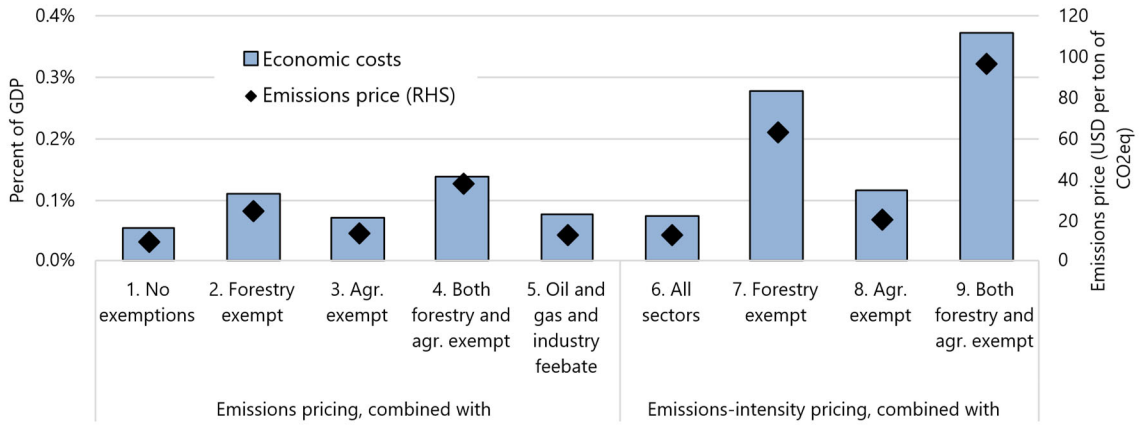
25. Achieving Nigeria's emissions reduction target results in costs ranging from 0.06 to at least 0.40 percent of GDP annually depending on the design of mitigation policies (Figure 3). Meeting Nigeria's NDC through broad-based emissions pricing would incur marginal economic costs (0.06 percent of GDP per year) and requires an emissions price of $10 per ton of CO2e. Exclusion of forestry and agricultural emissions pricing, which may be warranted due to

[6] The most efficient regulatory policy mimics emissions-intensity pricing but, in reality, regulatory policies lead to more costly abatement activities, which increases costs and end-user prices relative to emissions-intensity price.

[7] For additional information on carbon pricing see Parry et al 2022a, sector-specific emissions-intensity pricing see Online Annex 1.4 of IMF 2023, and for methane see Parry et al 2022b.

administrative concerns and plans to sell credits internationally,[8] doubles cost to around 0.13 percent of GDP and requires an emissions price in other sectors of $36 per ton. Exemptions for LPG has minimal fiscal and economic costs impact, as does combining emissions pricing with emissions-intensity pricing for sectors with international competitiveness concerns such as oil and gas production.[9]

Figure 10. Mitigation Costs and Needed Emissions Price to Achieve Mitigation Targets



Source: IMF staff estimates using CPAT.

26. Emissions pricing aligned with Nigeria's NDC substantially improves Nigeria's fiscal position, while emissions-intensity pricing results in a small revenue loss (Figure 5). Revenues under emissions pricing are highest from charges on gasoline and natural gas due to their importance in the energy mix and range from 0.2 to 0.6 percent of GDP depending on the covered sectors. Revenues are highest under scenarios with forestry and agriculture exempt since a higher emissions price is needed for the rest of the economy.[10] Emissions-intensity pricing and regulatory approaches does not directly raise revenues and leads to a small loss since mitigation costs reduce corporate profits (leading to lower CIT) and lower fossil fuel demand reduces revenues from taxes on fossil fuels (mainly diesel).

27. Emissions pricing increases end-user prices, raising distributional, export competitiveness, and acceptability considerations. For example, a $20 per ton emissions price increases oil product prices by 3 percent, electricity by 5 percent, and natural gas by 25 percent. This rise in energy prices, combined with charges on direct emissions, is estimated to raise production

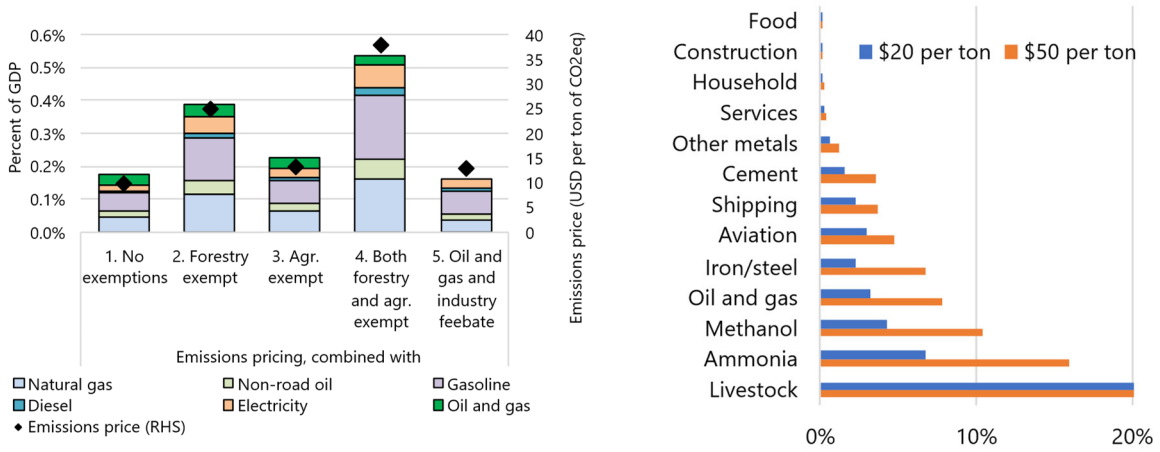
[8] The Paris Agreement's Article 6 facilitates the sale of carbon credits either through bilateral agreements, as outlined in Article 6.2, or via an international mechanism described in article 6.4. In both cases, Nigeria would need to implement a 'corresponding adjustment', meaning that any credits sold would not be counted towards its NDC.

[9] Subsidies are not comprehensively modelled but, in the transport sector, electric vehicle subsidies that achieve the same emissions reduction as emissions pricing result in roughly five times higher costs and generate a fiscal cost 0.2 percent of GDP.

[10] To avoid inflating revenue estimates, receipts collected from agriculture, waste, and forestry sectors are excluded, given the administrative difficulty of pricing these sectors.

costs by 2 to 10 percent in emissions-intensive sectors, potentially affecting international competitiveness for traded products like oil, gas, cement, and fertilizers. Price increases are especially large for livestock (above 20 percent) due to the sectors relatively high emissions-intensity. Emissions-intensity and well-designed regulatory policies results in much smaller price increases (for instance, oil and gas production costs increase by four times less with emissions-intensity pricing), making them more acceptable (especially in sectors like livestock where cost increases are particularly sensitive) unless emissions pricing is combined with targeted mitigating measures.

Figure 11. Impact of Emissions Pricing on Production Costs by Sector



Sources: IMF staff estimates using CPAT.

28. The above analysis highlights the significant macro and acceptability trade-offs across policy options in Nigeria (summarized in Table 4). Broad-based emissions pricing allows Nigeria to achieve its NDC with a cost of 0.05 percent of GDP and price increases of 2 percent for oil products. Limiting sectoral coverage requires more effort in the covered sectors—for example, economic costs and price increases triple if agriculture and forestry are exempt. Emissions-intensity pricing results in about double the economic costs of emissions pricing but causes negligible price increases, improving acceptability and reducing competitiveness impacts. Regulatory policies are somewhat easier to administer but careful design is needed to avoid excessive economic costs, while subsidies are most costly. Emissions pricing aligned with Nigeria's NDC can raise substantial fiscal revenue of 0.2 to 0.6 percent of GDP in 2030, while other policies tend to slightly or, for spending, significantly reduce fiscal space. Administrative needs vary across options and sectors, with pricing not a feasible near-term option in the forestry and agricultural sectors (although it could be possible to apply at limited scope, e.g., large farms and specific land parcels).

Table 2. Nigeria: Trade-offs Across Policy Instruments

	Emissions pricing	Emissions-intensity pricing	Regulatory	Subsidies
Administration - forestry, waste, agriculture, oil/gas	Not feasible in short-term due to lack of measurement and property rights		Somewhat straightforward to monitor compliance	Limited scalability for forestry, unclear for others
Administration - other sectors	Straightforward extension of fuel taxes	Requires capacity to monitor firm or product-level emissions	Straightforward to monitor compliance	
Economic costs	Economic cost of 0.06-0.14% of GDP	Economic cost of 0.07-0.37% of GDP	More costly than emissions-intensity pricing	Unsure, greater than 0.37% of GDP
Fiscal sustainability	Revenue of 0.18-0.55% of GDP	Revenue reduction of at least 0.01% of GDP		Loses revenue (size unknown)
Political acceptability	Price increase of 2-10% for energy products and energy-intensive firms	Revenue neutrality helps with accpetability and reduces impact on energy prices		Can be popular with firms/households

Source: IMF staff illustration. Notes: economic costs and fiscal revenues are shown for a range of sectoral coverages for a policy that achieves Nigeria's NDC.

Policy Package to Support Fiscal Revenue, Exports and Growth

29. To promote durable, effective, and equitable reforms with limited or positive macroeconomic impacts, a well-sequenced and carefully designed policy package is needed. Preparing this package requires detailed policy analysis, complementary measures to protect vulnerable households, enhanced accessibility to alternatives to fossil fuels, and the promotion of financial flows. A potential approach is outlined below, and the IMF is available to support authorities through training on analytical tools, such as CPAT, and dedicated capacity development.

30. Emissions pricing generates substantial fiscal benefits for Nigeria with limited economic impacts, however given recent energy price increases it can be regarded as more of a medium-term priority. Deciding on pricing levels, sectoral and fuel coverage, and the social protection response necessitates a more granular and comprehensive understanding of the firms, households, and regions most impacted.[11] In tandem, actions are needed to strengthen social protection targeting and delivery, improve non-energy emissions measurement,[12] and increase the availability of low carbon alternatives, such as reliable and more accessible on-grid electricity and off-grid solutions. In terms of implementation, emissions pricing should preferably be introduced at

[11] This analysis can partly be done using Nigeria's household budget survey and input-output tables (see Black et al 2023 for analytical details) and should be coupled with consultation across stakeholders.

[12] Administration is straightforward for energy use sectors, such as transport and power generation, as it can be applied as a tax on fuel quantity (e.g., liter) that is based on the fuel's carbon content. Non-energy emissions, such as process emissions, leaks from oil and gas extraction, and forestry require more sophisticated monitoring systems.

a time of strong macroeconomic conditions and low international fuel prices, starting with a low price that gradually increases. Particular attention should also be given to public communication on the rationale for the reform, strategies to address specific stakeholder concerns, and the use of revenue (including targeted compensation) (see IMF 2025). Emissions-intensity pricing and non-pricing (see below) instruments could be introduced as a preliminary step prior to emissions pricing since they likely do not require social protection support due to the smaller price increases.

31. Emissions-intensity pricing and standards may be most appropriate for select sectors or fuels due to export competitiveness and administrative concerns. Cost increases under emissions pricing for emissions-intensive sectors that compete against foreign producers, such as oil, gas, and fertilizers, can lead to a loss in competitiveness worsening the balance of payments in the absence of international coordination. Rendering emissions-intensity pricing (e.g., Australia, Canada) or partial exemptions (the EU, South Africa) potentially more suitable, although emissions pricing is present in some cases (Mauritania, Ghana, Chile). In some sectors, emissions intensity pricing could be implemented in the near term (see below); in other sectors such as forestry, agriculture, oil, and gas, preliminary measures to improve property rights, enforcement, and measurement would be required. The case for pricing policies is weaker in the waste sector given a lack of variation in abatement activities across the sector (e.g., collection and flaring of methane or waste to power).[13] Furthermore, emissions-intensity pricing can also be a long-term complement emissions pricing, as is the case in many countries (China, Ghana, the EU) if political acceptability and competitiveness concerns limits the stringency of emissions pricing.

32. Near term policies could include a mix of emissions intensity pricing, standards, and more targeted tax policies to avoid fiscal costs. Emissions intensity pricing could be applied where administration is feasible (vehicles, power generation). In the agriculture and forestry, emissions could be partly addressed though a range of policies, including the finalization of carbon credits legislation, a tax on unsustainably produced timber, strengthened enforcement of forest protection, promotion of climate smart agricultural practices, and continuation of tax expenditures (and emissions-pricing exemption) on LPG to support clean cooking fuels. Packaging and bottle deposit-refund systems are useful to divert waste to formal landfills (see Matheson 2019 for more). In the power sector, initial competitive tenders for renewable energy coupled with guarantees and land tenure can reduce offtake, land, and foreign exchange risk can increase renewable energy investment.

33. Facilitating both private and concessional financing is crucial to reduce the cost of emissions reductions and promote green growth. Emissions and emissions-intensity pricing provides a price signal to direct private capital to low carbon activities, but complementary policies are needed. High-quality climate data, such as green taxonomies, helps investor make informed decisions and can help increase green bonds issuance. More general improvements in

[13] The efficiency benefits of emissions pricing increase when the cost and specific activities to reduce emissions vary across firms/households in a sector since emissions pricing allows emitters to choose the composition and amount of mitigation activities, while regulatory policies force emitters to take specific actions.

macroeconomic conditions and deepening of domestic credit markets reduce capital costs, which is important given the relatively high upfront cost of green technologies. Additional barriers are present in the power sector, such as electricity purchasers with poor credit and long payback periods—blended finance to help derisk investment, well-designed auctions to grant power purchase agreements, and more may be needed.[14] Public spending to reduce emissions should generally be limited to public goods (e.g., associated infrastructure), mitigating impacts for vulnerable households, and projects with high developmental co-benefits (e.g., electricity access and clean cooking fuels), leaving substantial emissions pricing revenue remaining for general development spending.

[14] See WB 2024b, IMF 2023b, and box 2.3 in IMF 2024 for more.

References

Black, Simon, Ian Parry, Victor Mylonas, Nate Vernon, and Karlygash Zhunussova. "The IMF-World Bank Climate Policy Assessment Tool (CPAT): A Model to Help Countries Mitigate Climate Change." Washington, D.C.: International Monetary Fund, 2023. https://www.imf.org/en/Publications/WP/Issues/2023/06/22/The-IMF-World-Bank-Climate-Policy-Assessment-Tool-CPAT-A-Model-to-Help-Countries-Mitigate-535096.

Favero, Alice, and Kemen Austin. "Charting Our Forest Future: National Supply Curves for Forest-Based CO_2 Mitigation," November 7, 2024. https://doi.org/10.21203/rs.3.rs-5322250/v1.

IEA. "Methane Tracker," 2024. https://www.iea.org/data-and-statistics/data-tools/methane-tracker.

IMF. "Chapter 2: Expanding Frontiers: Fiscal Policies for Innovation and Technology Diffusion." Washington, D.C.: IMF, 2024. https://www.imf.org/en/Publications/FM/Issues/2024/04/17/fiscal-monitor-april-2024.

———. "Chapter 2: Public Sentiment Matters: The Essence of Successful Energy Subsidies and Pension Reforms." Washington, D.C.: IMF, 2025. https://www.imf.org/en/Publications/FM/Issues/2025/04/23/fiscal-monitor-April-2025.

———. "Climate Crossroads: Fiscal Policies in a Warming World (Online Annex)." Washington, D.C.: International Monetary Fund, 2023a. https://www.imf.org/en/Publications/FM/Issues/2023/10/10/fiscal-monitor-october-2023.

———. "Global Financial Stability Report: Financial and Climate Policies for a High-Interest-Rate Era." Washington, D.C.: International Monetary Fund, 2023b. https://www.imf.org/en/Publications/GFSR/Issues/2023/10/10/global-financial-stability-report-october-2023.

Matheson, Thornton. "Disposal Is Not Free: Fiscal Instruments to Internalize the Environmental Costs of Solid Waste." Washington, D.C.: International Monetary Fund, 2019. https://www.imf.org/en/Publications/WP/Issues/2019/12/20/Disposal-is-Not-Free-Fiscal-Instruments-to-Internalize-the-Environmental-Costs-of-Solid-Waste-48854.

Parry, Ian, Simon Black, Danielle Minnett, Victor Mylonas, and Nate Vernon. "How to Cut Methane Emissions." IMF Staff Climate Notes. Washington, D.C.: IMF, 2022b. https://www.imf.org/en/Publications/staff-climate-notes/Issues/2022/10/28/How-to-Cut-Methane-Emissions-525188.

Parry, Ian, Simon Black, and Karlygash Zhunussova. "Carbon Taxes or Emissions Trading Systems? Instrument Choice and Design." Washington, D.C.: IMF, 2022a. https://www.imf.org/en/Publications/staff-climate-notes/Issues/2022/07/14/Carbon-Taxes-or-Emissions-Trading-Systems-Instrument-Choice-and-Design-519101.

WB. "Global Gas Flaring Data," 2024a. https://www.worldbank.org/en/programs/gasflaringreduction/global-flaring-data.

———. "How to Unlock Pipelines of Bankable Renewable Energy Projects in Emerging Markets and Developing Countries?," 2024b. https://documents1.worldbank.org/curated/en/099120623171525006/pdf/P1742021cf52b60e6196b81854984124388.pdf.