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The Gambia Public Debt: An Achilles Heel?



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Table of Contents

<i>Abbreviations and Acronyms</i>	<i>iv</i>
<i>Acknowledgements</i>	<i>v</i>
<i>Executive Summary</i>	<i>vi</i>
Chapter 1: State of the Economy	1
1.1. Recent economic developments.....	2
Global growth has stabilized while Sub-Saharan Africa's economy has expanded, supported by easing inflation and monetary easing.....	2
Economic activity has increased in The Gambia supported by aggregate demand and a slowdown in inflation.....	2
External sector vulnerabilities persisted and the current account deficit worsened.....	5
The CBG's monetary policy stance remained tight to address persistent inflationary pressures.....	7
The fiscal deficit has narrowed despite persistent fiscal vulnerabilities and high public debt.....	11
Extreme poverty declined in 2024, but major obstacles to rapid poverty reduction remain.....	12
1.2. Outlook, risks and challenges.....	14
The outlook is broadly positive with robust growth underpinned by a rebound across all sectors.....	14
Rising global and domestic risks cloud to the outlook.....	18
Chapter 2: The Gambia's Public Debt: An Achilles Heel?	21
2.1. Public debt has soared over the last decade, reversing the gains achieved through the HIPC initiative in 2007, with most current debt linked to foreign borrowing.....	22
2.2. Reasons for financing The Gambia's economy through debt.....	25
2.3. Impact of public debt on economic growth in The Gambia.....	33
2.3.1. Literature review: Public debt has both positive and negative effects on growth.....	33
2.3.2. Public debt has a non-linear impact on economic growth in The Gambia, with debt ratios exceeding optimal thresholds.....	34
2.4. Channels through which public debt impacts the Gambian economy.....	40
2.4.1. Public debt impacts economic growth through various transmission channels.....	40
2.4.2. Public and private investment as well as interest rates are the primary transmission channels through which public debt affects economic growth in The Gambia.....	41
2.4.3. ARDL model.....	43
2.5. Analyzing the impact of the expiration of external debt service deferral.....	47
2.5.1. Model specification.....	47
2.5.2. Accuracy of prediction, forecast assumptions, and forecasts.....	49
2.6. Options for curbing the growth of public debt and reducing debt-related risks.....	52
References.....	57
Appendix.....	71

List of Figures

Figure 1. Private consumption and gross fixed capital investment were the main growth drivers on the demand side in 2024.....	3
Figure 2. Services continued to be the main growth driver on the supply side in 2024.....	3
Figure 3. The Gambia's growth has outperformed that of the SSA and ECOWAS since 2017, reversing historical low performance.....	3
Figure 4. The number of tourist arrivals has continued to increase, nearly reaching pre-pandemic levels.....	5
Figure 5. The depreciation of the dalasi against the US dollar that began in 2022 continued in 2024.....	6
Figure 6. The trade deficit narrowed but remained high in 2024.....	6
Figure 7. Inflation is on a downward trend, driven by moderating food prices . . .	8
Figure 8. . . and continued tight monetary policy.....	8
Figure 9. Net domestic assets contracted further in 2024.....	9
Figure 10. The money supply fell further in 2024.....	9
Figure 11. Bank assets are still dominated by government debt.....	10
Figure 12. The cost of government domestic borrowing was lower in 2024.....	10
Figure 13. The financial sector remains sound.....	10
Figure 14. The fiscal deficit narrowed in 2024.....	12
Figure 15. While public debt is on a downward trend, it remains high.....	12
Figure 16. Share of extreme poor.....	13
Figure 17. Number of extreme poor.....	13
Figure 18. Public debt has soared over the past decade, wiping out the gains made from the HIPC initiative in 2007.....	23
Figure 19. External debt represents the bulk of public debt.....	23
Figure 20. External public debt is mainly owed to multilateral creditors . . .	24
Figure 21. . . mainly such as the IsDB, IMF, IDA, and BADEA.....	24
Figure 22. External bilateral public debt is mainly owed to three creditors: Saudi Arabia, Kuwait, and India.....	24
Figure 23. Domestic public debt is mainly owed to commercial banks.....	24
Figure 24. Most domestic debt is focused on long-term maturities.....	25
Figure 25. High debt servicing costs constrain The Gambia's public spending.....	26
Figure 26. Domestic debt service accounts for the largest share of the government's domestically financed budget.....	26
Figure 27. Selected public debt indicators under baseline and alternative scenarios, 2024–2034.....	27
Figure 28. Domestic savings have historically been too low to cover investment needs.....	29
Figure 29. Domestic revenues are low, and fiscal outcomes are increasingly dependent on grants.....	30
Figure 30. Capital investment is mostly financed through external resources.....	30
Figure 31. Declining export prices . . .	31
Figure 32. . . and anarchic fluctuations in import prices . . .	31
Figure 33. . . have led to deteriorating terms of trade . . .	32
Figure 34. . . and a widening trade deficit on merchandise.....	32
Figure 35. FDI inflows increased dramatically in 2020.....	32
Figure 36. Remittances have risen sharply over the past five years.....	32
Figure 37. In The Gambia, most remittances are used for consumption.....	33
Figure 38. Real GDP and Real GDP Forecast Series, 1994–2022.....	50
Figure 39. RGDPF forecast series, 1994–2022.....	51

List of Tables

Table 1.	Policy options for curbing the growth of public debt and reducing debt-related risks.....	ix
Table 2.	Medium-term outlook.....	16
Table 3.	Forecast assumptions for the impact of debt deferral on economic growth.....	51
Table 4.	GDP forecasts with and without external debt service payment resumption.....	52
Table 5.	Potential gains from domestic revenue mobilization reforms.....	54

Abbreviations and Acronyms

AfCFTA	African Continental Free Trade Area
AfDF	African Development Fund
ARDL	Autoregressive Delayed Lag
BADEA	Arab Bank for Economic Development in Africa
CAD	Current account deficit
CBG	Central Bank of The Gambia
CPI	Consumer price index
ECM	Error correction model
ECOWAS	Economic Community of West African States
ECT	Error correction term
EIB	European Investment Bank
EMDEs	Emerging markets and developing economies
FDI	Foreign direct investment
GBoS	Gambia Bureau of Statistics
HIPC	Heavily Indebted Poor Countries
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
IsDB	Islamic Development Bank
MCC	Millennium Challenge Corporation
MTO	Money transfer agency
NDA	Net domestic asset
OIC	Organization of Islamic Cooperation
Ppt	Percentage point
PV	Present value
SME	Small and medium enterprise
SOE	State-owned enterprise
SSA	Sub-Saharan Africa
TFP	Total factor productivity
WDI	World Development Indicators

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Comments and questions on the content of this report are welcome. To do so, please contact Ephrem Niyongabo (eniyongabo@worldbank.org).

Executive Summary

Recent economic developments

The Gambia's economy continued its recovery in 2024, driven by agriculture and services on the supply side and by public and private consumption and investment spending on the demand side. Economic growth accelerated from 4.8 percent in 2023 to an estimated 5.7 percent in 2024, while per capita growth rose from 2.4 to 3.4 percent over the same period. On the supply side, growth was mainly supported by agriculture and services, which benefited from fertilizer support, high-yield seeds, and increased tourism. Industrial growth decelerated following the completion of major infrastructure projects related to the Organization of Islamic Cooperation (OIC) summit. On the demand side, growth was boosted by robust private investment and consumption, supported by remittances, and public consumption related to hosting the summit.

Despite increased service exports and robust remittances, the external accounts worsened in 2024 and foreign exchange reserves in months of imports declined. The current account deficit (CAD) is estimated to have widened from 5.4 percent of GDP in 2023 to 5.7 percent in 2024, reflecting higher imports linked to the OIC summit. The CAD was financed by foreign direct investment (FDI), donor support, external government borrowing, and international reserves. Reserves remained at comfortable levels but declined from 4.9 months of imports in 2023 to an estimated 4.7 months in 2024. Over the same period, the currency depreciated by 7.2 percent in nominal terms.

In 2024, monetary policy remained tight to combat rising inflation. Headline inflation averaged 11.7 percent in 2024, down from 16.9 percent in 2023, as energy and food prices moderated, while remaining far above the Central Bank of The Gambia's (CBG) medium-term target of 5 percent. Food and nonfood inflation averaged 15.5 percent and 7.0 percent, respectively, down from

22.2 percent and 10.9 percent, respectively, in 2023. To curb inflation, the Central Bank of The Gambia (CBG) maintained its policy rate at 17 percent in November 2024, unchanged since August 2023, following a cumulative 700 basis points increase since March 2022.

The fiscal deficit narrowed in 2024, supported by stronger tax revenue mobilization, which helped reduce public debt, although it remains elevated with a high risk of distress. Total revenue rose from 20.7 percent of GDP in 2023 to 21.1 percent in 2024, supported by revenue-boosting measures. Domestic revenue increased considerably from 12.5 percent of GDP in 2023 to 14.0 percent in 2024, driven by higher tax revenue. Non-tax revenue remained stable at 2.8 percent of GDP in 2024. Meanwhile, grants decreased by 1.3 percentage points (ppts) to 7.1 percent of GDP in 2024. Total expenditure increased moderately from 24.5 percent of GDP in 2023 to 24.6 percent in 2024, due to a substantial 1.6 ppts of GDP increase in current expenditure, which offset a nearly proportional fall in capital expenditure. As a result, the fiscal deficit narrowed from 3.8 percent of GDP in 2023 to 3.5 percent in 2024. Due to lower net domestic borrowing, public debt declined for the second consecutive year, from 75.6 percent of GDP in 2023 to 71.2 percent in 2024. Still, The Gambia remains at elevated risk of debt distress.

While extreme poverty declined in 2024, supported by rising labor incomes and lower inflation, significant disparities and inequalities persist. The extreme poverty rate—measured using the international poverty line of \$2.15 in 2017 PPPs—fell from 17.3 percent in 2023 to 16.7 percent in 2024, driven by rising labor incomes, higher international remittances, and reduced inflationary pressure. However, spatial disparities remain entrenched, with monetary poverty closely linked to poor human development outcomes and limited access to basic infrastructure, which have a disproportionate impact on the poorest households.

Outlook, risks and challenges

The medium-term macroeconomic outlook suggests a continued recovery. Real GDP growth is projected to average 5.6 percent (3.4 percent per capita) in 2025–2027, driven by increased activity across all sectors. A continued growth momentum is expected in agriculture and services assuming favorable rainfall and increased use of high-yield seeds, and continued recovery of tourism, respectively. Private consumption and investment, supported by stable remittances, and resilient public consumption and investment are expected to support growth in the industry sector.

Despite the positive outlook, significant downside risks persist. Risks include escalating regional conflicts, debt vulnerabilities, balance-of-payment pressures, extreme weather events, fiscal slippage, rising domestic debt service costs, and political uncertainty. A slowdown in European growth could dampen the tourism recovery and reduce capital and remittance inflows. Domestic and external fiscal risks include pressures to clear state-owned enterprises' (SOEs) contingent liabilities; a continued rise in the cost of credit to the government due to a high monetary policy rate; weaker-than-expected grants; higher interest rates relative to previous external borrowing options; liquidity pressures emanating from the resumption of bilateral external debt service repayments beginning in 2025; and other external price shocks. The Gambia remains highly vulnerable to climate shocks, which can undermine agricultural output, household income, and fiscal stability. Any political uncertainty related to the upcoming presidential election could negatively affect macroeconomic stability. In addition, uncertainty over US foreign aid could affect social and infrastructure programs in The Gambia. Lastly, disruptions to global trade—whether from trade tensions or other external shocks—could adversely affect the country's economy, given its heavy reliance on remittances, tourism, and basic goods imports.

The Gambia public debt: An Achilles heel?

Public debt remains high in The Gambia, although it has been falling over the past two years, raising concerns about its impact on the economy. In addition

to the issue of a country's ability to repay debt, issues under intense debate concern the benefits and costs of debt accumulation, the productive use of debt and the optimal level of indebtedness. For The Gambia, the expiry of external debt service deferrals at the end of 2024 could increase pressures on the macroeconomic framework. The second chapter of this Economic Update has analyzed how public debt affects the country's macroeconomic performance through economic growth and other potential channels, including public investment, private investment, interest rates and private sector credit. It has answered the questions of what factors have driven the increase in public debt, whether there is an optimal public debt threshold, and what impact the expiry of deferred external debt servicing will have on economic growth.

High public debt poses a threat to the country's long-term sustainability and development financing, as debt servicing absorbs a significant portion of the budget, and the country is exposed to a high risk of external and overall debt distress. Total public debt has increased over the last decade, reaching 83.2 percent of GDP in 2022, due to structural factors such as low domestic savings, low tax revenue, a large external deficit, low inflows of external private capital, and climate events. Thanks to progress in domestic revenue mobilization, public debt has begun to decline, falling to 71.2 percent of GDP in 2024. External debt continues to dominate, accounting for an average of 64.5 percent of total public debt, with multilateral debt constituting 68 percent of external debt as of September 2024. Domestic debt is mainly owed to commercial banks, averaging 42 percent of domestic public debt as of September 2024. High debt servicing costs—averaging 6.5 percent of GDP in 2024, equivalent to over one-third of public spending (23.1 percent of GDP annually between 2021 and 2024)—limit the government's ability to finance development programs. Domestic debt servicing consumed 23 percent of domestically financed budgets in 2020–2024, nearly matching the combined allocations for health and education. External debt service to revenue (percent) reached 31.9 percent in 2023 while the acceptable threshold is 18 percent. Despite recent progress, The Gambia remains at high risk of external and overall debt distress.

The rise in public debt is due to insufficient resources to meet development needs. This in turn is the result of low domestic savings, low tax revenues, weak SOEs performance, a large external deficit, insufficient external private capital inflows, and climatic shocks. Between 1966 and 2023, domestic savings averaged a low 4 percent of GDP each year, far below the average of SSA at 17.4 percent, low-income countries (LICs) at 13.1 percent and Economic Community of West African States (ECOWAS) at 11 percent. Over the same period, investment averaged 15 percent of GDP, well below SSA (22.4 percent), LICs (23.2 percent) and ECOWAS (19.7 percent). With limited savings, investment funding has largely relied on debt. Tax revenue averaged only 10.2 percent of GDP from 2017 to 2023, which, combined with increased and rigid expenditures, led to large fiscal deficits, averaging 4.7 percent of GDP over the same period, close to the ECOWAS average (4.7 percent) and well above the SSA average (3.6 percent), and worsened public debt. Due to a narrow export basket and heavy dependence on imports of essential goods, the trade merchandise deficit widened from 14.9 percent of GDP in 2002 to 39.6 percent in 2022, financed largely through external borrowing. Additionally, external private capital inflows have been insufficient to bridge the domestic savings gap. FDI inflows have been limited, hovering around 5 percent of GDP per year since 1970, due to an unconducive business climate, poor infrastructure, and institutional and governance challenges. Despite high remittance inflows, exceeding 20 percent of GDP over the last five years, their contribution to savings and investment remains limited. About 80 percent of remittances are used for daily consumption, with only a small fraction allocated to savings and investment. Climate shocks compound these challenges by disrupting livelihoods, eroding government revenue, and increasing fiscal pressures.

While moderate levels of public debt support long-term economic growth, excessive debt have an adverse impact on The Gambia's economic performance. Moderate debt supports growth in The Gambia, while excessive debt undermines growth by crowding out private investment and consumption. Research indicates that the optimal threshold

for total public debt in The Gambia is close to 52 percent of GDP, while the actual debt-to-GDP ratio was around 71 percent in 2024. Similarly, external and domestic debt thresholds are close to 35 percent and 16 percent of GDP, respectively, while actual levels were close to 44 percent and 27 percent, respectively, in 2024. Exceeding these optimal thresholds harms economic growth, primarily through high debt servicing, which negatively impacts economic growth in the long run. Debt service ratios are currently above the thresholds for a sustainable trajectory¹.

Public debt affects The Gambia's economy through public and private investment, interest rates, and access to private sector credit. Studies have identified several channels through which debt can impact economic growth, including capital accumulation, private saving, interest rates, total factor productivity (TFP) growth, bank credit to the private sector, and financial deepening. Public debt negatively affects private investment, and thus economic growth due to, inter alia, investment risk perception—anticipated and actual uncertainty and instability—and limited public spending in business-environment-enhancing areas. Research suggests that total public debt above 71.4 percent and 70.3 percent of GDP negatively impacts private and public investment, respectively. Interest rates are also a long-term channel through which public debt impacts economic growth, with an optimal threshold of 48.4 percent of GDP. While private sector credit is not a long-term transmission channel, it is negatively affected by public debt in the short term. Similar effects are observed when examining the transmission channels between external public debt and economic growth.

The expiration of external debt service deferral is expected to lower economic growth. External debt servicing can have a direct impact on economic growth through several channels. First, by draining public resources that could be allocated to public investment and social services. Second, debt servicing may require higher taxation, siphoning off

¹ External debt service to export ratio is above the threshold (15 percent) since 2020. External debt service to tax revenue (percent) reached 31.96 percent in 2023 while the acceptable threshold for a country at high risk of indebtedness is 23 percent.

private savings that could support private investment. Third, since the repayment is made in foreign currency, it takes up part of foreign exchange reserves and increases exposure to external shocks and macroeconomic crises. With debt servicing resuming, external debt service payments

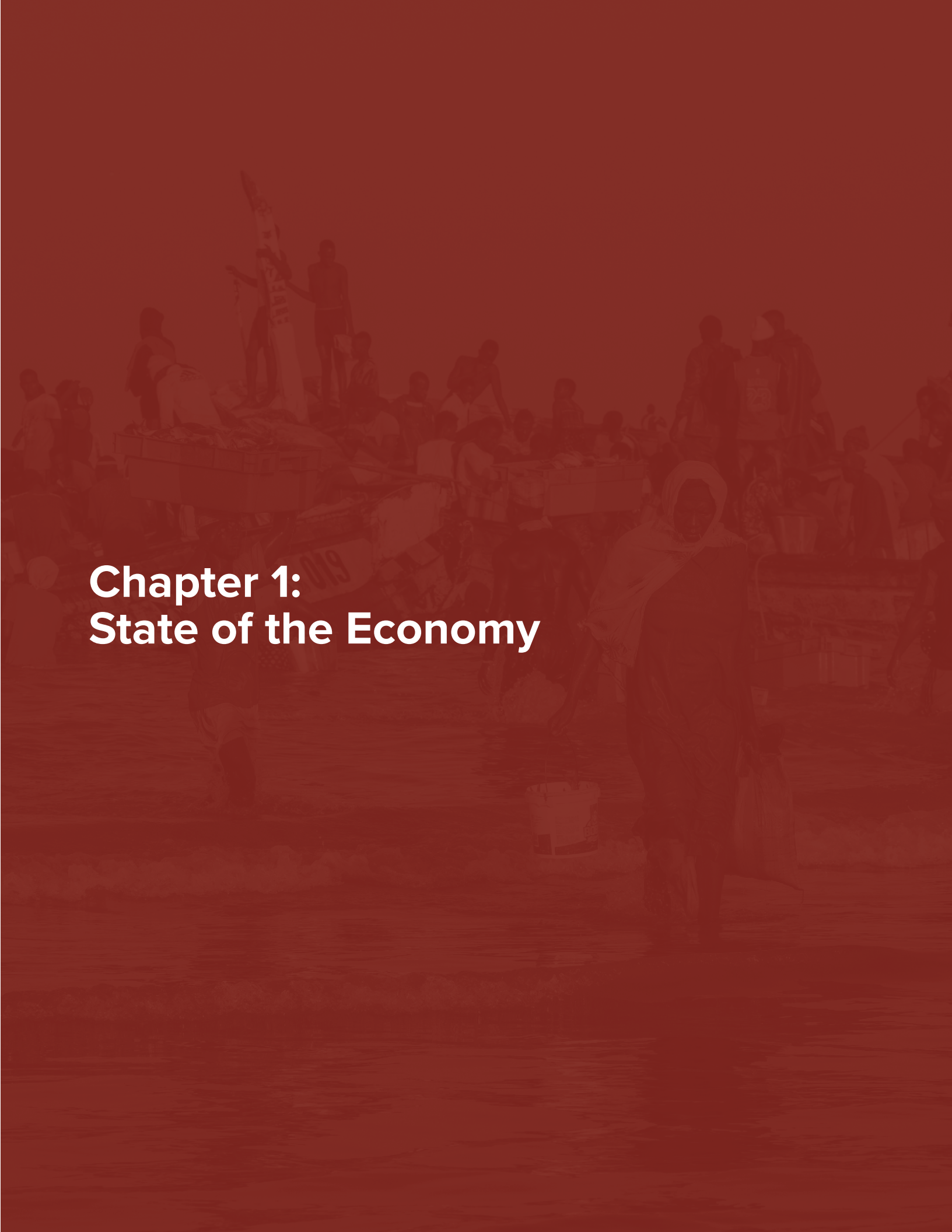
are projected to increase from US\$54.8 million in 2024 (2.0 percent of GDP) to an average of US\$90.6 million (2.7 percent of GDP) annually in 2025–2028. This increase in debt servicing is expected to reduce economic growth by approximately 1.2 ppts over 2025–2028.

Table 1. Policy options for curbing the growth of public debt and reducing debt-related risks

<i>Objectives</i>	<i>Policy options</i>	<i>Timeframe</i>	<i>Responsibility</i>
Strengthen fiscal policy, governance, and institutions	1) Strengthen domestic revenue mobilization by: (i) reducing tax incentives and exemptions; (ii) digitalizing domestic tax collection; and (iii) addressing tax base erosion due to inadequate international transfer pricing.	ST	MOFEA, GRA
	2) Improve spending efficiency by : (i) implementing planned reforms to rationalize public spending (implementing program-based budgeting; consolidating public agencies and strengthening the management of investment projects); (ii) streamlining subsidies; and (iii) reducing budget allocations to SOEs.	ST	MOFEA
	3) Ensure a robust competition policy framework by developing antitrust laws and setting up independent and well-functioning enforcement agencies.	ST	MOTIE
Improve debt transparency	4) Improve the institutional environment for debt transparency and enhance debt reporting by improving: (i) debt composition, (ii) debt instrument coverage, and (iii) debt sectoral coverage	ST	MOFEA, CBG
Develop innovative debt instruments	5) Explore options to develop climate-resilient debt instruments.	MT	MOFEA
	6) Explore the use of debt-for-development swaps.	MT	MOFEA
Reduce external deficits and increase external private capital inflows	7) Tapping into the regional market to boost exports and reduce external imbalances.	MT	MOTIE
	8) Pursue reforms to attract more FDI and remittances for investment.	MT	MOFEA, MOTIE, CBG

Note: ST: Short term (within a year); MT: medium term (2–3 years).





Chapter 1: State of the Economy

1.1. Recent economic developments

Global growth has stabilized while Sub-Saharan Africa's economy has expanded, supported by easing inflation and monetary easing

Global economic growth in 2024 stabilized at the same level as in 2023, supported by lower inflation and monetary easing in advanced and emerging economies. Global headline inflation continued to gradually ease in 2024, reflecting falling commodity prices and the lagged effects of monetary tightening. Global financial conditions have eased slightly, owing mainly to the onset of monetary easing in the United States. The global economic context has become modestly more favorable, following several years characterized by overlapping negative shocks. There has been a post-pandemic global economic expansion, with accelerating global trade growth. Improved investor sentiment spurred capital inflows and enhanced financial conditions in emerging markets and developing economies (EMDEs). Against this backdrop, global growth fell from 6 percent in 2021 to 3 percent in 2022, before stabilizing at an estimated 2.7 percent in 2024—similar to the level recorded in 2023. Growth in advanced economies fell from 5.5 percent in 2021 to 2.8 percent in 2022, before settling at 1.7 percent in 2024. By contrast, growth in EMDEs has remained robust, increasing from 3.7 percent in 2022 to 4.2 percent in 2023 and 4.1 percent in 2024, driven by growth in China, India, Indonesia, and Bangladesh (World Bank 2025a). These favorable global economic developments benefit The Gambia, a small open economy that depends on remittances from its large diaspora, tourist arrivals from developed countries, and imports of essential goods such as fuel, food, and medicines. However, any escalation in global trade tensions poses risks to The Gambia's economy through disruptions in trade, tourism, and remittance inflows.

Sub-Saharan Africa's (SSA) economic growth improved in 2024, driven by private consumption, investment, and a slowdown in inflation from monetary policy adjustments. Median inflation in SSA fell from 7.1 percent in 2023 to 4.5 percent in 2024, with 70 percent of countries seeing inflation decline. The monetary policy stance remains differentiated across SSA, although most central banks have either started to cut interest rates or

paused their tightening cycle. A few, however, have raised rates due to a recent flare up in inflation. The median fiscal deficit in the region declined from 3.9 percent of GDP in 2023 to 3.3 percent in 2024, despite high government financing needs and mounting debt service payments. The region continued to face challenges from rising insecurity and climate change—exacerbated by food insecurity, conflict, and reduced emergency aid. Despite heightened insecurity and climate shocks, economic activity in the region edged up from 2.4 percent in 2023 to 3.2 percent in 2024, driven by increased private consumption and investment. Falling inflation raised the purchasing power of households, while monetary policy rate cuts boosted business sentiment, fostering investment (World Bank 2025b). These favorable regional economic developments have had a positive impact on The Gambia, given the growing importance of intra-African tourism and the country's increasing reliance on imports from the region.²

Economic activity has increased in The Gambia supported by aggregate demand and a slowdown in inflation

The Gambia's economic recovery continued in 2024.

Economic growth accelerated to an estimated 5.7 percent (3.4 percent in per capita terms) in 2024, up from 4.8 percent (2.4 percent in per capita terms) in 2023 (Figure 1). On the supply side, growth was mainly supported by agriculture and services, which benefited from fertilizer support, high-yield seeds, and increased tourism.³ However, industry growth decelerated following the completion of major infrastructure projects related to the Organization of Islamic Cooperation (OIC) summit. On the demand side,

² ECOWAS accounted for 39.6 percent of The Gambia's total imports in 2022 (GBoS 2023). According to data from The Gambia Tourism Board, Africa's share of tourist arrivals in The Gambia increased from 8 percent in 2018 to 12 percent in 2024.

³ The tourism sector remains a key driver of growth in The Gambia. Estimates from the World Tourism and Travel Council suggest that tourism directly contributed about 8.5 percent to GDP and 6.5 percent to employment in 2019. When indirect impacts are factored in, its contribution increases to 15.5 percent of GDP and 17.1 percent of employment (121,000 people employed). Tourism is also a major source of foreign direct investment, having attracted over US\$45 million between 2017 and 2022 (World Bank 2022).

Figure 1. Private consumption and gross fixed capital investment were the main growth drivers on the demand side in 2024

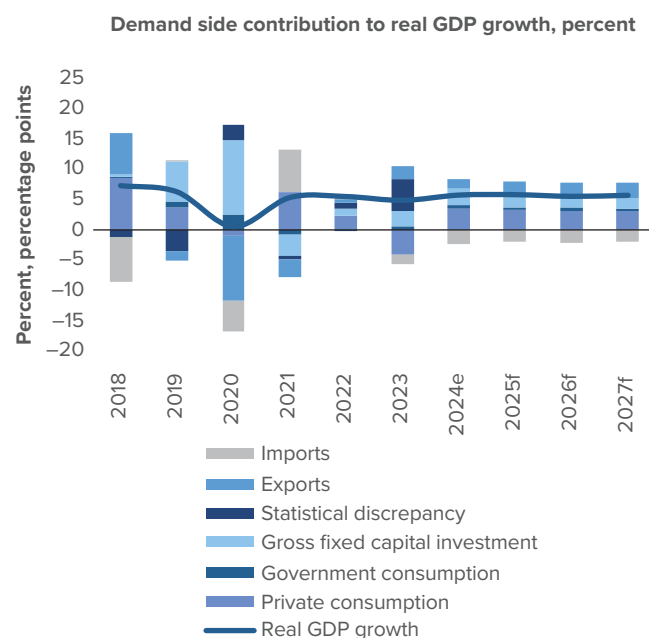
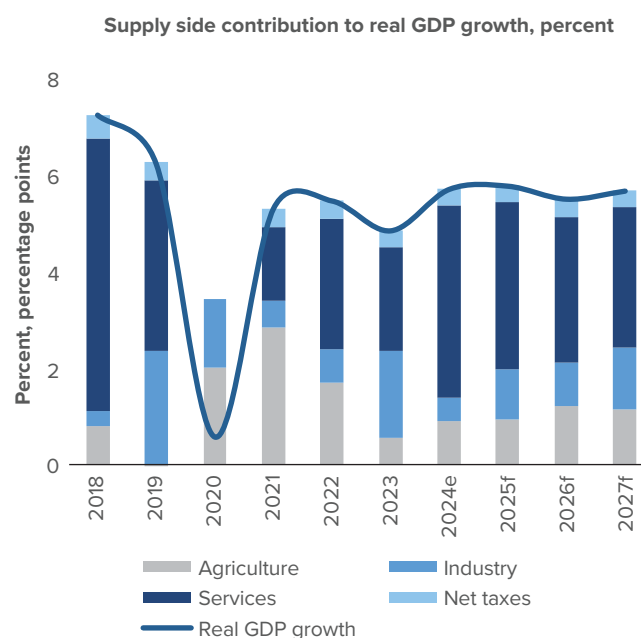


Figure 2. Services continued to be the main growth driver on the supply side in 2024

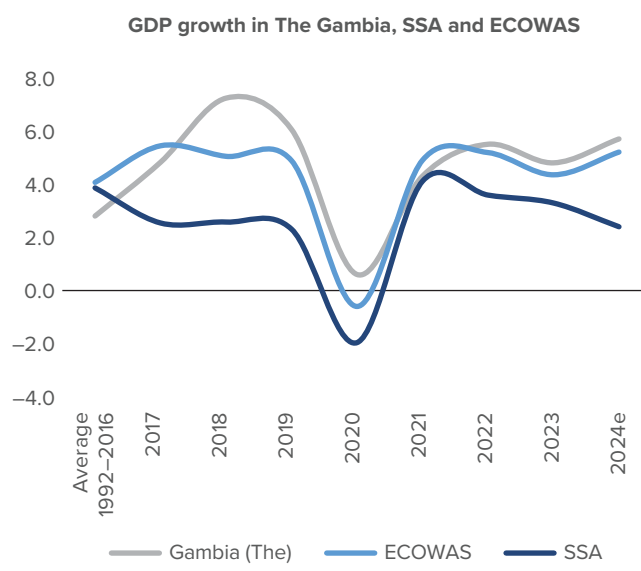


Source: World Bank staff estimates based on data from Gambia Bureau of Statistics (GBoS) and International Monetary Fund (IMF).

robust private investment and consumption—supported by remittance inflows⁴—and increased public consumption associated with hosting the OIC summit boosted overall growth (Figure 2). While The Gambia's growth performance has historically been below the average of SSA and the Economic Community of West African States (ECOWAS), the country has outperformed its regional peers since 2017, with the exception of 2021–22 (Figure 3).

⁴ Remittances have been relatively high, averaging more than 20 percent of GDP per year over the last five years. A study on the impact of remittances on economic growth in The Gambia found a statistically significant positive impact from remittances, mainly through consumption by satisfying households' daily needs related to food, water, electricity, education, entertainment, and religious festivals (Ceesay et al. 2019). Furthermore, a recent study on the Impact of remittances on the exchange rate in The Gambia found that remittance inflows have a positive significant effect on the real effective exchange rate in the long run, highlighting the extent to which remittances affect not only the country's macroeconomic stability but also its external competitiveness (Ceesay and Limbe 2024).

Figure 3. The Gambia's growth has outperformed that of the SSA and ECOWAS since 2017, reversing historical low performance



Source: World Bank Staff using data from WDI data and IMF data.

On the supply side, the agriculture sector grew by an estimated 4.0 percent in 2024, up from 2.4 percent in 2022, supported by continued fertilizer subsidies and high-yield seeds. While a rapid assessment of the 2024/2025 cropping season shows a decline in rice and groundnut production due to unfavorable weather conditions (MOA 2025), overall agricultural production increased in 2024, driven mainly by the livestock subsector and a recovery in fisheries and aquaculture, owing to a renewed focus on aquacultural development—including perch farming and other crops. Sustained improvements in agricultural practices (e.g., use of fertilizer subsidies and high-yield seeds⁵) contributed to the sector's improved performance. However, the agriculture sector continues to face severe structural constraints that hamper productivity, including limited access to equipment, finance, input markets, extension services, and storage, as well as challenges related to climate change, land degradation, and lack of scale (AfDB 2017). These constraints have contributed to the sector's declining share of GDP, from 35.2 percent in 2010 to an estimated 24.1 percent in 2024.

Growth in the industry sector decelerated sharply from 10.1 percent in 2023 to an estimated 2.5 percent in 2024, following the completion of major infrastructure projects related to the OIC summit. Despite robust private infrastructure investment and increased electricity generation, industry growth slowed. The mining subsector stabilized, while manufacturing growth contracted due to competitiveness challenges. The electricity subsector improved. In 2023, The Gambia completed its first solar park under the Gambia Electricity Restoration and Modernization Project, and it finalized the country's first high-voltage energy infrastructure under the same project

in 2024.⁶ The 225 kV transmission line, part of the Gambia River Regional Cooperation initiative,⁷ is fully deployed and operational, with its inauguration having occurred in February 2025. Despite these developments, the industry sector remains the smallest contributor to GDP, recording only a moderate increase from 9.8 percent in 2010 to 14.7 percent in 2024. While the sector has demonstrated the highest long-term productivity growth in the Gambian economy, its low employment growth has limited its overall contribution to economic growth (World Bank 2024). Investment in the sector remains constrained, with nearly two-thirds directed toward construction. Broader industrial investment is hindered by supply-side constraints, including limited access to finance, skills mismatches, and infrastructure deficiencies.

Growth in services is estimated to have accelerated from 4.0 percent in 2023 to 7.7 percent in 2024, due to the continued recovery in tourism. Tourism-related subsectors such as wholesale and retail trade, transport and storage, and accommodation and food services were key contributors to this growth. Growth was also recorded in other service subsectors such as information and communication, healthcare, financial intermediation, real estate activities, education, and human health and social work activities. International tourist arrivals reached

⁵ For the 2024/25 season, the government provided fertilizer support amounting to 35,000 tons, including 1,000 tons of organic fertilizer for vegetable growers and 5,513 bags (50kg) of chemical fertilizer. High-yield seeds amounting to 677.4 tons were also distributed (<https://foroyaa.net/finance-minister-says-govt-provided-35000-tons-of-fertilizer/>).

⁶ The Gambia Electricity Restoration and Modernization Project is supported by the World Bank, European Union, and the European Investment Bank to improve the power generation and transmission capacity in the country. The project has three components: (1) on-grid solar PV with storage, including the development of a 20MW solar PV Plant in Jambur village in the Greater Banjul Area, with battery backup to minimize grid absorption concerns; (2) restoration and modernization of transmission and distribution (T&D)—including upgrades of the transmission and distribution 225 kV line to: (i) absorb the additional generation capacity; (ii) prepare for future capacity expansion, including Gambia River Regional Cooperation, other pipeline projects, and 30kV MV backbone lines; (iii) reduce T&D losses; and (iv) enable future grid extensions—and (3) urgent institutional support to improve the sector, including institutional strengthening, capacity building, and project implementation support related to improving the operational performance of NAWEC.

⁷ Organisation pour la Mise en Valeur du Fleuve Gambie (OMVG) is a sub-regional organization for cooperation and integration between The Gambia, Guinea Bissau, Guinea Conakry, and Senegal.

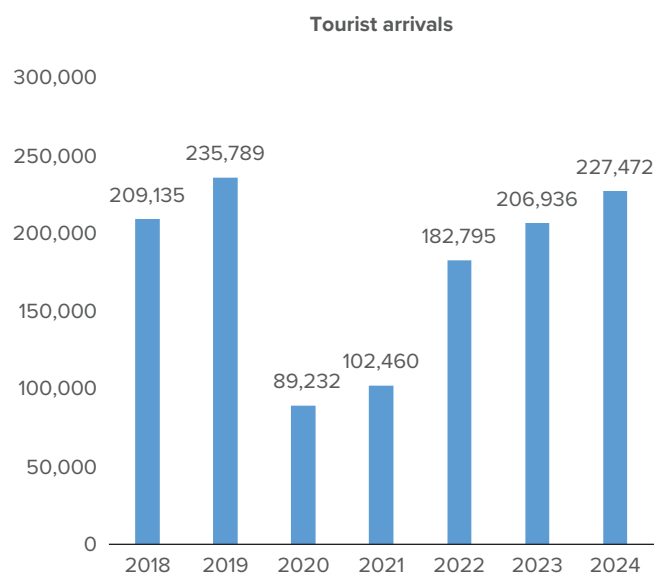
227,472 persons in 2024, marking a 10 percent increase from 2023 and approaching pre-COVID-19 pandemic levels (Figure 4). Despite being the principal sector of the economy, services continue to face weak productivity growth, declining from 60 percent of GDP in the early 2000s to an estimated 53.9 percent in 2024. Structural constraints such as inadequate infrastructure, a shortage of skilled labor, high dependence on seasonal workers, and low value-added tourism continue to limit the sector's growth potential.

On the demand side, economic activity in 2024 was supported by robust consumption and investment from both private and public sectors, amid slowing inflation and the hosting of the OIC summit. Public consumption increased due to expenditures associated with hosting the OIC summit, which took place in Banjul in May 2024, as well as continued, though slower, public infrastructure investment. Private consumption recovered, bolstered by easing inflation and robust remittance inflows, which reached US\$776 million (30.9 percent of GDP) in 2024, up from US\$747 million (32.1 percent

of GDP) in 2023. Investment has nearly tripled since the democratic transition, rising from 12.3 percent of GDP in 2010 to an estimated 35.1 percent in 2024. This growth has been fueled by strong development partner support and increased investor confidence. However, The Gambia must sustain current levels of investment over several decades to accelerate economic growth—a prospect that raises financing concerns given The Gambia's weak domestic savings and high public debt levels (discussed in Chapter 2).

The contribution of net exports to growth remained negative in 2024, reflecting The Gambia's chronic import dependence and narrow export basket. Goods exports continue to be dominated by a limited number of products, including groundnuts, vegetable fats, oil seeds, oleaginous fruits, fish, and crustaceans. Goods exports amounted to 4.8 percent of GDP in 2024, slightly below the 5 percent average recorded between 2017 and 2023. Nonetheless, total exports expanded in 2024, largely due to higher services exports, driven by a continued recovery in tourism inflows. Although exports are estimated to have grown faster than imports, the contribution of net exports to economic growth remained negative due to the large trade deficit, which narrowed slightly from 32.2 percent of GDP in 2023 to an estimated 28.6 percent in 2024. This structural trade imbalance is a key driver of The Gambia's high public debt levels.

Figure 4. The number of tourist arrivals has continued to increase, nearly reaching pre-pandemic levels

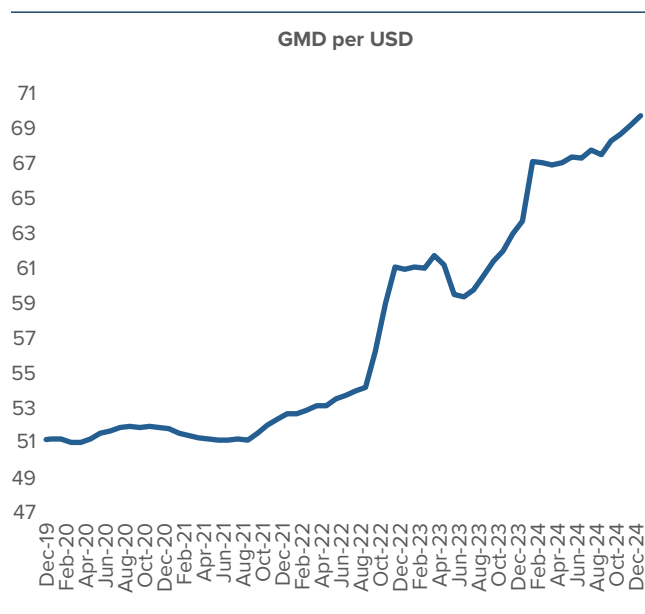


Source: The Gambia Tourism Board.

External sector vulnerabilities persisted and the current account deficit worsened

The current account deficit (CAD) widened slightly from 5.4 percent of GDP in 2023 to 5.7 percent in 2024 due to large imports related to the OIC summit. Goods imports increased in 2024, driven in part by goods required for hosting the OIC summit, such as cars to transport attending delegations. Tourist arrivals increased by 10 percent in 2024, nearly approaching pre-pandemic levels. Although higher imports contributed to a wider CAD, this was partially offset by growth in services exports and remittance inflows. The Gambia remains among the group of ECOWAS countries with a CAD

Figure 5. The depreciation of the dalasi against the US dollar that began in 2022 continued in 2024



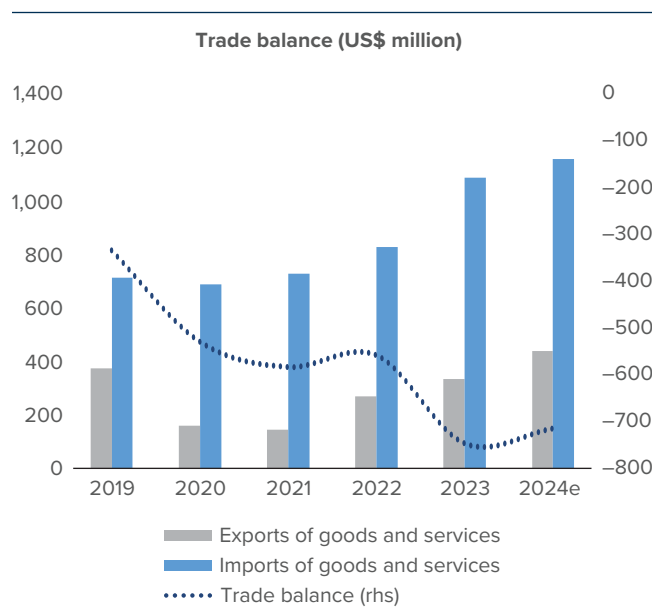
Source: CBG.

exceeding 5 percent of GDP, although it remained in single digits in 2024.⁸

In 2024, the trade deficit narrowed compared to the previous year despite an increased import bill, largely due to a rise in service exports. Merchandise imports rose from US\$919 million in 2023 to US\$985 million in 2024 (Appendix 1), remaining stable at approximately 39.3 percent of GDP in 2024—similar to 39.5 percent recorded in 2023. The rise in imports was driven by goods needed during the OIC summit. The Gambia's main merchandise imports include electricity, vegetables, rice and cereals, fuel, and oil. Goods exports reached US\$121 million (4.8 percent of GDP) in 2024, up from

⁸ The CAD in ECOWAS averaged 3.9 percent of GDP in 2024, up from 2.7 percent in 2023. In terms of CAD, ECOWAS can be grouped into three types of countries: (i) countries with CAD below 5 percent of GDP (Burkina Faso, Ghana, Niger, Nigeria, and Togo); (ii) countries with a CAD between 5 and 10 percent of GDP (Benin, Cabo Verde, Cote d'Ivoire, The Gambia, Guinea Bissau, Guinea, Mali, and Sierra Leone); and (iii) countries with a CAD in the double digits (Liberia and Senegal) (IMF 2024).

Figure 6. The trade deficit narrowed but remained high in 2024



Source: CBG; IMF; World Bank staff.

US\$95.6 million (4.1 percent of GDP) in 2023, with edible fruits, fish, cashews, and groundnuts as the main exports. However, the increase in goods exports continues to be constrained by a narrow export base. A limited export basket, combined with high import dependence and continued currency depreciation (Figure 5), has contributed to a persistently high trade deficit (Figure 6). The recovery in tourism supported an increase in services exports, with the services trade balance posting a surplus of US\$147.7 million (5.9 percent of GDP) in 2024, up from US\$74.7 million (3.2 percent of GDP) in 2023. As a result, the overall trade deficit decreased from US\$749 million (32.2 percent of GDP) in 2023 to US\$716 million (28.6 percent of GDP) in 2024.

Higher current transfers in 2024 helped contain the CAD, despite a decline in financial inflows. The secondary income account (current transfers) increased from US\$545.6 million (23.5 percent of GDP) in 2023 to US\$550.7 million (22.0 percent of GDP) in 2024. Budget support, or official transfers, declined from US\$70.7 million (3.0 percent of GDP) to US\$48.2 million

(1.9 percent of GDP) in the same period. Net official remittances recorded by the Central Bank of The Gambia (CBG) increased from US\$ 482.6 million (20.8 percent of GDP) in 2023 to US\$507.8 million (20.3 percent of GDP) in 2024. Despite robust development assistance and foreign direct investment (FDI), financial inflows declined sharply. Net inflows in the capital account reached US\$139.3 (5.6 percent of GDP) in 2024, compared to US\$159.9 million (6.9 percent of GDP) in 2023, while net inflows in the financial account entered negative territory over the same period—US\$–45.7 million (–1.8 percent of GDP) in 2024, compared to US\$0.2 million (0 percent of GDP) in 2023—due to high outflows of other investments, which offset FDI inflows.

The foreign exchange market has been functioning smoothly following the introduction of a new foreign exchange policy in December 2023. The CAD has been financed through a combination of FDI, donor support, external government borrowing, and, to some extent, international reserves. International reserves remained stable at US\$476.6 million in 2024, slightly up from US\$474.3 million in 2023, although the import cover declined from 4.9 to 4.7 months in the same period. In 2024, The CBG's reference exchange rate depreciated by 7.2 percent, year-on-year (Figure 5), while the wedge with the parallel exchange rate narrowed to around 2 percent, compared to a pick-up of 10 percent in mid-2022. The smooth functioning of the foreign exchange market reflects the positive outcomes of the December 2023 policy shift, reaffirming the CBG's commitment to a market-determined exchange rate. Previously, the CBG has faced criticism for attempting to control the exchange rate by, for example, imposing restrictions on the withdrawal of foreign currency deposits in May 2022⁹ and requiring commercial banks, foreign exchange bureaus, and money

transfer agencies to comply with its reference exchange rate in their transactions¹⁰ in April 2023 to address foreign exchange shortages. The steady rise in remittance inflows recorded over the past five years may reflect the re-routing of remittances through formal channels. This improvement is partly due to the narrowing wedge between official and parallel exchange rates.

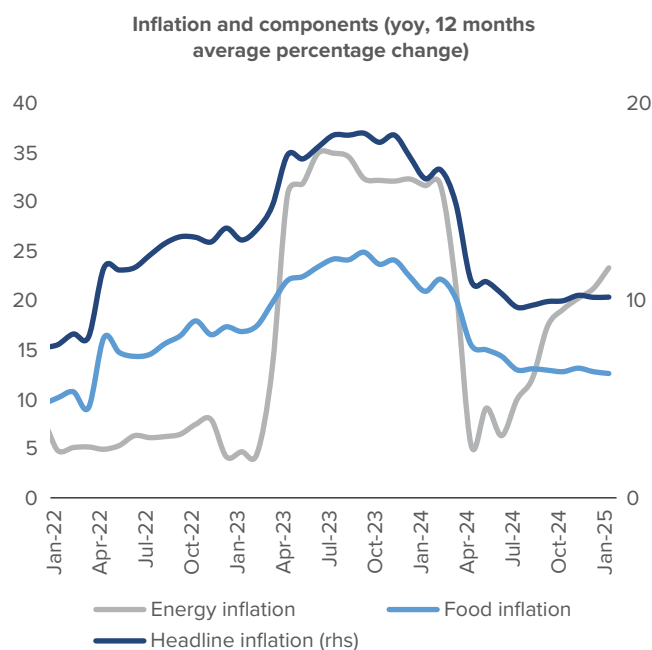
The CBG's monetary policy stance remained tight to address persistent inflationary pressures.

Inflation has decelerated but remains in double digits due to monetary tightening and declining global commodity prices. Inflation averaged 11.7 percent in 2024, down from 16.9 percent in 2023 and above the CBG's target of 5 percent. Both food and nonfood inflation decelerated from an average of 22.2 percent and 10.9 percent, respectively, in 2023 to 15.5 percent and 7.0 percent, respectively, in 2024 (Figure 7). Inflation remained on a downtrend at the beginning of 2025, reaching 10.2 percent year-on-year, in January 2025, down from 16.0 percent, year-on-year, in January 2024. External factors play a key role in shaping inflation in The Gambia. Over the long term, inflation dynamics are influenced by global prices of key commodities—such as food, oil, and fertilizer—as well as the exchange rate and the domestic output gap. In the short term, global food prices and second-round effects from changes in food prices and the output gap also impact on inflation trends (Nachega et al. 2023). As a net importer of essential foods and energy, The Gambia is sensitive to changes in global prices, with food and energy accounting for 50 percent and 6 percent, respectively, of the consumer price index (CPI). Hence,

⁹ The CBG adopted in May 2022 a directive requiring holders of foreign currency deposits to make withdrawals in local currency and a requirement for money transfer agencies to send their proceeds to banks and control shipments. These measures were, however, lifted later in August 2022, and the CBG took steps in early October 2022 to address the wedge between its published exchange rate and the parallel market rate, clarifying to banks and foreign exchange bureaus that they can officially transact at a market-based exchange rate to dissipate any potential concerns about CBG policies.

¹⁰ In April 2023, the CBG introduced a requirement to commercial banks, foreign exchange bureaus, and money transfer agencies to comply with its reference exchange rate in their transactions, which was perceived as an attempt to control the parallel exchange rate. As a result, the Association of Licensed Forex Bureaus (ALFOB), which has at least 119 foreign exchange bureaus approved by the CBG, threatened in early May 2023 to close all bureaus, before finally reaching an agreement with the CBG. ALFOB argued that they cannot sustain the losses on their operations due to the implementation of the CBG reference rate.

Figure 7. Inflation is on a downward trend, driven by moderating food prices . . .

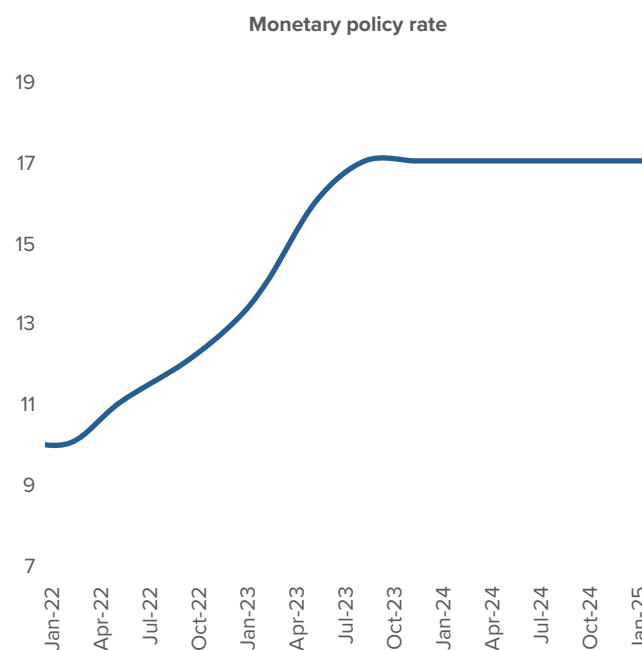


Source: World Bank Staff using data from GBoS.

the slowdown in inflation is primarily attributed to the decline in global commodity prices. The co-movement between currency depreciation and domestic inflation has also strengthened, reflecting the country's high import dependence. The correlation between headline inflation and the domestic output gap captures the influence of fiscal and monetary policies as well as remittances—key drivers of private consumption and investment.

The CBG has maintained a tight monetary policy stance to address ongoing inflationary pressures. The monetary policy rate was held at 17 percent during the monetary policy committee meetings in November 2024 and February 2025. This followed a cumulative increase of 700 basis points in March 2022 and August 2023, after which the policy rate was held steady (Figure 8). The reserve requirements for commercial banks remained at 13 percent, unchanged since their reduction by 2 ppts in May 2020. The standing deposit facility interest rate increased to 4 percent in November 2024 after remaining at 3 percent since May 2020. The standing lending facility

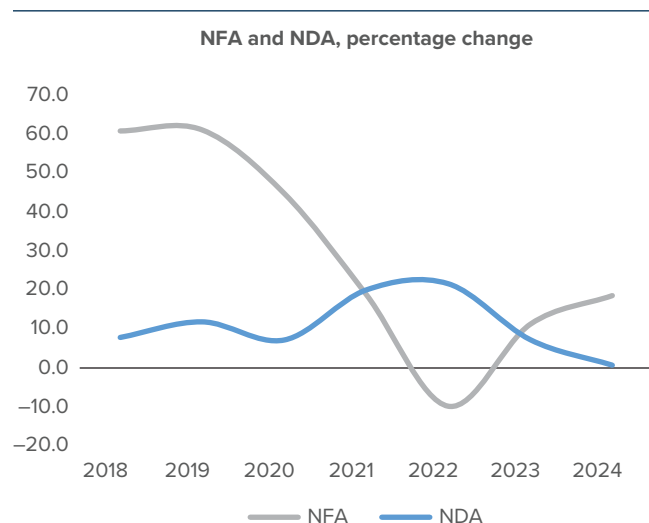
Figure 8. . . and continued tight monetary policy



Source: World Bank Staff using data from CBG.

has been maintained at 18 percent since August 2023 (monetary policy rate plus 1 percentage point). Inflation is negatively and significantly correlated with the policy rate and its square, suggesting that monetary policy has the potential to tame inflation in the short run—provided that rate adjustments are timely and bold (Nachea et al. 2023).

Growth in monetary aggregates has continued to decelerate, reflecting a moderation in net domestic assets (NDAs) in the banking system. Annual growth in broad money moderated to 7.9 percent, year-on-year, at the end of December 2024, down from 8.8 percent in the same period in 2023 (Figure 10). This reflects a moderation in NDAs of depository corporations, despite an increase in net foreign assets of both the CBG and commercial banks (Figure 9). Growth in NDAs decelerated from 7.2 percent in 2023 to 0.7 percent in 2024, primarily due to a decline in credit growth to public enterprises, which contracted by 21 percent in 2024 after growing by 40.3 percent in 2023. By contrast, credit to government grew by 33.0 percent in 2024, up from a

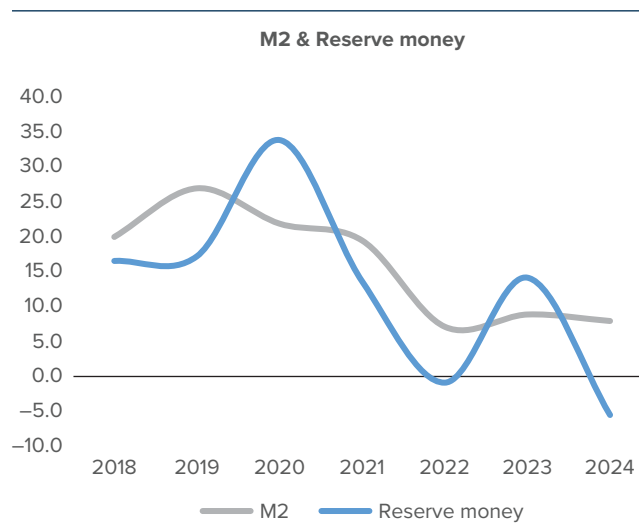
Figure 9. Net domestic assets contracted further in 2024

Source: World Bank Staff using data from CBG.

contraction of 2.2 percent in 2023. Similarly, credit to the private sector accelerated from 12.0 percent in 2023 to 24.3 percent in 2024.¹¹ On the liability side of the CBG's balance sheet, slower money supply growth reflected a contraction in reserve money, which fell by 5.6 percent in 2024, following a 14.1 percent expansion in 2023. After rising sharply in 2023 due to monetary tightening, interest rates on government securities began to decline, with the weighted average yield averaging 6.4 percent in June 2024, down from 12.2 percent in June 2023 (Figure 12).

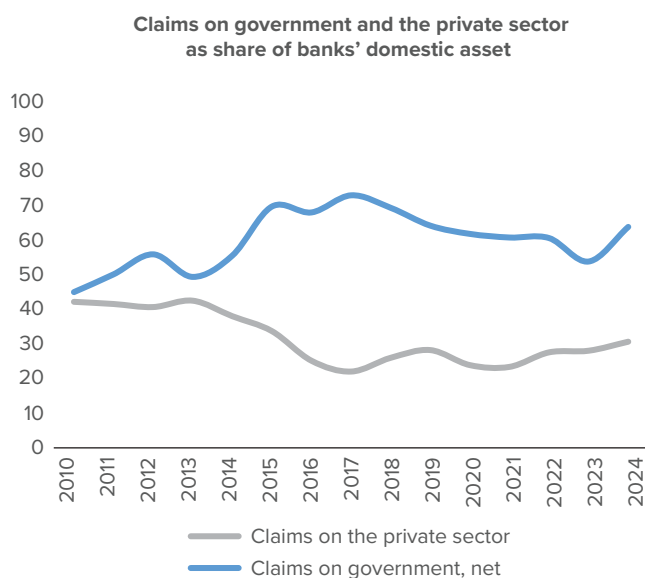
Despite elevated levels of non-performing loans (NPLs), the banking system remains stable and financially sound, though it is highly exposed to government borrowing. The industry aggregated risk-weighted capital adequacy ratio reached 28.5 percent in December 2024,

¹¹ The increase in private sector credit despite continued monetary tightening was due to credit sectoral distribution. Consumer credit is not affected by monetary tightening, unlike other sectors such as agriculture, construction, distributive trade, and tourism, for which credit drops significantly after tightening (Momodou 2021). The Gambia's banks focus on financing consumer goods and tend not to engage in investment financing (Bukhari 2005), which could explain the rise in private borrowing despite monetary tightening.

Figure 10. The money supply fell further in 2024

well above the regulatory requirement of 10 percent. The liquidity ratio stood at 78.5 percent, above the prudential requirement of 30 percent. Non-performing loans remained high at 14.6 percent (Figure 13), largely due to concentration risks in the loan portfolios of some banks. The level of NPLs largely exceeded the worldwide standard of 5 percent considered to be the prudential threshold for portfolio quality (EBA, 2018). However, the portfolios are adequately provisioned, and the Central Bank's stress testing results reported in February 2025 suggest that the banking sector remains resilient to potential capital and liquidity shocks. Nevertheless, the situation calls for close monitoring since loan arrears indicate a deterioration in credit risk and an increase in the probability of default, with probable systemic effects on the financial banking sector. Still, the banking sector's significant exposure to government debt remains a concern. As in previous years, commercial banks have increasingly allocated assets to government securities, with claims on the government reaching 63.8 percent of banks' domestic assets as of December 2024, higher than 31.3 percent for claims on the private sector (Figure 11). Although private sector credit increased in 2024, it continues to be crowded out by elevated government borrowing. Banks' credit is skewed toward the public sector, representing almost

Figure 11. Bank assets are still dominated by government debt



Source: World Bank Staff using data from CBG.

twice the share of banks' credit to the public sector in Sub-Saharan Africa¹². The concentration of banks' assets in government debt is partly due to an unfavorable business environment that increased banks' risk aversion.

The large exposure of banks to the government and the heavy dependence of their income on government securities could have an impact on the stability of the banking system. As highlighted in The Gambia Financial Sector Assessment Program of June 2022, Bank profitability could decline in case of a rapid fall in rates on government securities, as they did in 2020 when negative

¹² Total domestic credit to the private sector in The Gambia reached 8.07 percent of GDP in 2020, the fifth lowest in a sample of 35 SSA countries (where the average was 26.82 percent of GDP). Out of total domestic credit, bank credit to the private sector reached 7.58 percent of GDP in 2020, the fourth lowest in a sample of 38 SSA countries (where the average was 23.45 percent of GDP). By contrast, The Gambia's bank credit to the government was the fifth highest (21.81 percent of GDP in 2020) in a sample of 34 SSA countries (where the average was 12.59 percent of GDP) (https://www.theglobaleconomy.com/rankings/bankcredit_to_government/Sub-Sahara-Africa/ (consulted on April 10, 2025)).

Figure 12. The cost of government domestic borrowing was lower in 2024

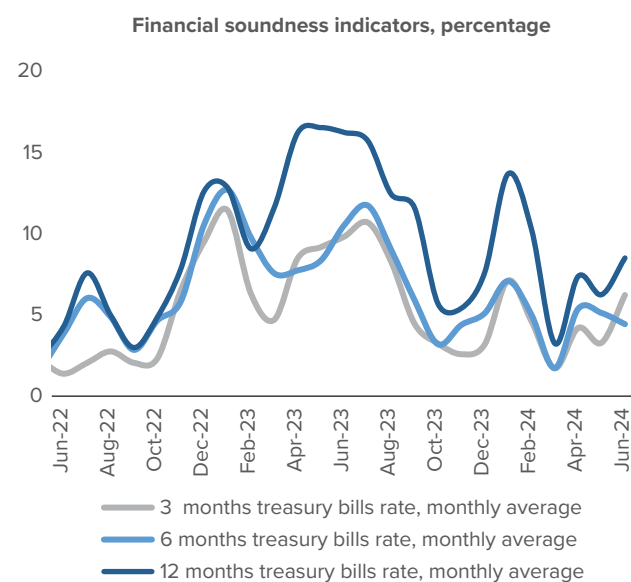
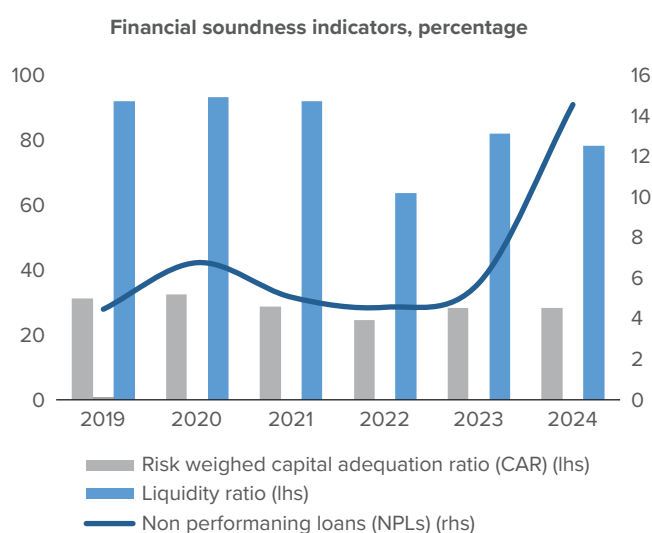


Figure 13. The financial sector remains sound



Source: World Bank Staff using data from CBG.

real interest rates on government securities reduced earnings from the bulk of banks' assets. This adds to other vulnerabilities in the banking sector such as: (i) the systemic risk posed by the high concentration of deposits in funding portfolios; (ii) liquidity risks, as government securities are not particularly liquid due to the lack of a secondary market; and (iii) longstanding structural issues that hinder bank financial intermediation, including information asymmetries, weak contract enforcement, and foreclosure issues (World Bank, 2023a).

The fiscal deficit has narrowed despite persistent fiscal vulnerabilities and high public debt

The fiscal deficit narrowed from 3.8 percent of GDP in 2023 to an estimated 3.5 percent in 2024, supported by increased domestic revenue mobilization. Total revenue increased to 21.1 percent of GDP in 2024, up from 20.7 percent in 2023, buoyed by expanded economic activity and revenue-boosting measures. Domestic revenue increased considerably, reaching 14.0 percent of GDP in 2024, up from 12.5 percent of GDP in 2023, driven by higher tax revenue that more than offset a proportional decline in grants while non-tax revenues remained stable (Appendix 2). Grants decreased by 1.1 ppts to 7.2 percent of GDP in 2024, driven by both budget and project support. Total expenditure increased moderately from 24.5 percent of GDP in 2023 to 24.6 percent in 2024, due to a substantial 1.6 ppts of GDP increase in current expenditure, which offset a nearly proportional fall in capital expenditure. Despite the increase in total spending, the faster growth in revenue helped reduce the fiscal deficit, which declined from 3.8 percent of GDP in 2023 to 3.5 percent in 2024—below the ECOWAS average of 4.5 percent of GDP¹³ (Figure 14).

The upward trend in tax collection was sustained by continued implementation of revenue-boosting measures. Tax revenue increased from 9.8 percent of GDP in 2023 to 11.2 percent in 2024, driven by higher corporate income taxes and customs revenue, reflecting

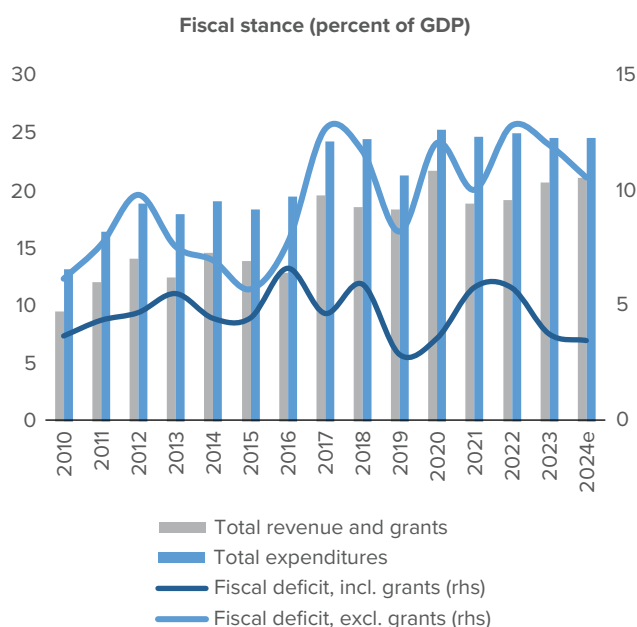
both improved economic activity and revenue-boosting measures pursued over the last three years. These measures included a series of customs reforms to improve the tax administration and processes such as rolling out Asycuda World and approving a duty waiver policy in 2024, which introduced structured rules for administering, monitoring, and reporting duty exemptions.¹⁴ The policy contributed to an increase in GDP of 0.6 ppts, bringing the corporate income tax to 2.3 percent of GDP in 2024. As a result, duty exemptions declined to 2.4 percent of GDP, down from 3 percent in 2023. Tax revenue collection exceeded budget forecasts by around 1 ppt of GDP.

Non-tax revenue remained stable in 2024, buoyed by administrative fees, but fell short of budget targets. It stood at 2.8 percent of GDP in 2024, the same level as in 2022 and 2023, primarily supported by administrative fees. However, revenue underperformed by 0.5 ppts of GDP due to low compliance and enforcement.

Current spending has increased significantly, while externally financed capital spending has decreased following the completion of OIC-related infrastructure projects. Current spending rose from 13.0 percent of GDP in 2023 to 14.6 percent in 2024, driven by higher spending on goods and services (related to the OIC summit), interest payments (due to high Treasury bill issuance and debt rollovers), and current transfers (including unbudgeted payments to settle arrears owed by the national electricity and water company, NAWEC). Capital expenditure decreased as share of GDP from 11.5 percent in 2023 to

¹³ The fiscal deficit in most ECOWAS countries remained below 5 percent of GDP, except for Senegal (IMF 2024).

¹⁴ Other reforms include the rollout of Asycuda World; the implementation of the Single Window platform (to allow traders to submit documents and data requirements through a single entry point just once), e-tracking, and the digital weighbridge; the completion of the taxpayer update for larger taxpayers to improve tax assessment and compliance; the deployment of a customs and inland border control policy in all border stations to standardize border clearance procedure; the implementation of electronic excise stamp for key manufacturing businesses and importers; the implementation of the fuel marking process; the setting up of a telecom measurement system; and the approval in 2024 of a Duty Waiver Policy, which established structured rules for the administration, monitoring, and reporting of duty exemptions.

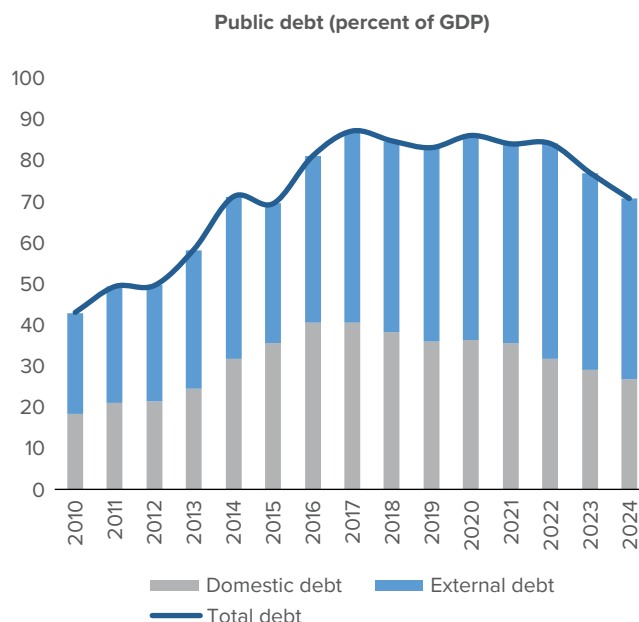
Figure 14. The fiscal deficit narrowed in 2024

Source: MOFEA; IMF; World Bank staff.

10 percent in 2024. External resources financed 84 percent of capital spending in both years.

The fiscal deficit was mainly financed through external borrowing, with net external borrowing making up 60 percent of total deficit financing and 2.7 percent of GDP. External financing included one concessional loan contracted from the Islamic Development Bank (IsDB) and resources under the International Monetary Fund's (IMF) ongoing External Credit Facility 2024–2026 arrangement. The share of net domestic financing increased from 14 percent in 2023 to 40 percent in 2024, mainly through the issuance of short-term securities. Increased borrowing for the fiscal deficit continues to crowd out private sector credit, as a large portion of bank credit is directed toward claims on the government.

The public debt stock has declined but remains high, keeping The Gambia at a high risk of debt distress. The public debt-to-GDP ratio began to decline in

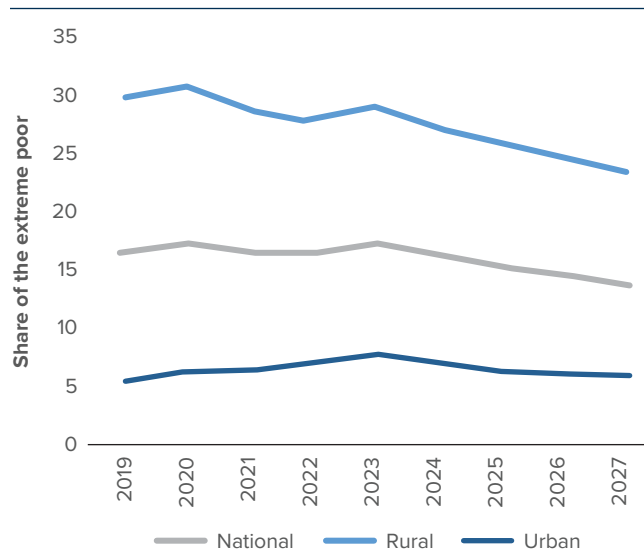
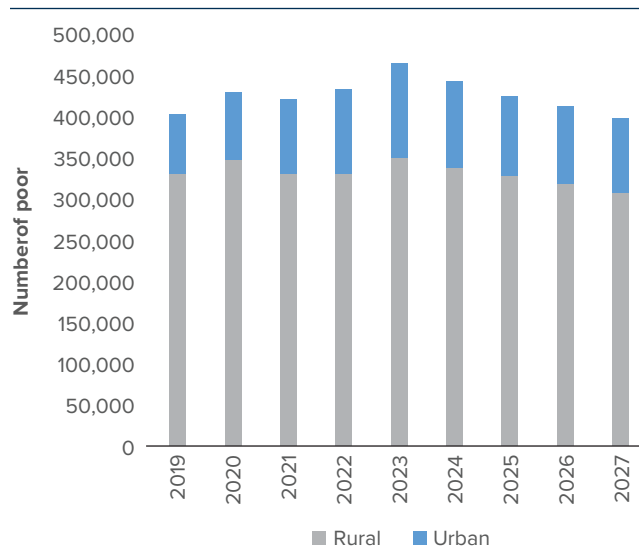
Figure 15. While public debt is on a downward trend, it remains high

2023, reaching an estimated 70.7 percent in 2024, down from 84 percent in 2022 and 75.6 percent in 2023 (Figure 15). The Gambia remains at a high risk of both external and overall debt distress, as the debt level remains well above the 40 percent of GDP prudential limit for developing countries and the 2024 ECOWAS average of 59 percent of GDP.¹⁵

Extreme poverty declined in 2024, but major obstacles to rapid poverty reduction remain

The incidence of extreme poverty declined in 2024. Rising labor incomes, increased international remittances,

¹⁵ ECOWAS countries can be divided up into: (i) countries with public debt below 50 percent of GDP (Guinea and Sierra Leone); (ii) countries with public debt around 50–60 percent (Benin, Burkina Faso, Cote d'Ivoire, Liberia, Mali, Niger, Nigeria); and (iii) countries with high public debt above 60 percent of GDP (Cabo Verde, Gambia, Ghana, Guinea Bissau, Senegal, and Togo) (IMF 2024).

Figure 16. Share of extreme poor**Figure 17. Number of extreme poor**

Source: Calculations based on 2020-IHS.

Note: Poverty rates are measures using the international poverty line of US\$2.15 in 2017 PPPs. Actual data: 2020. Nowcast: 2021–2024. Forecasts are from 2025 to 2027. Projections are made using a microsimulation tool.

and easing inflationary pressure contributed to improved household living standards and a reduction in the extreme poverty rate to 16.7 percent (measured using the international poverty line of US\$2.15 in 2017 PPPs) (Figure 16). While this represents nearly 430,000 individuals living in extreme poverty, around 18,000 people escaped extreme poverty between 2023 (when 17.3 percent of the population lived in poverty) and 2024 (Figure 17). These trends reflect a gradual decline in poverty since 2020, when the rate stood at 17.2 percent, but significant challenges to inclusive growth remain.

The labor market remains the main source of household income but suffers from entrenched issues such as low labor force participation, significant labor underutilization, high employment informality and large gender disparities. According to The Gambia Labor Force Survey (GLFS) 2022–2023, the labor market faces a low labor force participation rate at 43.6 percent of working age population (WAP), divided between 47.9 percent for men and only 39.6 percent for women,

meaning that 56.4 percent of WAP are outside the labor market. There are also many underemployed workers with the labor underutilization rate¹⁶ reaching 41.5 percent (50.5 percent among women and 31.8 percent among men) in the same period. In addition, employment is mainly informal and unwaged, with 79.4 percent of all workers being engaged in informal employment (ranging from 74.7 percent of male workers to 84.7 percent of female workers), and only 30.8 percent of workers having waged jobs (ranging from 17.3 percent of female workers to 43.5 percent of male workers) in 2023 (World Development indicators). Furthermore, a large proportion of working-age youth (aged 15–24) is left behind by the labor market, with only 30.9 percent of people in this age group being actively engaged in the labor market by working in 2023, far lower than

¹⁶ Labor underutilization combines unemployment (which was estimated at 7 percent in the GLFS 2022–2023), time-related underemployment, and persons who are outside the labor force but are considered as potential labor force.

66.3 percent in early 1983, which reflects declining employment opportunities over the years (World Bank, 2024). All these issues constrict income growth¹⁷.

Inflation continues to pose a challenge, especially rising food prices. The headline CPI slowed from 16.9 percent, year-on-year, in 2023 to 11.7 percent in 2024, driven by higher energy and food prices and currency depreciation. Food inflation slowed, although it remained elevated at 15.5 percent in 2024 (compared to 22.2 percent in 2023) and continues to erode households' real purchasing power. Inflation disproportionately affects poor households, which allocate around half of their budgets to food, resulting in significant inequality in inflation impacts.

Spatial disparities persist, with monetary poverty overlapping with human development challenges. Poverty rates are higher in rural areas dominated by agricultural employment, while the urban poor largely work in the informal service sector. In 2024, the poverty rate was an estimated 27.8 percent in rural areas, much

higher than 7.7 percent in urban areas. Nevertheless, the largest number of poor individuals reside in regions with relatively lower poverty rates, particularly in densely populated urban settlements in the Brikama region near the capital.

The Gini index was estimated at 38.7 in 2024, highlighting disparities in access to services and opportunities despite minimal household monetary inequality. High poverty levels correlate with deficits in human capital and limited access to essential infrastructure. While living standards have improved in recent years, disparities remain. From 2023 to 2019, access to water, sanitation, and electricity improved for all but the poorest quintile. For example, access to protected water rose from about 15 to 30 percent for the second quintile, and electricity access rose from 20 to 80 percent for the middle quintile. However, households in the poorest wealth quintile saw no improvements in access to basic services, and access to electricity and water remained under 20 percent.

¹⁷ Contribution of the labor force participation rate in per capita value-added growth is marginal due to low labor force participation rate. Underemployment translates into low productivity and low wages. Wide gender gaps in labor market outcomes are notably attributed to wide gaps in educational attainment. Among adults aged 15–64 in 2018, 46 percent of women did not complete elementary school, higher than 36 percent of men. Together with traditional gender norms, this contributes to significant gender gaps in labor market outcomes, including among the self-employed. Three out of four women of working age have no access to their own earnings, as opposed to nearly half of men. Men are 2.3 times more likely to be wage-employed and 42 percent more likely to run their own businesses than women. By contrast, women are 3.7 times more likely to be unpaid family workers and 26 percent more likely to be engaged in subsistence agriculture. Moreover, self-employed women suffer worse labor market outcomes and are much less likely to obtain financial assistance from friends and family than their male counterparts. On average, female-run business profits are 60 percent of those of male-run businesses. While female businesses represent 44 percent of all businesses in The Gambia, they account for only 8 percent of businesses with paid employees. Compared to men, women also have less access to financial services. Only 15 percent of women have an account at a formal bank, which is half the rate of men (World Bank 2022c).

1.2. Outlook, risks and challenges

The outlook is broadly positive with robust growth underpinned by a rebound across all sectors

The medium-term macroeconomic outlook points to a continued recovery. Growth is projected to average 5.5 percent (3.3 percent per capita) in 2025–2027, driven by increased activity across all sectors, despite a deceleration in services as tourism is expected to slow down due to global economic uncertainty, alongside capital spending-based fiscal consolidation in 2026.

Agriculture is expected to grow steadily, contingent on favorable rainfall, ongoing fertilizer subsidies, and increased investments in high-yield seeds. Value addition will be driven by government plans to increase land preparation, maintain fertilizer support, promote high-yield seed varieties, and expand small and medium enterprise (SME) matching grants and other incentives to engage the private sector and attract youth and women

into agriculture and improve market access. The upcoming Gambia Incentive-Based Risk Sharing System for Agricultural Lending project, backed by the African Development Bank, aims to enhance lending from financial institutions for activities related to agricultural value chains, boosting agricultural production. In particular, The Gambia's five-year Livestock Master Plan and Livestock Sector Strategy, updated veterinary legislation, and the Animal Health Act of 2023 are expected to boost the livestock subsector. The gradual implementation of new regulations to reduce aflatoxin exposure in key value chains will also enhance compliance with safety standards and boost agricultural production.

Services are expected to continue to grow, assuming a sustained recovery in tourism. Trends in the tourism sector over the past three years suggest that tourism arrivals will reach—or even exceed—pre-pandemic levels, driven by the accelerated implementation of a World Bank-supported investment project (World Bank 2022) and the implementation of the government's tourism policy action plan (UNCTAD 2022), which outlines six strategic objectives: (i) promoting The Gambia as a “must experience” and “revisit destination;” (ii) increasing activities at tourism centers; (iii) promoting community-based tourism; (iv) positioning The Gambia as a welcoming, safe, clean, hygienic, and accessible destination; (v) expanding the number of five-star hotels; and (vi) facilitating the availability of skilled workers in the tourism sector (UNCTAD 2022). Growth is expected across various services subsectors, including accommodation and food service activities; financial and insurance activities; wholesale and retail trade; real estate activities; information and communication; transport and storage; and wholesale and retail trade. However, while the service sector is projected to continue growing, a deceleration is expected as tourism is set to slow down following decreased demand from advanced economies given the challenges of the current global trade context.

Private consumption and investment are expected to boost growth in the industry sector, supported by stable remittance inflows and resilient public

consumption and investment. The sector will benefit from ongoing large infrastructure projects (e.g., urban and rural road construction, port expansion, and energy projects); sustained public and private construction; improvements in the business environment (bolstered by a vast judicial reform agenda, updated regulations to improve access to finance, upcoming digitalization of the business registration process, etc.; creation of a special economic zone; and a continuation of public policies following the democratic transition to improve areas such as state-owned enterprises (SOEs) and governance. New regulations are expected to encourage private sector participation in energy generation and increase the share of renewable energy. Growth in industry will be driven primarily by: (i) construction, (ii) mining and quarrying, and (ii) electricity, gas, steam, and air conditioning. However, while private consumption is set to remain high, deceleration is expected as remittances are likely to decline following a slow pace of growth in advanced economies, given the challenges posed by the current global trade environment.

Inflation is projected to return to single digits by 2025 and converge with the CBG's target in the medium term. Headline inflation fell from 16.7 percent, year-on-year, in February 2024 to a 34-month low of 9.4 percent, year-on-year, in February 2025, driven mainly by declining food prices. Over the same period, food inflation fell from 22.2 percent to 11.0 percent, year-on-year, while non-food inflation fell from 10.2 percent to 7.2 percent, year-on-year. Inflation is projected to remain in single digits through 2025 and reach the CBG's 5 percent target in 2027, reflecting domestic monetary tightening and easing global commodity prices (Table 2).

The fiscal deficit is expected to narrow further, aided by fiscal consolidation. The fiscal deficit is projected to average 1.0 percent of GDP in 2025–2027, supported by stronger domestic revenue mobilization and spending measures. Revenue measures will stem from the Domestic Revenue Mobilization Strategy and The Gambia Revenue Authority's Corporate Strategic Plan for 2025–2029. These include reforms to the investment code to streamline

Table 2. Medium-term outlook

	2022	2023	2024e	2025p	2026p	2027p
Output and prices	<i>(Annual percentage change, unless otherwise indicated)</i>					
Real GDP	5.5	4.8	5.7	5.6	5.3	5.5
Private consumption	2.6	-4.7	4.4	4.8	4.2	4.1
Government consumption	-2.6	5.8	7.1	6.8	4.0	4.5
Investment	3.6	7.6	7.1	8.0	4.1	4.2
Exports of goods and services	8.8	28.0	18.4	34.0	18.0	17.6
Imports of goods and services	-1.8	4.8	7.2	3.0	6.3	6.2
Sectoral contributions to growth						
Agriculture (ppts)	1.7	0.5	0.9	0.9	1.2	1.1
Industry (ppts)	0.7	1.8	0.5	1.1	0.9	1.3
Services (ppts)	2.7	2.1	4.0	3.2	2.8	2.7
Consumer prices (Annual average)	11.5	16.9	11.7	9.0	6.5	5.0
GDP deflator	8.1	13.6	11.7	9.1	6.3	4.0
Monetary sector	<i>(Annual percentage change)</i>					
Broad money (M2)	7.1	8.8	7.9	7.9	5.9	5.5
Claims on the private sector	25.0	12.0	24.0	-9.5	10.9	-0.5
Claims on the government (net)	18.0	2.1	7.0	5.5	5.6	5.1
Net foreign assets	-9.7	11.4	18.7	6.8	5.7	2.9
Central government finance	<i>(In percent of GDP)</i>					
Total revenue and grants	19.6	20.7	21.1	23.0	22.9	22.8
Total expenditure	25.0	24.5	24.6	24.5	24.3	23.6
Overall balance (incl grants, comm. basis)	-5.3	-3.8	-3.5	-1.4	-1.4	-0.8
Overall balance (excl grants, comm. basis)	-12.4	-12.2	-10.6	-9.5	-9.0	-7.8
Grants	7.0	8.4	7.1	8.1	7.6	7.0
Balance of payments	<i>(In percent of GDP)</i>					
Balance of goods and services	-26.0	-32.2	-28.6	-26.4	-25.4	-24.1
Exports fob	12.4	14.3	17.4	17.4	18.0	18.8
Imports fob	38.3	46.5	46.0	43.9	43.4	42.9

(continues)

Table 2. Medium-term outlook (Continued)

	2022	2023	2024e	2025p	2026p	2027p
Current transfers (net)	23.3	23.5	21.7	20.2	19.9	19.2
Current account balance (incl official transfers)	-4.3	-5.5	-5.7	-5.9	-3.6	-2.1
Overall balance of payment	-5.0	-2.5	-3.7	-3.1	-3.4	-1.6
Foreign Direct Investment	4.7	4.1	3.8	3.6	3.4	3.3
Debt	(In percent of GDP)					
Public debt (external and domestic)	84.0	76.9	71.2	65.3	60.3	56.7
External debt	52.1	47.9	43.9	38.0	32.9	28.9
Interest payments to revenue (%)	17.4	17.2	21.4	20.3	17.7	13.9
Poverty	Percentage					
International poverty rate (\$2.15 in 2017 PPP)	16.5	17.3	16.7	15.9	15.2	14.4
Lower middle-income poverty rate (\$3.65 in 2017 PPP)	46.4	47.6	46.5	45.3	44.1	42.9
Upper middle-income poverty rate (\$6.85 in 2017 PPP)	82.2	83.3	82.2	81.0	80.0	79.2
Memorandum items						
Nominal GDP (LCU Billions)	119.5	142.3	168.1	193.6	216.6	237.5
Nominal GDP (US\$ Millions)	2,156.6	2,324.8	2,507.5	2,755.8	3,008.4	3,234.0
Real GDP per capita (annual % change)	3.0	2.4	3.4	3.3	3.0	3.3

Source: MOFEA, IMF and World Bank estimates as of May 2025.

tax exemptions; digitalize tax administration and customs, including electronic VAT invoicing; broaden the tax base; improve compliance; and increase certain administrative fees. Additionally, there are plans to adjust domestic fuel prices to mitigate revenue losses. The authorities plan to introduce a 5 percent social security contribution, a sugar levy, and a new duty on scrap-metal exports. Efforts are also underway to collect additional revenue, including through privatization and the sale of stolen assets under the Janneh Commission.¹⁸ Moreover, the government

¹⁸ The Janneh Commission was initiated by President Adama Barrow in July 2017 to investigate the financial and other related activities of certain public bodies, enterprises, and offices as regards their dealings with former President Yahya Jammeh.

anticipate extra revenue from Africa 50's Asset Recycling Program. Spending measures include enforcing cash-based budget execution to align spending with available resources; strengthening public financial management to strengthen budget processes and accountability, enhance the efficiency of public spending, and reduce arrears and governance and corruption vulnerabilities; extending project investment prioritization and selection tools by the Gambia Strategic Review Board to domestically financed and PPP projects, with the aim to enhance efficiency and contain spending; overhauling the SOE sector to reduce their dependence on public resources; and consolidating redundant agencies.

Public debt is decreasing and remains sustainable, although it faces high risks of external and overall

debt distress. Public debt is expected to average 60 percent of GDP between 2025 and 2027, supported by economic growth and fiscal consolidation. However, The Gambia is expected to remain at high risk of debt distress, although debt is deemed sustainable, as highlighted in the joint IMF/World Bank DSA. Breaches of indicative thresholds highlight limited space for additional borrowing and underscore the importance of building fiscal buffers to manage increased debt-service costs. Debt servicing remains a major driver of public spending. Following the end of the external debt service deferral, debt service allocations (for both domestic and external debt) are projected to reach 29 percent of 2025 budget (GMD 11 billion)—rising from an estimate of 6.2 percent of GDP in 2024 to 6.5 percent in 2025. This is well above the combined budget of five ministries, including education, health, and agriculture. The expiration of debt-service deferrals will potentially lead to higher debt-service payments due in those years and tighter liquidity, posing a fiscal risk in short to medium term.

The CAD is expected to deteriorate in 2025 and improve in the medium term due to improved trade and fiscal conditions. It is expected to increase at 5.9 percent of GDP in 2025, due to lower services exports and remittances as a result of the challenges posed by the current global trade environment, before falling to 2.4 percent in 2026–27 assuming an improved global trade environment, the resolution of cross-border export disruptions, increased groundnut exports, and enhanced fiscal balances in line with the authorities' consolidation efforts. Remittance inflows are expected to remain robust, albeit slowing due to the impact of the current global trade environment on economic growth in advanced economies in the near term, which is likely to affect migrants' revenues. The CAD will be financed through capital transfers (e.g., development aid), foreign investment, and public-sector debt financing. While foreign exchange reserves are projected to decline in the medium term, partly due to the expiration of debt service deferrals, they are expected to remain at an adequate level (around 4 months of imports), supported by disbursements from development partners.

Rising global and domestic risks cloud to the outlook

Significant downside risks cloud the economic outlook.

While the baseline projects a continued economic recovery, the outlook is threatened by persistent external shocks related to an escalation or spread of global and regional conflicts, debt vulnerabilities, persistent balance of payment pressures, climate-related events, fiscal slippage, the impact of monetary tightening on the cost of domestic debt service, political uncertainty, and uncertainty about US foreign aid and global trade environment.

Persistent regional and global geopolitical tensions obscure medium-term growth prospects.

The Gambia depends heavily on imports of essential goods such as food (with over 50 percent of the food supply being imported), oil, fertilizer, and medicines. An escalation or spread of conflict in the Middle East and Near East, with the ensuing impact on global commodity prices, tourist arrivals, and remittance inflows, would worsen the country's growth and fiscal and external balances. The Gambia's persistent high import bill fuels inflation, compounding the adverse effects of Russia's invasion of Ukraine.¹⁹ Furthermore, The Gambia depends on remittances and tourist arrivals from advanced economies, especially Europe. Weaker-than-expected growth in Europe could undermine the recovery in tourism and reduce capital and remittances inflows.

In the short to medium term, fiscal risks may weaken fiscal management and macroeconomic stability.

These risks stem from internal and external factors, exacerbating the fiscal deficit and public debt. Internal fiscal risks include weaker-than-expected growth; contingent liabilities from SOEs; and rising costs of credit due to high monetary policy rates. External fiscal risks include weaker-than-expected grants; higher interest rates relative to past concessional terms, which would increase external debt servicing costs; the resumption of external debt service payments starting in 2025; and other external price shocks. The resumption of external debt servicing obligations will likely absorb resources from critical social and infrastructure investments, negatively impacting economic growth. Resource scarcity

¹⁹ Wheat imports from Ukraine represented 84 percent of The Gambia's total wheat imports between 2018 and 2020 (FAO).

may induce liquidity pressure and new financing needs, particularly given The Gambia's limited borrowing capacity in the near term. Increased domestic government borrowing raises banks' exposure to debt and risks public insolvency, crowds out private sector credit, and jeopardizes macroeconomic stability. Furthermore, fiscal slippage tied to the 2026 presidential election or unexpected natural disasters could undermine fiscal consolidation efforts.

Monetary tightening has raised the cost of servicing domestic debt and could continue to weigh on public finances. Following monetary policy tightening, The Gambia's Treasury bill yields have increased sharply, following a long period of low interest rates. Although interest rates on government securities were trending lower in 2024 than in 2023, they remain above their 2022 levels. Yields on the country's 3-month Treasury bill rose from 1.4 percent in June 2022 to 9.1 percent in June 2023, before settling at 6.3 percent in June 2024. Yields for its 6-month T-Bills increased from 4.3 percent in June 2022 to 11.8 percent in May 2023, before falling to 4.5 percent in June 2024. Finally, yields for 12-month T-Bills increased from 4.3 percent in June 2022 to 16.2 percent in June 2023, before setting at 8.5 percent in June 2024. As a result, interest payments increased from GMD 2.6 billion (2.2 percent of GDP) in 2022 to GMD 3.0 billion (2.1 percent of GDP) in 2023 and GMD 5.0 billion (3.0 percent of GDP) in 2024, of which 81 percent were dedicated to domestic interest payments. Continued issuance and rollover of short-term debt could sustain high domestic interest payments and further strain public finances, especially alongside the resumption of external debt service payments.

Global and regional conflicts may exert persistent pressure on the country's balance of payments, widening the external deficit. A sharp rise in international commodity prices due to global and regional geopolitical tensions or a decline in tourist arrivals due to these tensions would amplify the external deficit. While foreign exchange reserves are already projected to decline due to the expiration of debt servicing deferrals, further reductions could impair the country's capacity to service external debt and result in shortages of essential imports. This would likely increase pressure on the domestic currency and inflation, significantly worsening household welfare.

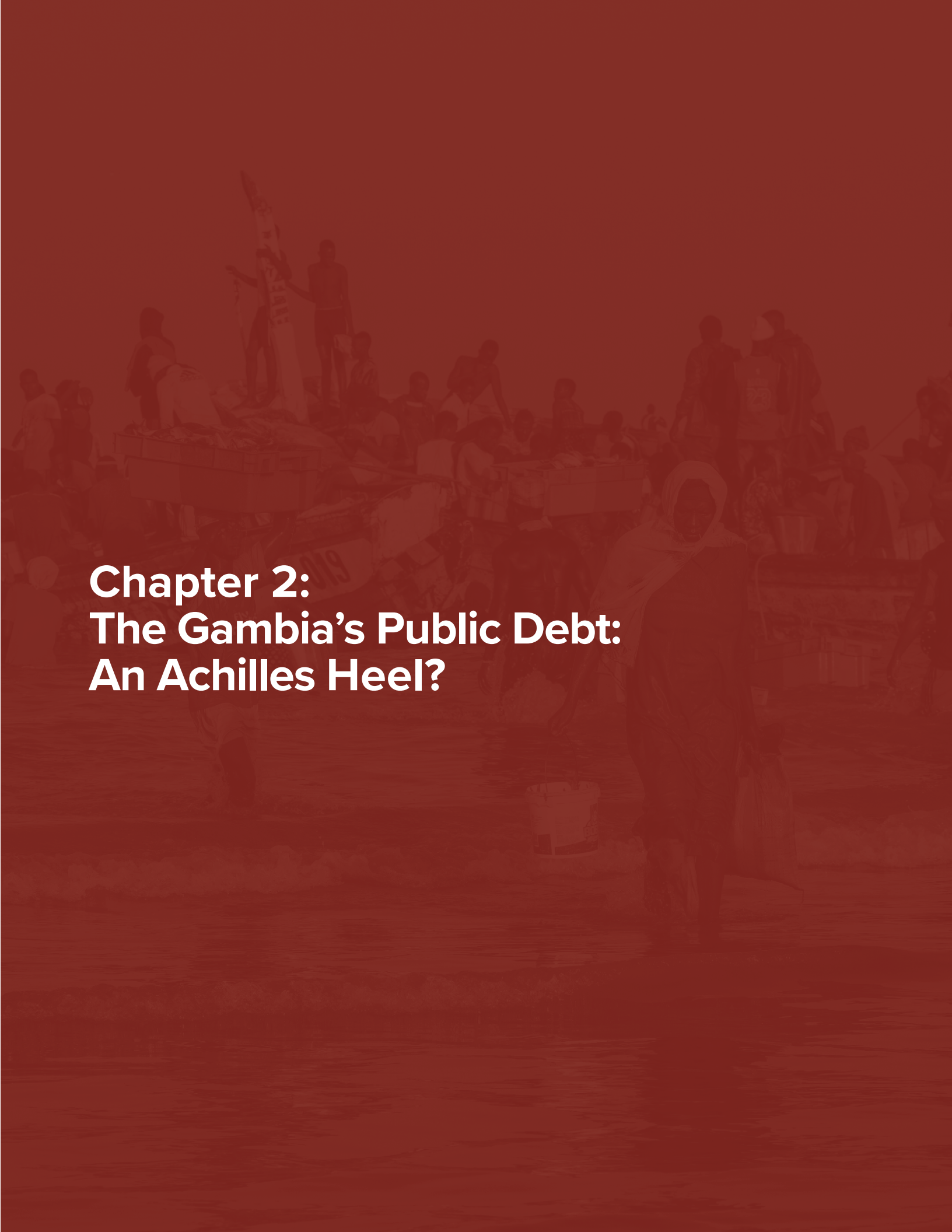
Extreme weather events pose a significant threat to growth and long-term poverty reduction. The Gambia is highly vulnerable to climate shocks. Reports of natural disasters increased from 6.3 percent in 2015 to 11.8 percent in 2020. Climate-related disasters have consistently subdued economic growth, pushed vulnerable households into poverty, and worsened fiscal and debt outcomes. Poor households, women, and female-headed households are disproportionately affected by climatic shocks, as they are overrepresented in agriculture and livestock activities and have limited or no access to protection mechanisms.

Political uncertainty surrounding the upcoming presidential election could undermine macroeconomic stability. Following the 2016 presidential election that led to regime change, The Gambia held a second successful presidential election in 2021 and peaceful legislative and local elections in 2022 and 2023, respectively. The next presidential election is scheduled for December 2026. However, the National Assembly has not concluded its review of the proposed Constitution bill, raising questions about the bill's prospects and future constitutional reforms, including the retroactivity of the two-term limit on presidential mandates. Uncertainty tied to the 2026 presidential election could slow democratic consolidation and delay critical economic reforms.

Shifts in US foreign aid policy and global trade dynamics could also affect The Gambia's outlook. In 2024, the United States, through its Millennium Challenge Corporation (MCC), disbursed US\$2.4 million to support governance, health, and population initiatives in The Gambia. The country benefits from MCC's US\$25 million Threshold Program focused on improving the government's capacity to deliver reliable electricity to Gambian homes and businesses. The US administration's final decision on foreign aid will therefore have an impact on social and infrastructure programs.²⁰ In addition, disruptions to global trade—including trade tariffs—pose risks to The Gambia's economy due to its heavy reliance on remittances, tourism, and imports of basic goods.

²⁰ <https://foreignassistance.gov/cd/gambia/2024/obligations/1>.





Chapter 2: The Gambia's Public Debt: An Achilles Heel?

This chapter analyzes The Gambia's debt trajectory, its impact on the macroeconomy, and what the country can do to finance public expenditure needs while avoiding the risks posed by excessive debt accumulation. The six sections in this chapter respectively provides an analysis of (i) The Gambia's debt trend and composition, (ii) main reasons for financing the Gambia's economy through debt, (iii) debt's impact on economic growth, (iv) key macroeconomic channels through which debt influences growth in the case of The Gambia, (v) impact of the expiry of the external debt service deferrals on economic growth, and (vi) a menu of policy options that can help The Gambia strike a prudent balance between the level of public debt to finance public expenditure needs, while sustaining economic growth, and avoiding the risks posed by excessive debt accumulation.

2.1. Public debt has soared over the last decade, reversing the gains achieved through the HIPC initiative in 2007, with most current debt linked to foreign borrowing

Public debt in The Gambia declined significantly following the Heavily Indebted Poor Countries (HIPC) initiative in 2007, but it nearly doubled to 76.9 percent of GDP by 2023. After reaching 75.2 percent of GDP in 2000, government gross debt declined to 38 percent in 2007 upon completing the HIPC Initiative. This achievement required meeting six key conditions: (i) preparation and satisfactory implementation of a full Poverty Reduction Strategic Paper for at least one year and improvements in poverty monitoring; (ii) maintenance of macroeconomic stability; (iii) strengthening of public expenditure management; (iv) proper use of interim HIPC debt relief; (v) education and health sector reforms; and (vi) structural reforms. Overall, The Gambia had fully implemented nine out of eleven completion point triggers and partially implemented the other two

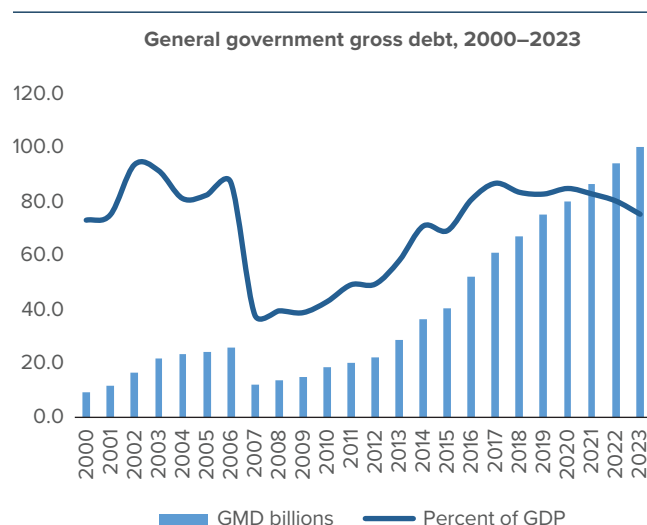
triggers (IDA and IMF 2008).²¹ However, starting in the early 2010s, public debt began to rise again, reaching 83.2 percent of GDP in 2022. Owing to progress in domestic revenue mobilization and efforts to limit external borrowing to concessional loans, public debt has since started to decline—although it remained high at 76.9 percent of GDP in 2023 and an estimated 70.6 percent of GDP in 2024 (Figure 18). The factors behind the rise in debt are discussed in the next section.

Public debt is dominated by external debt, which averages two-thirds of total public debt. In September 2024, total public debt reached US\$1,804.2 million, representing 73.4 percent of GDP. At the same time, public external debt was US\$1,163.2 million, representing 64.5 percent of total outstanding public debt, and public domestic debt was US\$641.0 million, representing 35.5 percent of total outstanding public debt (Figure 19).

External public debt is dominated by multilateral debt, which represents about two-thirds of total external debt. As of September 2024, multilateral creditors accounted

²¹ Fully implemented triggers related to: **(A) poverty reduction:** (i) preparation of a full Poverty Reduction Strategy Paper through a participatory process and satisfactorily implemented for one year, and (ii) improvement of the poverty database and monitoring capacity; **(B) macroeconomic stability:** (iii) satisfactory implementation of the Poverty Reduction and Growth Facility (PRGF)-supported program; **(C) governance:** (iv) strengthening of public expenditure management, including the issuance of annual public reports on budget execution and semiannual reports on the use of interim HIPC Initiative debt relief; **(D) social sector reforms:** (v) use of budgetary savings from HIPC interim debt service in accordance with approved annual budgets to implement education and health reform programs, including (vi) increasing the number of teachers for lower basic education graduating from The Gambia College, (vii) ensuring appropriate funding of a trust fund for girls' scholarships in the poorest regions, (viii) increasing the share of primary and secondary healthcare within the recurrent health budget; and **(E) structural reforms** to promote private sector development: (ix) establishment of a functional multisector regulatory agency. Partially implemented triggers include **(D) social sector reforms:** (x) increasing the number of births attended by a person trained in antenatal care; and **(E) structural reforms:** (xi) bringing The Gambia's two major public groundnut processing plants to the point of sale.

Figure 18. Public debt has soared over the past decade, wiping out the gains made from the HIPC initiative in 2007

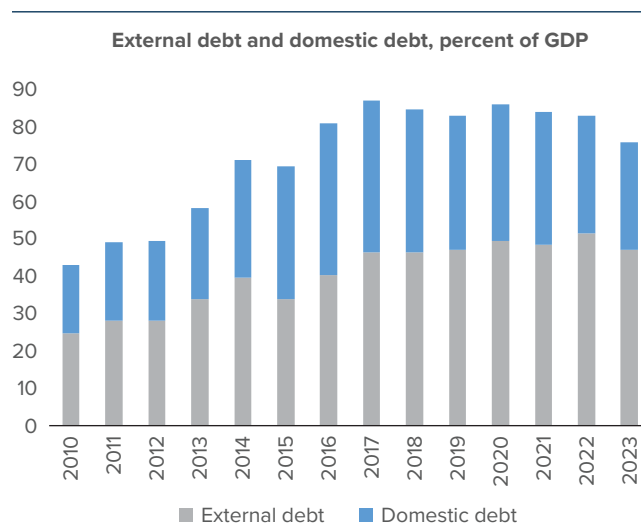


Source: WDI.

for 68 percent of outstanding external public debt (Figure 20). Key creditors include the IsDB, International Monetary Fund (IMF), International Development Association (IDA), and Arab Bank for Economic Development in Africa (BADEA), which together represent 74 percent of multilateral debt. The remaining debt was shared more or less equally between the OPEC Fund, International Fund for Agricultural Development, European Investment Bank (EIB), African Development Fund (AfDF), and ECOWAS Development Bank, with other creditors, such as African Development Bank/Nigeria Trust Fund and Islamic Solidarity Fund for Development, representing a marginal share (Figure 21). The average interest rate on The Gambia's external debt is 1.2 percent, with an average maturity of 9.3 years, with multilateral debt having a longer average maturity of 24 years and a 3-year grace period.

External bilateral debt is mainly owed to Saudi Arabia, Kuwait, and India, which account for 81 percent of external bilateral debt. As of end of September 2024, Saudi Arabia, Kuwait, and India accounted for 34 percent, 27 percent, and 20 percent of external bilateral debt,

Figure 19. External debt represents the bulk of public debt



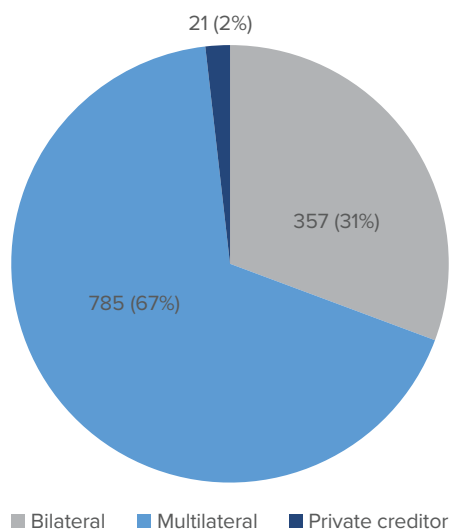
respectively. The remaining debt was distributed between China, United Arab Emirates, Venezuela, Libya, and Taiwan (Figure 22).

Domestic debt is primarily owed to commercial banks and consists of mainly long-term government securities.

As of March 2024, 42 percent of domestic public debt was owed to commercial banks, while 29 percent was owed to commercial banks and non-banking financial institutions, 20 percent to the CBG, and 9 percent to non-banking financial institutions (Figure 23). Debt comprises T-bonds (51 percent), T-bills (45.9 percent), and SAS bills or Islamic bills (2.9 percent). Focusing on longer term maturities is part of the government's effort to reduce debt-related roll-over risk. T-bonds include 3-year T-bonds, representing 44 percent of the total T-Bonds portfolio at an average interest rate of 14.30 percent, followed by 30-year T-bonds at 38 percent (with an average rate of 7 percent), 5-year T-bonds at 13 percent (with average rate of 8.7 percent), 2-year T-bonds at 3.5 percent (with an average rate of 18.36 percent), and 7-year T-bonds at 1 percent (with an average rate of 12 percent) (Figure 24).

Figure 20. External public debt is mainly owed to multilateral creditors . . .

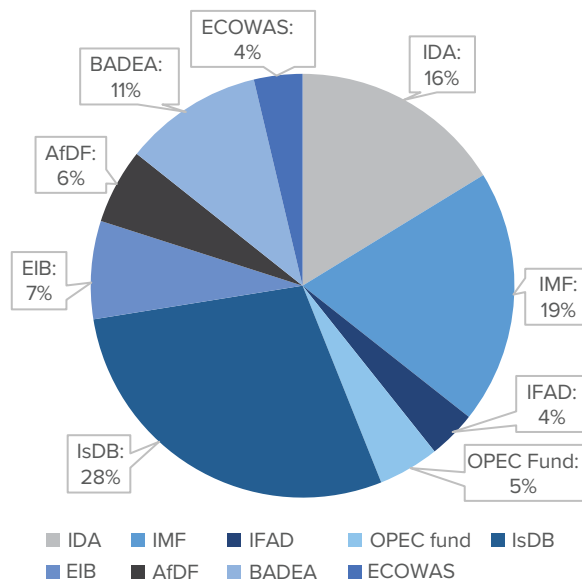
External debt by creditor, USD million and percentage, September 2024



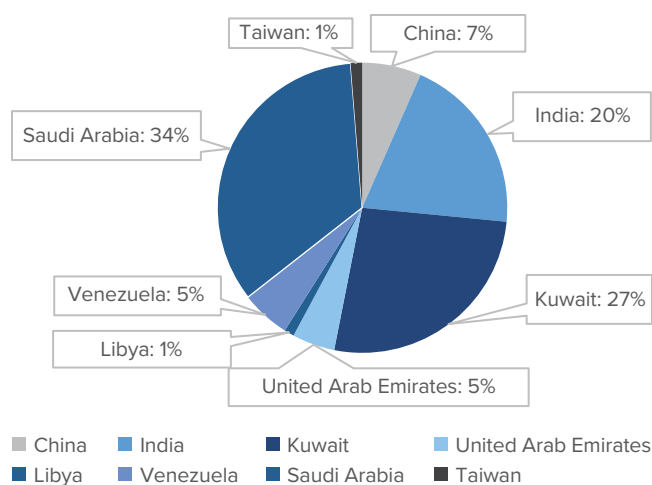
Source: MOFEA.

Figure 21. . . mainly such as the IsDB, IMF, IDA, and BADEA

Multilateral debt by creditor, percentage, September 2024

**Figure 22. External bilateral public debt is mainly owed to three creditors: Saudi Arabia, Kuwait, and India**

External bilateral debt, percentage



Source: MOFEA.

Figure 23. Domestic public debt is mainly owed to commercial banks

Domestic debt by creditor, GMD billion and percentage, September 2024

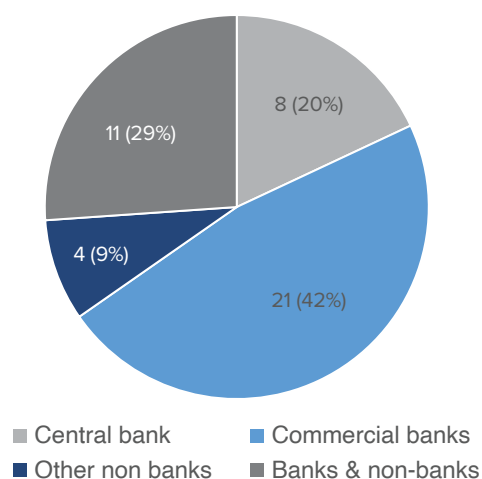
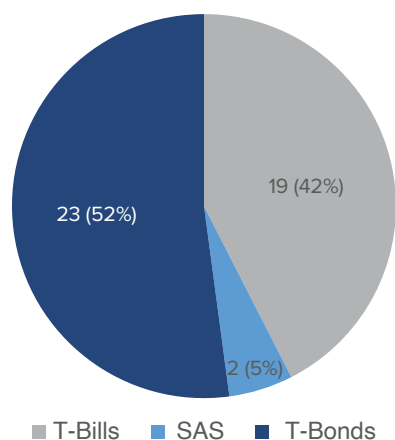


Figure 24. Most domestic debt is focused on long-term maturities

Domestic debt by instrument, GMD billion and percentage, September 2024



Source: MOFEA.

Debt servicing significantly limits the government's ability to finance social and infrastructure development.

Between 2021 and 2024, total public spending averaged 23.1 percent of GDP, with just one-third allocated to debt serving costs (representing 6.5 percent of GDP). Of this, about 3.0 percent of GDP was dedicated to domestic debt servicing, while 3.5 percent of GDP went to external debt (Figure 25). Domestic servicing costs averaged 23 percent of the domestically financed government budgets from 2020 to 2024, nearly matching the combined budget for health and education, which averaged 24.7 percent (Figure 26). With the expiration of the Debt Servicing Suspension Initiative in 2024, debt service payments are projected to rise to 29 percent of the 2025 budget—exceeding combined expenditures on education, health, and agriculture, further constraining development financing. External debt service to revenue (percent) reached 31.9 percent in 2023 while the acceptable threshold is 18 percent.

Despite a downtrend in public debt since 2023, The Gambia remains at high risk of external and overall debt distress. The IMF considers a debt-to-GDP ratio of 60 percent a high-risk threshold (IMF 2011). While

this ratio is often used as a prudential limit for developed and emerging countries, it varies depending on countries' level of development, growth and revenue potential, and institutional governance (UN 2023). For developing economies, the United Nations (UN 2023) recommends a long-term debt-to-GDP ratio not exceeding 40 percent. The Gambia's public debt stock ratio surpasses the United Nations' representative prudential limit of 40 percent debt-to-GDP ratio, placing the country at high risk of debt distress due to breaches in revenue and export-related indicators (Figure 27). According to the December 2024 joint IMF-WB DSA, the external debt service-to-revenue ratio breaches its threshold (the benchmark is 18 percent), reflecting increased debt service commitments in the medium term.²² Heightened domestic debt vulnerabilities also contribute to the breach of the present value (PV) of the overall debt-to-GDP ratio (the benchmark is 55 percent), although it falls within the benchmark level by 2026 and continues to decline thereafter,²³ suggesting that overall debt remains sustainable.

2.2. Reasons for financing The Gambia's economy through debt

Countries borrow primarily because they lack sufficient financial resources to meet their development needs.

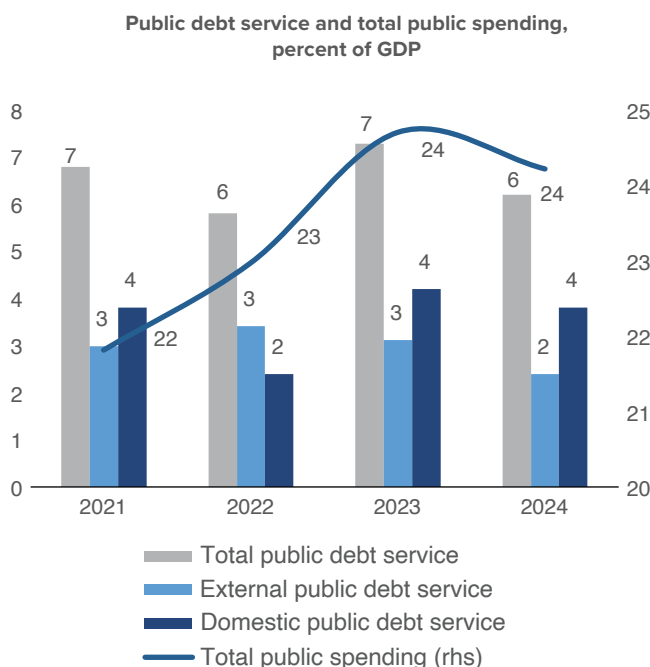
The rise in public debt to finance development needs often stems from low domestic savings, low tax revenues, weak SOEs' performance, high external deficits, low inflows of external private capital, and the growing impact of climate-related events (Zouirchi et al. 2023):

- **Low domestic savings:** Developing countries face substantial investment gaps due to lagging development and insufficient domestic savings (Alzghoul et al. 2023). This leads to low domestic investment and impedes economic growth. Limited capital accumulation is a

²² Unlike the December 2023 DSA where the present value (PV) of external debt-to-GDP, the PV of external debt-to-exports, and the debt-service-to-exports ratio breached their respective thresholds, they remained below the threshold levels in the November 2024 DSA.

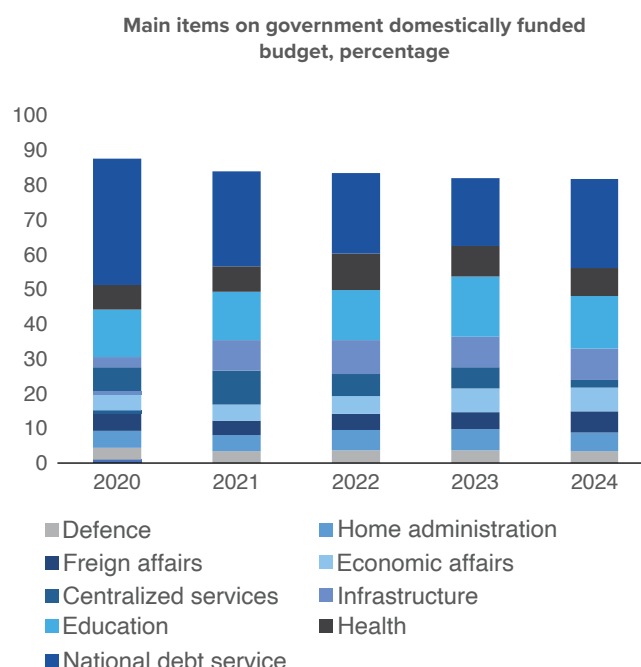
²³ The PV of debt-to-revenue and debt service-to-revenue trend downward over the forecast horizon in the baseline scenario.

Figure 25. High debt servicing costs constrain The Gambia's public spending



Source: MOFEA.

Figure 26. Domestic debt service accounts for the largest share of the government's domestically financed budget

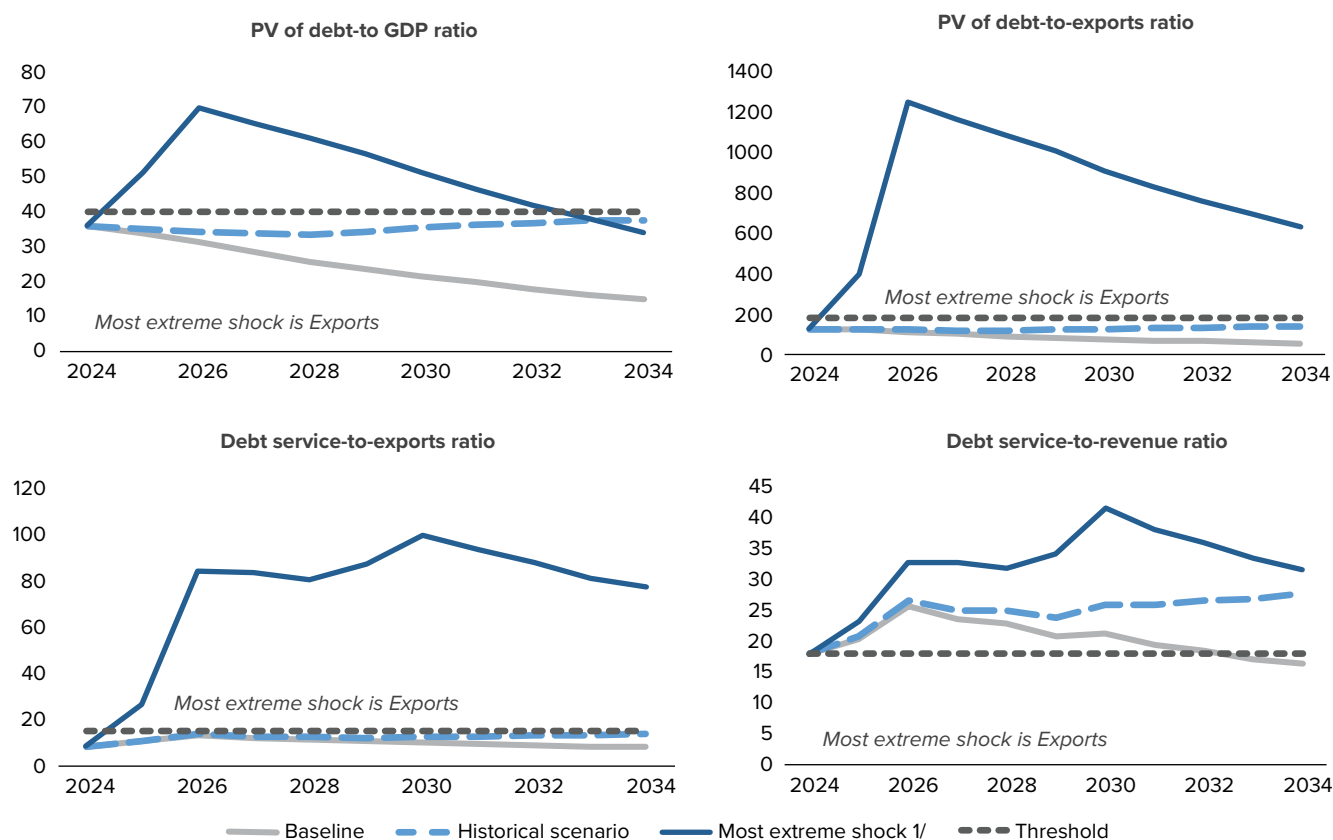


key contributor to low productivity and slow economic growth in developing economies (Bosworth and Collins 1999). Factors such as low per capita revenue growth, poor financial development, and high political instability contribute to low savings. This is highlighted in several empirical studies examining the relationship between financial intermediation and economic development, including Cihák et al. (2012) who covered 205 economies, Honohan and Beck (2007) who covered Africa, Levine (2005) who reviewed several cross-national studies, Beck et al. (2000) who covered 63 countries, and Edwards (1996) who analyzed the determinants of savings in a panel of 36 countries.

- **Insufficient tax revenue:** Inadequate tax collection hampers economic growth by limiting infrastructure investment, underfunding public services, increasing income inequality, and forcing governments to rely more heavily on aid and debt to cover public expenditures (Choudhary et al. 2024; Gupta et al. 2004). This

is especially highlighted for low-income countries (Gupta et al. 2004), where Choudhary et al. (2024) found that there is a tax threshold around 15 percent of GDP where future inclusive growth significantly improves due to increased productive spending, more progressive taxes, and lower output volatility.

- **Weak performance of State-Owned Enterprises (SOEs):** SOEs play an important role in many economies, and operate across a range of sectors, including infrastructure, natural resources, energy, logistics, transportation, financial services and manufacturing (OECD, 2024). In SSA, SOEs play an important role in providing basic services such as electricity, water, telecommunications, and other public utilities. The SOEs sector has systemic implications for the public finances and the economy more broadly, they account for a significant share of public sector balance sheets, with liabilities worth an average of 20 percent of GDP, and assets of about 32 percent of

Figure 27. Selected public debt indicators under baseline and alternative scenarios, 2024–2034

Source: Joint World Bank-IMF Post-mission DSA December 2024.

GDP across a set of SSA countries (Harris et al. 2020). While they also contribute significantly to government revenue in some countries, many of them face difficult financial conditions, including the lack of profitability and liquidity constraints, giving rise to a need for sustained and significant bailouts. In a study on the SOEs' debt sustainability and profitability, Wezel and Carvalho (2022) assessed SOEs' liabilities in light of their earnings, more precisely, earnings before interest, taxes, depreciation and amortization (EBITDA). A threshold of debt not exceeding five times EBITDA is used as reference since higher ratios would reflect less ability to handle the debt burden or assume additional debt. The authors found that more than two-thirds of the surveyed large SOEs in SSA (64 of 89 firms, or 72 percent) display unsustainable debt, i.e., a debt-

to-EBITDA ratio (DTE) either greater than 5 (40 cases) or smaller than zero because of negative EBITDA (24 cases). As a result, SOEs have become an important source of fiscal risks and their underperformance burdens on the government fiscal accounts and debt. This burden includes significant support to SOEs (e.g., recapitalizations, recurring subsidies, and assumption of SOE debt), a high public sector debt stock curtailing fiscal space in case of adverse shocks (e.g., fall in commodity prices for commodity exporters), SOE's obligations to private parties through joint ventures or public-private partnerships that the sovereign may have to honor in case of SOE payment default (IMF, 2020).

- **Deteriorating terms of trade and large external imbalances:** Many developing countries primarily export low value-added raw materials and import high

value-added manufactured goods from industrial countries. This structural imbalance makes them vulnerable to commodity price volatility, which negatively affects their trade balances. To import industrial goods, these countries must export a relatively larger quantity of raw goods, leading to persistent trade deficits and growing dependence on external and domestic debt (Zouirchi et al. 2023).

- **Weak external private capital inflows, including FDI and remittances:** FDI can provide much-needed capital for poor countries to acquire physical capital and improve workforce skills through technology transfer (Hossain 2008), but it often remains limited in many developing countries due to weak business environments and minimal technology spillovers to local firms. While remittances contribute to the household welfare of receiving households, not all countries attract sufficient remittances. Additionally, most remittances are spent on basic consumption rather than investment as observed in Philippines (OECD 2005). Additionally, unfavorable macroeconomic policies, such as significant divergence between the official and parallel exchange rates, can divert remittances to unofficial channels. For example, Nigeria attracted more than US\$20 billion in remittances in 2023, surpassing the country's foreign direct and portfolio investments of US\$2.9 billion in 2022. However, the country has been known for its inability to maintain such important remittances within official channels, with an estimated 50 percent of remittances channeled through informal networks, mainly due to exchange rate disparities (Cooper and Esser, 2020).
- **Climate-related events:** Climate change poses both immediate and long-term risks to the debt trajectories of developing countries. High vulnerability to climate shocks, coupled with an increase in natural disasters and low socioeconomic resilience, strains public finances in developing countries (Cabrillac et al. 2023). Climate-induced economic losses constrain developing countries' fiscal revenue and often require them to borrow externally, especially during emergencies (De Bandt et alii 2022). Cross-country evidence suggests that GDP per capita can decline by 2 to 5 percent in the four years following major natural disasters, while

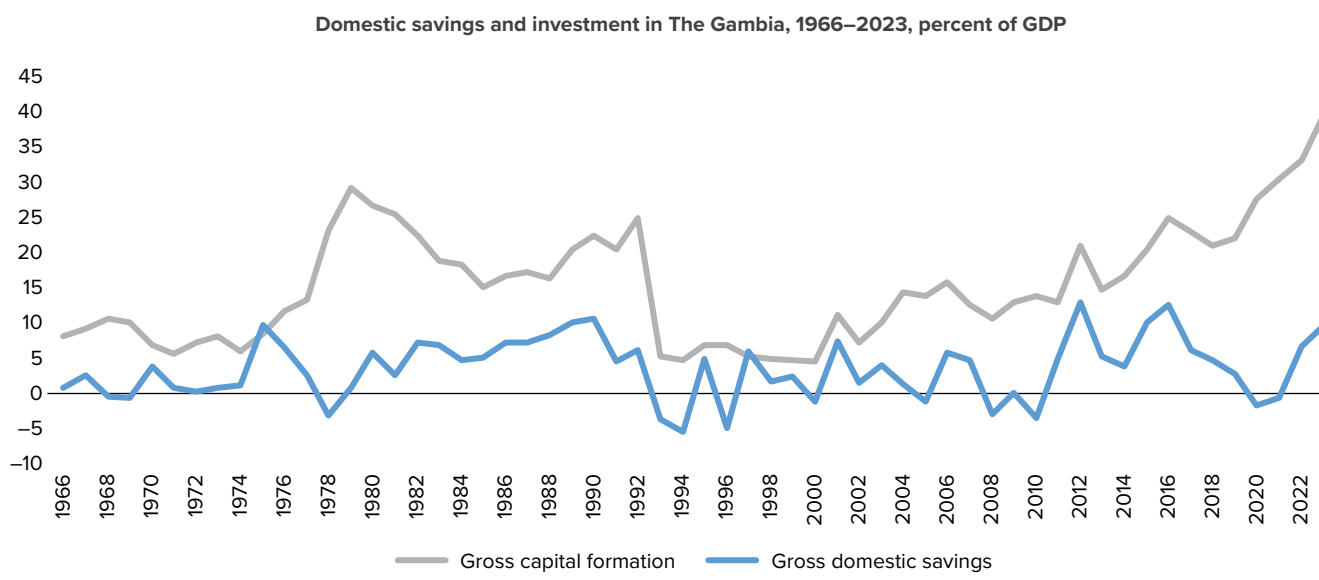
public debt can rise by 6 percent of GDP within three years (IMF 2019).²⁴ In addition, rising climate risks are putting upward pressure on the cost of market financing, with climate risk premiums estimated between 65 and 120 basis points for the most vulnerable countries (Bolton et al. 2022).

- **Domestic savings in The Gambia have historically been too low to cover investment needs.** Between 1966 and 2023, domestic savings averaged a mere 4 percent of GDP, far below the average of SSA at 17.4 percent, low-income countries (LICs) at 13.1 percent and Economic Community of West African States (ECOWAS) at 11 percent²⁵. Over the same period, investment averaged 15 percent of GDP (Figure 28), well below SSA (22.4 percent of GDP), LICs (23.2 percent of GDP) and ECOWAS (19.7 percent of GDP)²⁶. In recent years, gross capital formation has increased considerably, from 25.5 percent of GDP in 2016 to 34.7 percent in 2023. With limited domestic savings and insufficient external aid, the country is obliged to rely on debt to finance its investment needs (DeLisle et al. 2016). According to the Mo Ibrahim Foundation (2024), recent development experience suggests that economic take-off requires countries to reach and sustain an investment rate of at least 30 percent of GDP for two decades or more. The Gambia has only recently approached this threshold, with investment rates around 30 percent

²⁴ International Monetary Fund (2019). "Building Resilience in Developing Countries Vulnerable to Large Natural Disasters", *IMF Policy Paper*. IMF, Washington DC.

²⁵ Domestic savings as share of GDP over 1966–2023 averaged 7.6 percent for Benin, 8.2 percent for Burkina Faso, 14.0 percent for Cabo Verde, 21.4 percent for Cote d'Ivoire, 8.5 percent for Ghana, 25.3 percent for Guinea, 0.3 percent for Guinea Bissau, 4.8 percent for Mali, 9 percent for Niger, 10.0 percent for Senegal, 15.8 percent for Sierra Leone and 14.5 percent for Togo (no data for Liberia and Nigeria) (WDI).

²⁶ Gross capital formation as share of GDP averaged 17.3 percent for Benin, 18.6 percent for Burkina Faso, 33.0 percent for Cabo Verde, 18.5 percent for Cote d'Ivoire, 17.3 percent for Ghana, 12.3 percent for Guinea, 24.6 percent for Guinea Bissau, 18.9 percent for Mali, 18.1 percent for Niger, 19.1 percent for Senegal, 19.7 percent for Sierra Leone and 24.2 percent for Togo (no data for Liberia and Nigeria) (WDI).

Figure 28. Domestic savings have historically been too low to cover investment needs

Source: World development indicators.

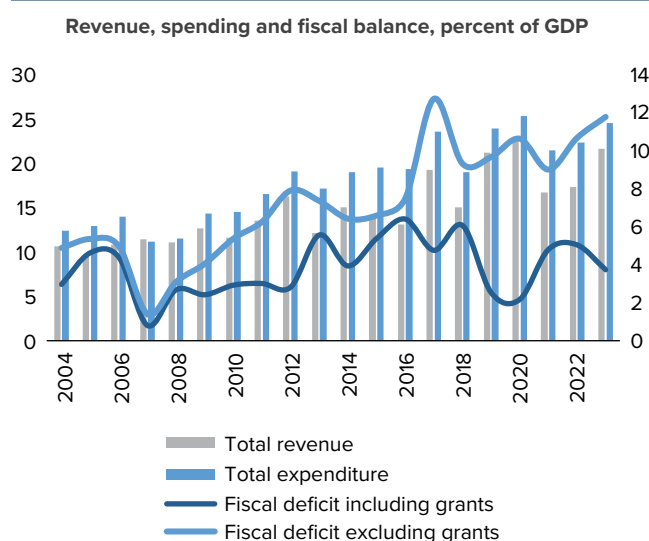
of GDP over the last four years. This progress raises important questions about the appropriate mechanism to finance and sustain this rate of investment, given concerns about debt sustainability. With per capita income at US\$861 in 2023, which is lower than the average for low-income countries US\$ 901 and US\$ 1623 for SSA (WDI), basic consumption needs absorb most household resources, making it difficult to save. In addition, weak financial development constrains domestic savings, as The Gambia's financial sector is small and undiversified. As of December 2021, commercial banks held 86.2 percent of total financial assets and 32.1 percent of GDP, indicating low levels of financial intermediation (World Bank 2023a).

Tax revenue collection in The Gambia is inadequate to cover investment needs. Recently, The Gambian authorities implemented tax policy and administration reforms to enhance tax collection. These reforms included: (i) introducing the value-added tax in 2013; (ii) instituting reporting obligations in 2019 to enhance the transparency and administrability of the small taxpayer regime as well the informal sector tax regime; (iii) adopting a series of

tax reforms in 2021;²⁷ and (iv) implementing revenue measures in the 2023 budget.²⁸ While several reforms were undertaken to improve the tax administration, tax revenue averaged only 10.2 percent of GDP from 2017 to 2023, significantly below the SSA average of 18.9 percent and the 15 percent 'tipping point' for critical investments (Vitor et al. 2016). Low tax revenue, combined with rising and rigid expenditures, has resulted in large fiscal

²⁷ Effective January 1, 2021, The Gambia introduced various tax reforms, including increasing the capital gains tax threshold; reducing the fringe benefits tax rate; repealing the environmental tax payable by employees and the air transport levy; increasing the threshold for voluntary value-added tax registration; and introducing the requirement for large taxpayers to submit audited financial statements with their annual tax returns.

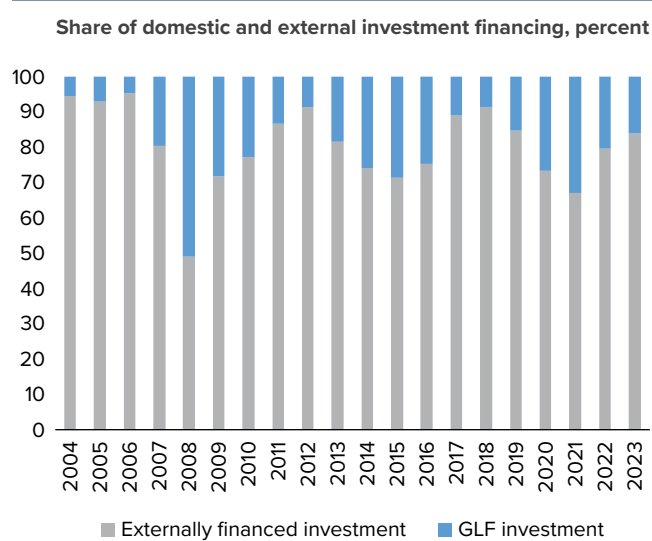
²⁸ Revenue measures introduced in the 2023 budget included: increasing the excise tax on tobacco; revising the immigration fees of non-Gambians in line with regional benchmarks; introducing an ad-valorem tax on used tires; revising duty waiver application fees; introducing an environmental tax on second-hand goods that do not currently attract an environmental tax and security levy on all insurance premiums; allowing for deduction of rental income tax at source for all commercial rental properties; and increasing the Expatriate Quota tax for non-ECOWAS residents.

Figure 29. Domestic revenues are low, and fiscal outcomes are increasingly dependent on grants

Source: World Economic Outlook, WDI.

deficits, averaging 4.7 percent of GDP from 2017 to 2023 (Figure 29), close to the ECOWAS average (4.7 percent) and above the SSA average (3.6 percent)²⁹. Revenue and fiscal outturns are increasingly dependent on external grants, which accounted for 34 percent of total revenue over 2017–2023. Capital spending is highly dependent on external grants, with grants funding 80 percent of capital expenditure between 2017 and 2023, compared with just 20 percent for the government's locally funded (GLF) investments (Figure 30). Given these constraints to finance public spending, the government has resorted to borrowing to bridge the investment-savings gap. External borrowing can bridge fiscal gaps and finance infrastructure, but high debt may ultimately hamper economic growth (Kolawole 2023).

²⁹ The deficit as share of GDP averaged 4.0 percent for Benin, 6.4 percent for Burkina Faso, 4.0 percent for Cabo Verde, 4.4 percent for Cote d'Ivoire, 9.0 percent for Ghana, 1.6 percent for Guinea, 5.7 percent for Guinea Bissau, 5.0 percent for Liberia, 4.1 percent for Mali, 4.8 percent for Niger, 5.0 percent for Nigeria, 5.0 percent for Senegal, 4.37 percent for Sierra Leone and 3.7 percent for Togo (World Economic Outlook).

Figure 30. Capital investment is mostly financed through external resources

Source: MOFEA.

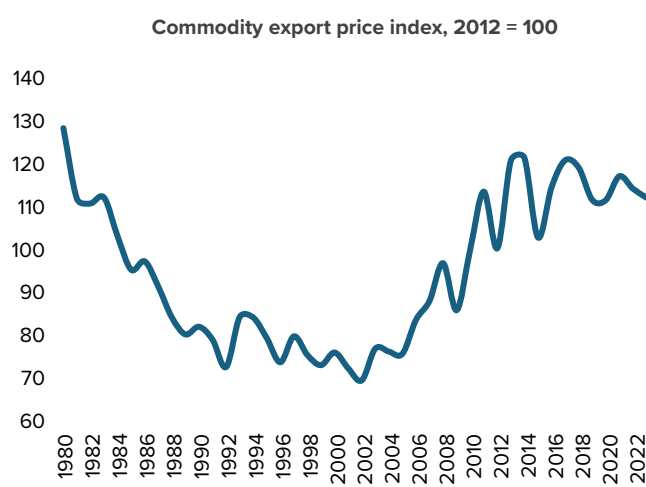
The low performance of SOEs weighs on debt and fiscal sustainability in The Gambia. In 2020, government budgetary support to SOEs was estimated at 5 percent of GDP (MOFEA 2021), while net arrears to the government amounted to 3.6 percent of GDP (World Bank 2022). Additionally, the government intervenes to service SOEs debt when they fail to meet financial obligations. At the end of 2020, outstanding external loans contracted by the government on behalf of SOEs amounted to GMD 14.6 billion (US\$284 million), equivalent 15.5 percent of GDP—60 percent of which were in the energy sector. The ability of SOEs to meet debt service payments places a burden on the public budget. In 2019, the government transferred more than GMD 2.5 billion (US\$49.7 million or 2.8 percent of GDP) of the National Water and Electricity Company (NAWEC)'s debt to third parties and converted around GMD 5.1 billion (US\$101.4 million or 5.6 percent of GDP) of debt owed to the government (mainly on-lent external loans) into capital. In 2020, the government made US\$17 million (GMD 885 million) in payments to the Islamic Trade Finance Corporation on behalf of NAWEC and Gambia Groundnut Corporation. It also assumed liability for NAWEC's domestic currency

bonds, with an outstanding balance of GMD 1.2 billion (US\$23.3 million or 1.3 percent of GDP) at end-2020, as well as for GMD 800 million (US\$15.6 million or 0.9 percent of GDP) of NAWEC's debt to the social security fund. In 2024, the government provided unbudgeted emergency support amounting US\$20 million to settle NAWEC's arrears with its suppliers, which increased the fiscal deficit by 0.3 ppts of GDP.

Adverse external conditions have widened the country's external deficit, increasing its reliance on external debt to finance the gap.

International price fluctuations, coupled with a narrow export basket—dominated by vegetable fats, oil seeds, oleaginous fruits, fish and crustaceans—have resulted in a continuous decline in The Gambia's export prices since early 1980s. Although export prices have risen over the last decade, they remain below levels recorded four decades ago (Figure 31). Meanwhile, import price fluctuations for essential goods like oil (Figure 32) have led to a deterioration in the country's terms of trade (Figure 33). This widened the merchandise trade deficit from 14.9 percent of GDP in 2002 to 18.4 percent in 2012 and 39.6 percent in 2022 (Figure 34), increasing the need to resort to external borrowing to cover the financing gap.

Figure 31. Declining export prices . . .

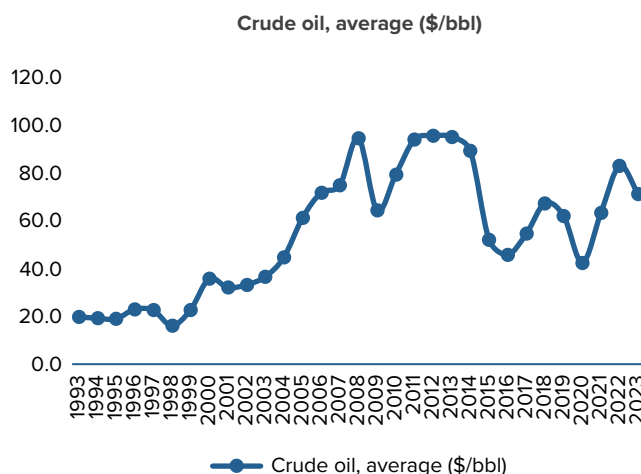


Source: <https://data.imf.org/myprofile?tb=Downloads>.

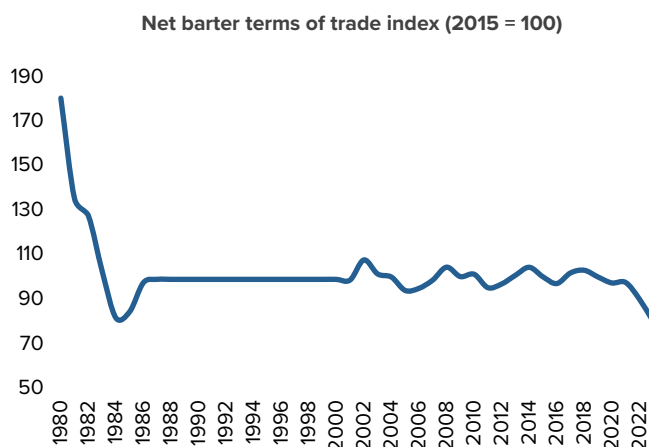
Private external capital has been insufficient to bridge The Gambia's domestic savings gap, despite increasing remittance inflows.

FDI remained limited for decades, averaging around 5 percent of GDP per year since 1970. Only since 2020 has FDI reached an annual average of 10 percent of GDP (Figure 35). The low level of FDI is due to an unconducive business climate, poor infrastructure, and institutional and governance challenges, as highlighted in the recent enterprise survey for The Gambia (World Bank 2023b). By contrast, remittances have been relatively high, approaching 10 percent of GDP since the second half of the 2000s and have, over the past five years, exceeded 20 percent of GDP (Figure 36). However, their contribution to savings and investment remains limited. In a study on the impact of personal remittances on economic growth in The Gambia, Ceesay et al. (2019) found that while remittances positively impact economic growth, most are used for consumption rather than productive investment. Nearly 80 percent of remittances are spent on food, education, water and electricity, entertainment, and religious festivals; 10 percent are used for buying properties and constructing houses; 7 percent for savings; and 4 percent for investing in businesses. The proportion directed toward savings and investment is significantly smaller than that allocated to food and education (Figure 37).

Figure 32. . . and anarchic fluctuations in import prices . . .



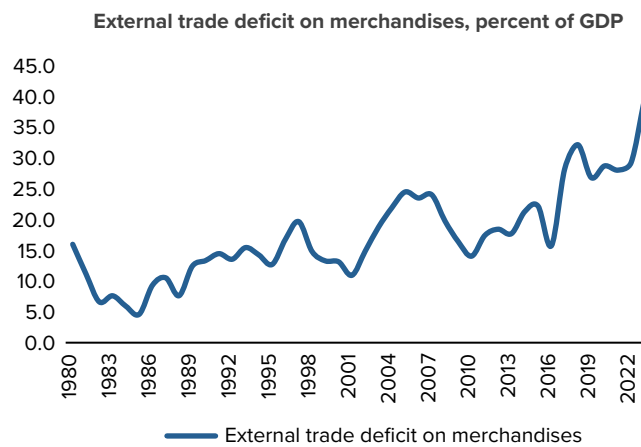
Source: WDI.

Figure 33. . . . have led to deteriorating terms of trade . . .

Source: WDI.

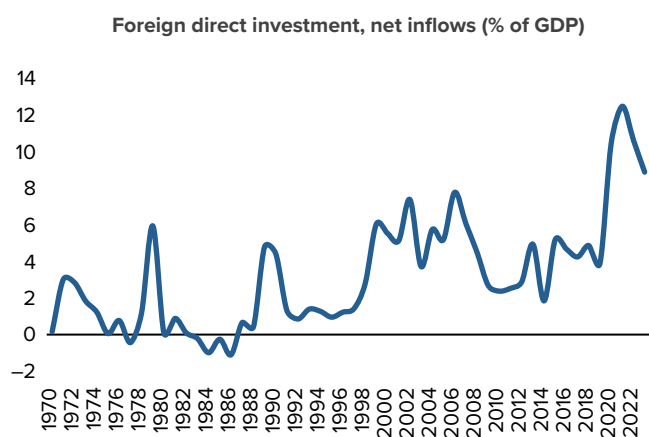
Climate shocks negatively impact The Gambia's real GDP growth, fiscal stability, and debt sustainability.

Cheng and Han (2022) estimate that economic losses from flood-related infrastructure in Philippines damage can reach 3.8 percent of GDP when the probability of flooding is one-third annually (i.e., occurs once every three years). In The Gambia, the probability of flooding has exceeded this threshold over the past three decades, suggesting that actual economic losses may be even greater

Figure 34. . . . and a widening trade deficit on merchandise

Source: UNCTAD.

(Han and Karabaeva 2024). While direct assessments of disaster-related economic damages in The Gambia are limited, Koks et al. (2019) identify the country among the top twenty globally in terms of the multi-hazard Expected Annual Damages relative to GDP. This vulnerability is largely due to the exposure (adverse effect of climate-related events) of transport infrastructure, with estimated losses exceeding 0.2 percent of GDP annually. The widely used EM-DAT database, which provides economic

Figure 35. FDI inflows increased dramatically in 2020

Source: WDI.

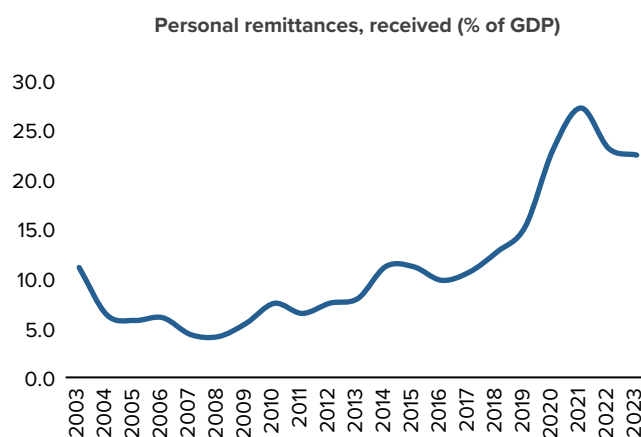
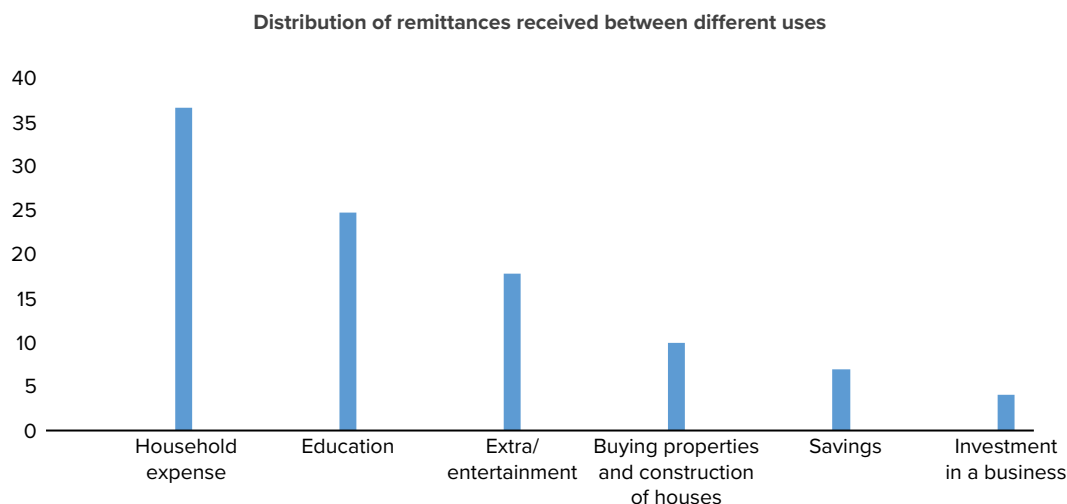
Figure 36. Remittances have risen sharply over the past five years

Figure 37. In The Gambia, most remittances are used for consumption

Source: Ceesay et al. (2019).

damage estimates for countries, does not provide data for The Gambia. Using a local projection regression to assess the economic losses as a share of GDP, Han and Karabaeva (2024) found that The Gambia's real GDP growth remains 2.0–3.1 percent below pre-disaster levels for up to five years following a natural disaster. The country's coastal zone, consisting of 80 km of open ocean coastline and 200 km of sheltered coastline, is prone to flooding and erosion. In 2022, severe flooding affected over 50,000 people—about 2 percent of the population—resulting in an estimated US\$80 million in damage (GoG 2022). The rising frequency and severity of natural disasters weighs on public finances by increasing the costs of emergency response and infrastructure rehabilitation, thereby increasing fiscal risks (MOFEA 2023).

2.3. Impact of public debt on economic growth in The Gambia

2.3.1. Literature review: Public debt has both positive and negative effects on growth

Four main theoretical frameworks describe the relationship between public debt and economic growth, illustrating both positive and negative effects. These are

the: (i) conventional analysis hypothesis (Elmendorf and Mankiw 1999), (ii) debt overhang theory (Myers 1977), (iii) Ricardian equivalence hypothesis (Barro, 1974), and (iv) nonlinear effects theory (Reinhart and Rogoff 2010).

- **The conventional analysis hypothesis aligns with the Keynesian view that, in the short run, debt-financed deficits can stimulate aggregate demand** (Phelps 2022). The conventional view emphasizes aggregate demand in the short run and crowding out in the long run (Elmendorf and Mankiw, 1999). While supporting the Keynesian view, Modigliani (1961) notes that in the long run, the economy adheres to the classical view that higher debt can reduce the capital stock and productivity, ultimately lowering output. Public debt can also crowd out private investment by reducing available credit or increasing long-term interest rates. Moreover, external debt can harm economic growth if it is used for consumption rather than investment (Chaudhry et al. 2009).
- **The debt overhang theory emphasizes the negative effects of public debt on economic growth** (Myers 1977). It argues that high public debt negatively affects economic growth by reducing private sector investment and acting as a tax on future output (Reinhart et al. 2012; Krugman 1988).

- **The Ricardian equivalence hypothesis proposes that debt- and tax-financed government spending has equivalent effects on the economy** (Ricardo 1817). The theory that there is equivalence between public debt and taxes was developed by Robert J. Barro (1974) in an article entitled “Are government bonds net wealth?”. It suggests that government spending financed by current or future taxes (and current deficits) will not stimulate the economy, as consumers and investors anticipate future tax increases and adjust their consumption and investment accordingly (Sambou 2023; Mosikari and Eita 2017).
- **The nonlinear effects theory suggests that excessive public debt beyond an optimal threshold harms economic growth.** This theory, developed by debt overhang theorists and based on the Laffer curve theory adapted to public debt, has been supported by authors like Krugman (1988), Sachs (1988), and Cohen (1997). It posits that beyond a certain threshold, public debt harms economic growth by discouraging investment and consumption. Studies on the nonlinear relationship between public debt and economic growth often draw on the work of Reinhart and Rogoff (2010). Their results revealed that the relationship between public debt and real GDP growth was weak for debt-to-GDP ratios below a threshold of 90 percent of GDP. Above 90 percent, median growth rates fall by 1 percent, and average growth falls considerably more. When external debt reaches 60 percent of GDP, annual growth falls by about 2 percent. For higher levels of external debt, growth rates are roughly halved.

Most studies indicate that public debt negatively or non-linearly impacts economic growth when exceeding an optimal threshold. Appendix 3 summarizes studies on the relationship between public debt and economic growth carried out over the last twenty-five years, compiled by Yamin et al. (2023), Penzin and Akanegbu (2024), and Tarawalie and Mbayoh (2024), among others. Of the 72 studies compiled, 22 found a negative relationship and 37 found a non-linear relationship, while only 13 found a positive relationship (Table A1). The Gambia falls into the non-linear effects model. The country’s current public debt level exceeds the prudential threshold typically

considered sustainable for countries with institutional quality and policies—set at 40 percent of GDP for developing countries. This reinforces the importance of determining whether an optimal debt threshold exists for The Gambia, beyond which public debt may begin to hinder growth. As Patillo et al. (2011) point out, the relationship between debt and economic growth may be better represented by a non-linear than a linear relationship in a context of relatively high indebtedness. Reasonable levels of current debt inflows are expected to have a positive effect on growth by increasing aggregate demand and financing productive investment. Beyond a certain threshold, the negative effects of high debt levels, such as increased interest payments and reduced private investment, begin to outweigh the benefits.

2.3.2. Public debt has a non-linear impact on economic growth in The Gambia, with debt ratios exceeding optimal thresholds

2.3.2.1. Model

This study investigated the optimal thresholds of public debt and its components in The Gambia. It referenced studies such as Patillo et al. (2002), Fofana N’Zué (2018), Diallo and Fofana N’Zue (2021a), Diallo and Fofana N’Zué (2021b), and Prasai (2024). The study analyzed the relationship between debt and growth using a multivariate regression model, particularly the augmented production function:

$$PERCAP_t = f(DEBT, DEBT^2, LABOR, INV, DEBTSERV) \quad (1)$$

where PERCAP is the GDP per capita in local currency at constant prices; DEBT is the debt-to-GDP ratio; $DEBT^2$ is the square of the debt-to-GDP ratio; INV is the gross fixed capital formation in billions of constant 2017 international dollars; LABOR is the active population (aged 15–64); and DEBTSERV is debt service on external debt—public and publicly guaranteed—to GDP. Including debt service along with debt in the model makes it possible to approximate the crowding-out effect as opposed to the over-indebtedness effect (Jalles 2011).

- **Most empirical studies strongly support the debt overhang hypothesis, which claims that debt repayments lead to fiscal uncertainty, liquidity constraints, and increased issuance of government securities** (Pattillo et al. 2011; Clements et al. 2003; Sachs 1988; Krugman 1988). The coefficient of the public debt ratio (total debt and external or domestic debt) is expected to be positive, while the coefficient of the square of its ratio is expected to be negative. These signs signify a non-linear concave relationship between public debt and economic growth, with moderate debt levels promoting growth and higher levels negatively impacting growth.
- **Investment positively impacts economic growth** by increasing employment, stimulating domestic demand, strengthening infrastructure, and fostering innovation (Ben Yedder et al. 2023).
- **There are three perspectives on the impact of demographic change on economic growth.** Pessimists see a negative effect; optimists argue for technological advancements and positive growth, while those with a more neutral perspective find no significant effect (Prskawetz and Lindh 2007).
- **Public debt service is generally expected to have a negative impact on economic growth, with only a few studies finding no connection** (Saungweme and Odhiambo 2018). Higher debt servicing can crowd out private investment, increase government interest bills, and reduce public savings and the availability of credit. It can also negatively affect government spending on infrastructure and human capital, further hindering growth (Clements et al. 2003).

2.3.2.2. Data

This study empirically tests the threshold effects of public debt on economic growth in The Gambia. Studies indicate that debt thresholds vary between countries depending on their characteristics³⁰ (Prasai 2024; Tarawalie and Mbayoh 2024; Tarawalie and Jalloh 2021; Ndoricimpa 2020). Given the limited availability of country-specific evidence,³¹ a threshold analysis was conducted to determine optimal debt thresholds in The Gambia.

The analysis used annual time series data to evaluate the relationship between debt and economic growth.

Annual data for GDP per capita, external debt service, and labor were sourced from the World Development Indicators (WDI) database. Data for investment, total debt, and external and domestic debt were obtained from IMF reports and the IMF international financial statistics database.

³⁰ If debt thresholds exist, they might vary by country income depending on the level of economic development, level of development of domestic financial markets, the degree of openness, growth and revenue potential, and institutional considerations (Caner et al., 2010).

³¹ It appears that only the study by Penzin and Akanegbu (2024) on the impact of total debt on economic growth in The Gambia was carried out as part of an analysis of ECOWAS countries. A country-specific level analysis could better capture the country's debt thresholds by integrating relevant control variables such as gross fixed capital formation and labor.

2.3.2.3. Autoregressive delayed lags (ARDL) model

Methodological note This study used econometric models to determine optimal debt thresholds, transmission channels of debt's impact on economic growth and the impact of external debt service expiry on economic growth. Given that data are time series, the stationarity of all the variables used was analysed before estimating the models. The stationarity tests revealed that the variables used in the different models across this study are integrated in mixed orders, that is, stationary in level (I(0)) and in first difference (I(1)), suggesting the ARDL model as the most appropriate approach for the study of long-run and short-run regressions.

(continues)

Stationarity tests

The stability of time series' statistical properties is a critical assumption for many forecasting models that rely on predictable and consistent patterns in the data. A stationary time series has statistical properties—such as its mean, variance, and autocorrelation—that remain consistent over time. It is important to test stationarity in time series data before attempting to build an empirical model since regression with non-stationary variables may produce spurious results with unreliable t-stat and R-squared if variables are cointegrated.

Referring to (Acaravci, 2010), this study examined the univariate properties of the time series using two types of unit root tests. The first group of tests, known as Ng-Perron unit root tests (Ng-Perron, 2001), does not allow for structural breaks. The Ng-Perron test is suitable for small samples (Alimi, 2014). The standard stationarity tests may lead to give false results if structural breaks in series are present. The second group of tests, allowing structural breaks, is the Zivot and Andrews (1992) test, which use three models to test a unit root: (1) model A, which allows a one-time change in the level of the series; (2) model B, which allows a one-time change in the slope of the trend function, and (3) model C, which combines a one-time changes in the level and the slope of the trend function of the series. Studies generally use the A or C model (Muhammad et al., 2006). Sen (2003) showed that if we use the model A while in fact the rupture occurs according to the C model, there will be a loss of substantial power. However, if the rupture is characterized according to model A, but that the model C is used, the loss of power is minor, which suggests that the model C is superior to model A. Based on these observations, we chose the Model C for our analysis of unit roots.

ARDL Model

Cointegration among variables was evaluated using bound test for long run relationships, and error correction model for short run dynamics. The cointegration test was conducted, comparing the F-statistic with critical limits from Narayan (2005)³², which are more suitable for small sample observations. If the calculated statistic F is greater than the higher critical bound at the 5 percent significance level, the null hypothesis of no cointegration is rejected, indicating that there is a cointegration relationship between variables.

If a cointegration relationship is present, both long- and short-run models are valid, and ARDL is the most appropriate approach for studying both long- and short-run regressions simultaneously. As noted by Bouattour et al. (2024), there are several reasons for choosing the ARDL technique over other cointegration methods. First, this method allows different orders of integration to be considered. Second, unlike other cointegration methods, the ARDL approach is suitable for small sample sizes. Third, the ARDL method has the advantage of allowing the appropriate selection of lags, which helps to improve the quality of the estimates obtained. Fourth, the ARDL approach also incorporates an analysis of the dynamic error correction model (ECM).

In addition to stationary and cointegration tests, we conducted residual diagnostics using LM serial correlation test and heteroskedasticity test, as well as Normality test. The stability diagnostic test with recursive cusum squares residuals was used and plotted on a chart.

Optimal debt thresholds

After estimating the long-term debt equation, the threshold for the public debt-to-GDP ratio is obtained by taking the first derivative of the dependent variable (DepVar) with respect to the debt variable and setting it to zero (equation A below, where β_2 is the coefficient of the debt variable).

³² Narayan adapted the model of Pesaran et al. (2001) which, in turn, modified or replicated existing cointegration tests including Johansen's. Narayan generated the critical values for a small sample.

(continues)

$$\frac{\delta \ln DepVar_t}{\delta \ln DEBT_t} = \alpha + \beta_1 + 2\beta_2 \ln DEBT_t = 0 \quad (A)$$

$$\ln DEBT_t = \frac{-\beta_1}{2\beta_2} \text{ with } (\beta_2 < 0) \quad (B)$$

$$DEBT_t^* = \exp\left(\frac{-\beta_1}{2\beta_2}\right) \quad (C)$$

The coefficient for public debt ratio (total, external and domestic) is expected to be positive, while the coefficient for its square should be negative. These signs signify a concave non-linear relationship between public debt and economic growth. This would mean that moderate levels of debt promote growth, while higher levels of debt have an adverse impact on growth.

The results of the Bounds tests indicate a cointegration relationship between the variables, suggesting they move together in the long run. Unit roots tests using the Ng-Perron (2001) and Zivot and Andrews (1992) tests show that variables are integrated in a mixed order, 0 and order 1, i.e. a mix of variables stationary in level and in first difference. The Zivot and Andrews test identified 2007 as a structural break for total debt and its square as well as external debt and its square. The results reveal that The Gambia's debt relief under the HIPC initiative in 2007 had an immediate effect on total and external debt (Table A4 in Appendix 4.1 and Table A5 in Appendix 4.2). Equation A1 in appendix 5 shows the generalized ARDL model, while equation A2 in appendix 5 shows the form of the ARDL model combining the corresponding long-term multipliers and the coefficients of the short-term dynamics of the underlying ARDL model. Equations A3 and A4 in the same appendix show, respectively, the long-term and short-term equations to be estimated. A cointegration test was conducted, comparing the F-statistic with critical limits from Narayan (2005). The values of the calculated Fisher statistic when the ARDL model include the total debt, external debt and domestic debt ratios respectively as explanatory variables in the model respectively, all exceed the critical limits at the 5 percent significance level, leading to the rejection of the null hypothesis of no cointegration (table A6 in appendix 6). Therefore, there is a cointegration relationship between the variables. Consistent with the literature, the ARDL model is appropriate for estimating both long-run and short-run relationships.

External debt service and high total public debt have a negative significant impact on economic growth in the long run. The ARDL model is used to analyze the -run relationships (estimation of Equation A3 in Appendix 5), and an ECM is used to analyze short-run relationships (estimation of Equation A4 in Appendix 5). In the long run, all variables significantly affect long-term economic growth (GDP per capita) (Equation 2, corresponding to model A3 in appendix 5). The total debt-to-GDP ratio has a positive and significant coefficient at the 5 percent level, suggesting that total debt does not hinder economic growth. The quadratic composition of this variable has a negative and statistically significant coefficient in the long term, indicating the non-linearity of the debt-growth relationship and the existence of a threshold level of indebtedness. The coefficient of the investment variable is positive and significant, with a 1 percent increase in investment increasing GDP per capita by 0.16 percent. This positive relationship is consistent with Keynesian economics, which suggests that higher investment supports economic growth by stimulating domestic demand. The labor force variable (lnLABOR) has a negative coefficient, indicating that a 1 percent increase in the labor force decreases economic growth by 0.33 percent. Similar findings are reported by Muryani (2018) as well as Adofu and Okwanya (2018), and this negative relationship may be due to a number of factors that hinder effective participation in the labor market, such as low female labor force participation, the preponderance of informal employment, the high underemployment,

and limited share of skilled workers, which inhibit the productive reallocation of labor from low- to high-skilled sectors (Eludire 2023; Topel 1999). The coefficient of external debt service is negative and statistically significant, aligning with neoclassical and debt overhang theories, supported by the findings of other studies such as Akanbi et al. (2022), Getinet and Ersumo (2020), and Ezema et al. (2018). In the short run, investment maintains a positive and statistically significant coefficient, while external debt servicing maintains a negative but statistically insignificant coefficient at the 5 percent level (Equation 3, corresponding to model A4 in appendix 5). The error correction term (ECT) is statistically significant at the 1 percent level, with a negative coefficient.³³ The diagnostic analysis confirms the model's suitability (the decisions are based on a P-value greater than 5 percent, indicating no autocorrelation or heteroskedasticity, and a normal distribution of residuals)³⁴ as well as its stability (Appendix 7).

$$\begin{aligned} \ln \text{percap}_t = & 0.89 \ln Tdebt_t - 0.11 \ln Tdebt_{sq}_t \\ & (0.02)^{**} \quad (0.02)^{**} \\ & + 0.17 \ln Inv_t - 0.33 \ln Labor_t \\ & (0.00)^{***} \quad (0.00)^{***} \\ & - 0.12 \ln Debtserv_t + 10.86 \\ & (0.00)^{***} \quad (0.00)^{***} \end{aligned} \quad (2)$$

³³ Narayan and Smyth (2006) state that if the lagged error correction term (ECT_{t-1}) coefficient is between -1 and -2 , the lagged ECT leads to dampened fluctuations in economic growth around the equilibrium path. In their study, the coefficient of the lagged ECT in the short-run model is -1.2 , meaning that instead of monotonically converging to the equilibrium path directly, the error correction process fluctuates around the long-run value in a dampening manner. However, once this process is complete, there is rapid convergence to the equilibrium path.

³⁴ Adj- $R^2 = 0.71$; LM (1) = 0.40 (0.53); LM (2) = 0.82 (0.67); BPG = 13.91 (0.18); J - B = 0.01 (0.995); ESET (1) = 0.38 (0.55).

$$\begin{aligned} \Delta \ln \text{percap}_t = & 0.10 \Delta \ln Inv_t - 0.08 \Delta \ln Inv_{t-1} \\ & (0.00)^{***} \quad (0.01)^{**} \\ & - 0.02 \Delta \ln Debtserv_t - 1.21 ECT_{t-1} \\ & (0.10)^* \quad (0.00)^{***} \end{aligned} \quad (3)$$

The optimal threshold for total public debt is calculated at 51.9 of GDP, well below the actual public debt ratio estimated at 70.6 percent in 2024. To determine the level of debt at which the marginal impact of debt on growth becomes negative, we used a specification combining total debt as a percentage of GDP and its square. The quadratic specification supports a Laffer curve relationship between debt and growth if the coefficient of debt is positive and that of its square is negative. As described in the methodological note, the total indebtedness threshold is calculated as follows:

$$\begin{aligned} TTDEBT_t = & \exp\left(-0.893126 / \left(2 * (-0.113070)\right)\right) \\ = & 51.906208 \end{aligned} \quad (4)$$

Below this threshold, total public debt has a positive effect on The Gambia's economic growth, while beyond this threshold, any marginal debt increase will have a negative effect on growth.

External debt service and high external public debt negatively impact economic growth. The optimal threshold for external public debt is calculated at 34.7 percent of GDP, below the actual ratio of 43.6 percent in 2024. With external debt as the main explanatory variable, all variables have a significant impact on economic growth (GDP per capita) in the long run (Equation 5). In the long run, the external debt-to-GDP ratio has a positive and significant coefficient at the 5 percent level, indicating that external debt does not have an adverse impact on economic growth. The quadratic term of this variable is negative and statistically significant in the long term, indicating the non-linearity of the debt-growth relationship and the existence of a threshold level of external indebtedness. In the short term (Equation 6), the coefficient for the 'investment' variable remains positive and is significant at the 1 percent threshold. The external debt service keeps the negative sign, but it is not significant.

The coefficient of the Lagged Error Correction Term (ECT_{t-1}) is between -1 and -2 . The diagnostic analysis confirms the model's suitability (no autocorrelation or heteroskedasticity, and a normal distribution of residuals)³⁵ and stability (Appendix 8).

$$\begin{aligned} \ln \text{percap}_t = & 0.64 \ln \text{Exdebt}_t - 0.09 \ln \text{Exdebt}_t^2 \\ & (0.03)^{**} \quad (0.02)^{**} \\ & + 0.19 \ln \text{Inv}_t - 0.41 \ln \text{Labor}_t \\ & (0.00)^{***} \quad (0.00)^{***} \\ & - 0.14 \ln \text{Debt}_t + 12.3 \\ & (0.00)^{***} \quad (0.00)^{***} \end{aligned} \quad (5)$$

$$\begin{aligned} \Delta \ln \text{percap}_t = & 0.09 \Delta \ln \text{Inv}_t - 0.08 \Delta \ln \text{Inv}_{t-1} \\ & (0.01)^{***} \quad (0.01)^{***} \\ & - 0.02 \Delta \ln \text{Edebt}_t \\ & (0.22) \\ & + 0.07 \Delta \ln \text{Edebt}_{t-1} - 1.07 \text{ECT}_{t-1} \\ & (0.00)^{***} \quad (0.00)^{***} \end{aligned} \quad (6)$$

The analysis indicates that the country's optimal threshold for external debt is 34.66 percent of GDP, well below the actual external debt ratio of 43.9 percent in 2024. To determine the level of external debt at which the marginal impact of external debt on growth becomes negative, we used a specification combining external debt as a percentage of GDP and its square. The quadratic specification above supports a relationship between debt and growth by a Laffer curve relationship if the coefficient of external debt is positive and that of its square is negative. The external debt threshold is calculated for The Gambia as follows:

$$\begin{aligned} \text{EXDEBT}_t = & \exp\left(-0.642458 / (2 * (-0.090600))\right) \\ = & 34.659573 \end{aligned} \quad (7)$$

³⁵ Adj-R² = 0.71; LM (1) = 1.64 (0.20); LM (2) = 3.16 (0.21); BPG = 12.25 (0.27); J - B = 0.76 (0.68); RESET (1) = 0.38 (0.55).

This validates a non-linear relationship between external debt and economic growth in The Gambia. External debt below this threshold improves economic growth. Accumulating external debt above 34.66 percent harms growth.

High domestic public debt has a negative and significant impact on economic growth, with the optimal threshold calculated at 15.5 of GDP, well below the actual domestic debt ratio of 26.9 percent in 2024. Unlike the two previous scenarios, with domestic public debt as main explanatory variable, the active population ($\ln \text{LABOR}$) and external debt service ($\ln \text{EDEBTSERV}$) are not significant in the long term (Equation 8). Although the active population shows a positive impact, it is not statistically significant. The domestic debt-to-GDP ratio has a positive and significant coefficient at the 1 percent level, indicating that it does not adversely impact economic growth. The quadratic term is negative and statistically significant, revealing a non-linear debt-growth relationship and a threshold level of indebtedness. In the short term (Equation 9), domestic debt positively influences economic growth, while external debt service has a negative effect on growth. The coefficient of the lagged ECT (ECT_{t-1}) is negative and significant. The diagnostic analysis confirms the model's suitability (no autocorrelation or heteroskedasticity, and a normal distribution of residuals)³⁶ and stability (Appendix 9).

$$\begin{aligned} \ln \text{percap}_t = & 0.68 \ln \text{Domdebt}_t - 0.13 \ln \text{Domdebt}_t^2 \\ & (0.00)^{**} \quad (0.00)^{***} \\ & + 0.05 \ln \text{Inv}_t + 0.04 \ln \text{Labor}_t \\ & (0.00)^{***} \quad (0.07)^* \\ & - 0.001 \ln \text{Debt}_t + 8.01 \\ & (0.00)^{***} \quad (0.95)^{***} \end{aligned} \quad (8)$$

³⁶ Adj-R² = 0.83, LM(1) = 0.01 (0.91); LM(2) = 1.48 (0.48); BPG = 13.36 (0.59); J - B = 0.14 (0.93); RESET(1) = 1.33 (0.27).

$$\begin{aligned}
\Delta \ln \text{percap}_t &= 1.41 \Delta \ln \text{Percap}_{t-1} \\
&\quad (0.00)^{***} \\
&+ 0.87 \Delta \ln \text{Percap}_{t-2} - 0.37 \Delta \ln \text{Percap}_{t-3} \\
&\quad (0.00)^{***} \quad (0.01)^{***} \\
&+ 1.77 \Delta \ln \text{Domdebt}_{t-1} + 0.03 \Delta \ln \text{Inv}_t \\
&\quad (0.00)^{***} \quad (0.17) \\
&- 0.03 \Delta \ln \text{Debtsevr}_t - 2.47 \text{ECT}_{t-1} \\
&\quad (0.04)^{**} \quad (0.00)^{***} \quad (9)
\end{aligned}$$

The domestic debt threshold is calculated as follows:

$$\begin{aligned}
\text{DOMDEBT}_t &= \exp\left(-0.684363 / \left(2 * (-0.124948)\right)\right) \\
&= 15.465183 \quad (10)
\end{aligned}$$

The results suggest that The Gambia's threshold for domestic debt is 15.5 percent of GDP. Domestic debt below this threshold boosts economic growth, while debt exceeding this threshold harms economic growth. This threshold is very low compared to that of external debt. One explanation could be that internal debt generates a higher interest burden than external debt. While external debt accounts for almost two-thirds of total public debt, interest payments on domestic debt account for around 80 percent of total interest payments, even before the suspension of external debt servicing payments. The domestic debt threshold value is comparable to the 13.6 percent threshold calculated for Nigeria by Eboreime and Sunday (2017), as well as the 17.31 percent threshold calculated for Kenya by Obiero and Topuz (2023).

2.4. Channels through which public debt impacts the Gambian economy

Policymakers need to understand the channels through which debt impacts the economy. Concerns about debt's adverse impact on economic growth are often framed through concepts such as “debt overhang” (Krugman, 1988), “crowding-out effect” (Diaz-Alejandro, 1981), and

“uncertainty” (Moss and Hanley, 2003).³⁷ In addition to the impact on economic growth and debt repayment capacity, the channels through which debt influences economic performance also raise concerns (Ebi and Imoke 2017).

2.4.1. Public debt impacts economic growth through various transmission channels

The literature shows several channels through which the accumulation of public debt can hinder economic growth, including:

- **Long-term interest rates:** Rising government borrowing can raise sovereign debt yields, leading to a higher net flow of funds from the private to the public sector, increase in private interest rates, and lower private spending by households and firms. This shift in capital allocation slowed potential output growth (Elmendorf and Mankiw 1999).
- **Reduced public and private investment and capital accumulation.** High public debt can reduce public investment due to budgetary constraints. Under fiscal pressure, governments typically cut capital expenditures before pensions and salaries (Alesina and Perotti 1997), and higher taxation to service debt can discourage private investment (Iyoha 1999; Rosem 1992).
- **Low TFP growth:** Elevated debt levels can hinder growth by heightening uncertainty and instability that limit incentives for technological improvement and efficient resource use, all of which reduce TFP. This often discourages long-term investments, slowing productivity growth (Pattillo et al. 2004).

³⁷ According to the debt overhang theory, if a country's future debt is likely to exceed its ability to repay it, the anticipated costs of servicing the debt may depress investment. Similarly, if a larger share of foreign capital is used to service foreign debt, few resources will remain to finance investment and growth, which is known as the crowding-out effect. The uncertainty created by debt in the form of default possibilities, rescheduling, etc., would make future flows and additional lending unstable and create a situation in which the wait-and-see option would be used by foreign as well as domestic investors. This would lead to a reduction in capital productivity, slowing economic growth.

- **Reduced bank credit to the private sector and decreased financial deepening:** Public debt can crowd out private credit, as banks prefer lending to the government or SOEs (De Bonis and Stacchin 2010). This shift reduces available credit to the private sector (Cottarelli et al. 2009) and weakens financial intermediation, resulting in “lazy banking” by reducing banks’ effectiveness as a primary source of credit, which in turn will reduce financial deepening over time (Hauner 2009).

Most empirical studies find that investment (capital accumulation) and TFP are the primary channels through which public debt negatively impacts economic growth. Other channels include interest rates, savings, private credit, and human capital development.

- **Capital accumulation and TFP have been validated in several studies as the main ways public debt affects growth.** These studies have covered both advanced economies (Checherita-Westphal and Rother 2012; Kumar and Woo 2010; and Silva 2000) and developing economies (Turan and Iyidogan 2023; Shabbir 2013; Schclarek 2005; Pattillo et al. 2004). In emerging economies (Clements et al. 2003), Sub-Saharan Africa (SSA) (Hassan and Meyer 2021), Asian developing economies (Dawood et al. 2024), low-income countries (Benayed and Gabsi, 2020), and low-middle-income countries (Haque et al. 2023), high public debt has been shown to reduce both public and private investment (and therefore the capital stock) due to budgetary constraints and the increased tax burden linked to debt servicing (Table A7 in Appendix 10). These developments negatively impact on labor and capital productivity due to increased economic uncertainties. Pattillo et al. (2004) found that two-thirds of the debt-induced growth slowdown in developing economies results from reduced TFP, while one-third comes from diminished capital accumulation.
- **Savings:** Evidence for the role of savings in the relationship between debt and growth was found by Qureshi and Liaqat (2020) by studying 123 countries, Checherita-Westphal and Rother (2012) by studying 12 Euro zone countries, Bal and Rath (2018) by studying India, and Dawood et al. (2024) by studying

32 Asian developing economies. These studies show that higher debt burdens reduce household savings through higher taxes needed to finance interest payments. In addition, the tax burden and uncertainties caused by high indebtedness can push private companies to transfer capital abroad, as they may anticipate inflationary pressures and/or perceive increased risk in financial markets.

- **Interest rates:** Ebi and Imoke (2017) found insights into the relationship between interest rates, debt, and growth by studying Nigeria, while Hassan and Meyer (2021) did it by researching 30 SSA countries. They concluded that public debt exerts a direct effect on interest rates, which in turn negatively impacts economic growth.
- **Human capital development:** Beyene and Kotosz (2022) looked at the link between debt and human capital development for HIPC countries. They found a negative association between debt and human capital development, reflecting the negative impact of high debt on the ability to finance essential public services, which in turn has a negative impact on economic growth.
- **Private sector credit:** Evidence for the link between private credit, public debt, and growth was found by Hauner (2009) by studying 73 middle income countries, Turan and Iyidogan (2023) by studying 53 developing economies, Benayed and Gabsi (2020) by studying a panel of 20 LICs in SSA, and Emran and Farazi (2009) by researching 60 developing economies. Their findings revealed that an increased share of the bank credit absorbed by the public sector to finance large fiscal deficits crowds out private sector credit and negatively impacts financial development.

2.4.2. Public and private investment as well as interest rates are the primary transmission channels through which public debt affects economic growth in The Gambia

2.4.2.1. Data

This study analyzes the transmission channels through which public debt affects economic growth in The Gambia using time series data. It utilizes annual secondary data, including private investment (percent

of GDP), public investment (percent of GDP), real interest rates (RINT), and domestic credit to the private sector (percent of GDP) as channels of debt transmission between 1993 and 2023. Control variables include total public debt as a ratio of GDP (TTDEBT), its square (TTDEBT²), per capita GDP (PERCAP) as a proxy for economic growth, gross domestic savings (GDS) as percentage of GDP, trade (imports and exports as a percentage of GDP), and broad money (M2) to GDP as a measure of financial deepening³⁸.

2.4.2.2. Model specifications

Different equations have been specified to determine public debt transmission channels. Similar to other country-specific studies, such as Ebi and Imoke (2017) for Nigeria and Akram (2017) for Sri Lanka, this study uses the following model to analyze each transmission channel:

$$Z_t = \beta_0 + \beta_1 \ln TTDEBT_t + \beta_2 [\ln TTDEBT_t]^2 + \beta_3 X_{it} + \epsilon_t \quad (11)$$

Where Z, the dependent variable, is the transmission channel, and TTDEBT and TTDEBT² are total public debt as a share of GDP and its squared term, respectively. The square term of total public debt variable is included in the model to determine whether the channel transmits a non-linear effect on economic growth. X contains control variables such as per capita GDP (PERCAP), gross domestic savings (GDS) as a percentage of GDP, trade (imports and exports as a percentage of GDP), domestic credit to private sector (DCP) as a percentage of GDP, and broad money (M2) to GDP. After the estimation of the long-run equation (Equation 11), the threshold of public debt-to-GDP ratio is obtained by taking the first derivative of the dependent variable with respect to the

debt variable and set to equal zero, as described previously in the methodological note.

2.4.2.2.1. Private investment channel

Private investment is a potential mechanism through which debt may hinder economic growth once it reaches a certain threshold. The debt overhang hypothesis indicates that high debt creates expectations of increased taxation, which discourages investment and reduces future returns. This reluctance to invest by both domestic and foreign investors slows capital stock formation and economic growth (Pattillo et al. 2004). Building on Equation 11, this study uses the econometric model of private investment, which includes trade openness and credit to the private sector as part of its control variables (Equation 12).³⁹ Trade openness is meant to promote private investment, as the trade sector is more capital intensive than the non-trade sector (Baldwin and Seghezza 1996).

2.4.2.2.2. Public investment channel

Public investment is also a potential mechanism through which debt can slow economic growth after reaching a certain threshold. Public debt makes it possible for government to invest in areas that are critical for the economy whereby tax revenue is not enough to finance such projects. However, beyond a certain threshold, the impact of debt on public investment can become negative. This can be explained by the fact that, in their consolidation efforts, governments may tend to cut expenditure allocated for public investment, including maintenance of public infrastructure. Such a negative association was found by Chalk and Tanzi (2004) and Checherita and Rother (2012) for the European Union, and Ncanywa and Masoga (2018) for South Africa. Such a negative association will lead to an inverse relationship in the

³⁸ The data are mainly extracted from IMF international financial statistics database and World Bank world development indicators, and annual reports from the central bank of The Gambia.

³⁹ $\ln PRIGDP_t = \beta_0 + \beta_1 \ln TTDEBT_t + \beta_2 [\ln TTDEBT_t]^2 + \beta_3 \ln TRADE_t + \beta_4 DCP_t + \epsilon_t \quad (12)$

public debt economic growth nexus. For this study, the public investment equation (Equation 13)⁴⁰ includes the real interest rate, which serves as an opportunity cost variable influencing investment decisions and the overall cost of investment projects. Higher interest rates increase the cost of debt servicing (Collins and Wanjau 2011). The equation also incorporates trade openness, as more open economies compete for FDI—often by increasing public investment in infrastructure, which is typically financed and managed by governments (Tilahun 2021).

2.4.2.2.3. Real interest rate channel

Long-term interest rates can negatively impact economic growth in the context of rising public debt. As public financing needs increase, sovereign debt yields rise, triggering a net reallocation of funds from the private to the public sector. This leads to higher private interest rates and reduces spending by households and firms (Kumar and Woo, 2010; Elmendorf and Mankiw, 1999). The real interest equation (Equation 14)⁴¹ includes money supply and gross domestic savings as part of the control variables. Money supply is a proxy of financial deepening, which is commonly identified as driver of economic growth (McKinnon and Shaw, 1973). The Fisher equation suggests a positive correlation between money supply and interest rates, while the liquidity view posits that higher nominal interest rates decrease money demand, as higher nominal interest rates represent the opportunity cost of holding cash. Therefore, a reduced money supply results in higher interest rates to balance the money market (Monnet and Weber 2001). Real interest rates are influenced by the desired level of savings and the expected level of investment, with the rise in real rates being the result of a decline in desired savings and an increase in expected investment (Jenkinson 1996).

A dichotomous variable has been inserted to account for an outlier observed in 2004, which was due to the rise in inflation measured by the annual growth rate of the GDP implicit deflator, estimated at 94.2 in 2004 (WDI).

2.4.2.2.4. Private sector credit channel

High public debt can lead banks to hold more government securities, reducing credit available to the private sector (Funyina 2020). Equation 5 includes money supply and real GDP per capita as part of control variables.⁴² Money supply is an alternative indicator of monetary conditions, and credit to the private sector is expected to increase as conditions improve (Imran and Nishat 2013). An increase in real GDP raises income for the manufacturing sector and the general population, increasing domestic deposits and bank liquidity, which in turn allows for more lending for investment. There is an expected positive correlation between GDP (or GDP per capita) and credit to the private sector.

2.4.3. ARDL model

The variables of this study are integrated in a mixed order (i.e. order 0 and order 1), justifying the use of the ARDL model. The results of the stationarity tests are presented in Tables A8 and A9 in Appendix 13.1 and Appendix 13.2). The results indicate that structural breaks for total debt and its square occurred in 2007, coinciding with debt cancellation under the HIPC initiative. The cointegration test confirms the existence of a cointegration relationship between the variables (Appendix 14). Equation A5 in Appendix 15 shows the ARDL model that combines the corresponding long-term multipliers and the coefficients of short-term dynamics.

⁴⁰ $\ln PBIGDP_t = C_0 + C_1 \ln TTDEBT_t + C_2 [\ln TTDEBT_t]^2 + C_3 \ln TRADE_t + \beta_4 RINT_t + v_t$ (13)

⁴¹ $\ln RINT_t = d_0 + d_1 \ln TTDEBT_t + d_2 [\ln TTDEBT_t]^2 + d_3 \ln M2_t + d_4 GDS_t + DUM2004 + \mu_t$ (14)

⁴² $\ln DCP_t = f_0 + f_1 \ln TTDEBT_t + f_2 [\ln TTDEBT_t]^2 + f_3 \ln M2_t + f_4 \ln PRIGDP_t + f_5 \ln PERCAP_t + \mu_t$ (15)

High total public debt has a negative and significant impact on private investment in the long run. In the long run, all variables significantly affect the private investment-to-GDP ratio (Equation 16). The total debt-to-GDP ratio has a positive and significant coefficient at the 1 percent level, indicating that total debt by itself does not have an adverse impact on private investment. The quadratic term of this variable is negative and statistically significant in the long term at the 1 percent level, indicating the non-linearity of the debt-private investment relationship and the existence of a threshold level of indebtedness. The sign of the domestic credit coefficient is positive and significant at 1 percent. An increase in domestic credit to the private sector of 1 percent leads to a 0.25 percent increase in private investment, as long-term credit is oriented toward investment needs. These findings align with studies by Mohan (2008) and Mose (2017), who found a positive correlation between credit expansion and private investment. Likewise, trade openness has a positive and significant effect on private investment, as a 1 percent increase in trade openness leads to a 2.97 percent increase in private investment. In the short term, the debt-investment relationship takes a U-shaped form (Equation 17), rather than the inverted U curve. This suggests that due to insufficient domestic savings, public debt may crowd out private investment in the short term. Notably, domestic credit to the private sector discourages investment, as its coefficient is negative and statistically significant at the 1 percent level. This reflects the focus of Gambian banks on financing consumer goods instead of investment (Bukkari 2005). An increase in short-term private credit translates into more resources directed toward consumption needs, reducing the resources available for private sector investment. The lagged ECT coefficient is negative and significant at the 1 percent level. Disequilibrium correction is slow at about 29 percent (29 percent of disequilibrium is correct in a year). The diagnostic analysis confirms the model's suitability (no autocorrelation or heteroskedasticity, and a normal distribution of residuals)⁴³ and stability (Appendix 16).

⁴³ Adj-R² = 0.95; LM (1) = 0.05 (0.82); LM(2) = 0.70 (0.71); BPG = 13.39 (0.27); J - B = 0.32 (0.85); RESET(1) = 3.92 (0.07).

$$\begin{aligned} \ln PRIGDP_t = & 31.04 \ln TTDEBT_t \\ & (0.00)^{***} \\ & - 3.64 \ln TTDEBTSQ_t + 2.97 \ln TRADE_t \\ & (0.00)^{***} \quad (0.04)^{**} \\ & + 0.25 DCP_t - 76.66 \\ & (0.01)^* \quad (0.00)^{***} \end{aligned} \quad (16)$$

$$\begin{aligned} \Delta \ln Prigdp_t = & -0.44 \Delta \ln Prigdp_{t-1} \\ & (0.00)^{***} \\ & - 3.95 \Delta \ln Ttdebt_{t-1} + 0.49 \Delta \ln Ttdebsq_t \\ & (0.05)^* \quad (0.05)^{**} \\ & - 0.05 \Delta \ln Ttdebsq_{t-1} - 0.32 \Delta \ln Trade \\ & (0.01)^{***} \quad (0.14) \\ & - 0.10 \Delta DCP_t - 0.29 ECT_{t-1} \\ & (0.01)^{***} \quad (0.01)^{***} \end{aligned} \quad (17)$$

The optimal threshold for total public debt-private investment relationship is 71.4 percent of GDP. This indicates that public debt begins to have a negative impact on private investment beyond this threshold. As total debt rises, investors anticipate increased taxes, adding to the uncertainty about the economy generated by the accumulation of public debt, which could reduce investors' expectations about the return on their investment. This finding of non-linearity between public debt and private investment aligns with studies by Benayed et al. (2015), Riffat and Munir (2015), Silva (2020), and Dawood et al. (2024).

High levels of total public debt have a negative and statistically significant impact on public investment in the long run, with the optimal threshold at 70.3 percent of GDP. In the long term, total public debt has a positive and significant impact on public investment, while its quadratic term has a negative and significant coefficient (Equation 18). The turning point of total public debt is estimated at 70.28 percent of GDP. Large debt accumulation increases the debt burden, reducing capital expenditure in the government's fiscal

consolidation efforts. These findings are consistent with prior research, including studies by Checherita-Westphal and Rother (2012), Hassan and Meyer (2021), Dawood et al. (2024), Qureshi and Liaqat (2020), Riffat and Munir (2015), and Silva (2020). With a negative and statistically significant coefficient in the long run, a 1 percent increase in the real interest rate reduces public investment by 0.09 percent. This indicates that financing costs influence public investment decisions. Economic openness has a significant negative impact on public investment. While economic openness typically implies greater infrastructure needs—suggesting a positive relationship (Tilahun, 2021)—this is not the case for The Gambia, as the country has not complemented its increasing trade openness with corresponding investments in infrastructure. In the short run (Equation 19 B), the real interest rate remains negative and is significant at 1 percent. The coefficient of the lagged error correction term (ECT_{t-1}) in absolute value is between 0 and -1 . The diagnostic analysis confirms the model's suitability⁴⁴ and stability over time (Appendix 17).

$$\begin{aligned} \ln PBIGDP_t = & 21.96 \ln TTDEBT_t \\ & (0.00)^{***} \\ & - 2.58 \ln TTDEBTSQ_t - 2.51 \ln TRADE_t \\ & (0.00)^{***} \quad (0.00)^{***} \\ & - 0.09 RINT_t - 32.96 \\ & (0.00)^{***} \quad (0.00)^{***} \end{aligned} \quad (18)$$

$$\begin{aligned} \Delta \ln Pbigdp_t = & -0.64 \Delta \ln Pbigdp_t - 0.28 \Delta \ln Ttdebt_t \\ & (0.00)^{***} \quad (0.87) \\ & + 0.09 \Delta \ln Ttdebtsq_t + 0.04 \Delta \ln Ttdebtsq_{t-1} \\ & (0.62) \quad (0.05)^{**} \\ & - 0.03 \Delta RINT_t - 0.49 ECT_{t-1} \\ & (0.00)^{***} \quad (0.00)^{***} \end{aligned} \quad (19)$$

⁴⁴ Adj-R² = 0.93; LM(1) = 0.65 (0.42); LM(2) = 1.81 (0.40); BPG = 5.85 (0.83); J - B = 0.23 (0.89); RESET(1) = 0.05 (0.83).

High total public leads to higher long-term real interest rates. In the long run (Equation 20), total debt is positive, albeit insignificant, at the 5 percent level. Its square is negative and significant at the 5 percent level. The results show a non-linear, inverted U-shaped relationship between total debt and the real interest rate. The total debt threshold is computed at 48.35 percent of GDP. The inverse-U relationship emerges because when public debt starts to rise, real interest rates increase due to risk premiums. However, beyond a critical threshold, excessive indebtedness negatively affects economic growth and increases financial instability, forcing interventionist policies that will lower real interest rates. These findings are consistent with studies by Ebi and Imoke (2017) as well as Hassan and Meyer (2021), who also identified the interest rate as a key transmission channel linking public debt and economic growth. The coefficient of money supply is negative and significant at the 1 percent level, with a 1 percent increase in the money supply decreasing the real interest rate by about 10.72 percent, aligning with theoretical expectations. Money supply is assumed to be exogenously determined by the monetary authority. As the money supply increases, interest rates decrease (Ebi and Imoke 2017). The dummy variable has a negative sign that falls within the normal range, as inflation is supposed to erode the real interest rate. In the short run (Equation 21), the coefficient of money supply is positive and significant at the 1 percent level. The diagnostic analysis confirms the model's suitability⁴⁵ and stability (Appendix 18).

$$\begin{aligned} RINT_t = & 78.51 \ln TTDEBT_t - 10.12 \ln TTDEBTSQ_t \\ & (0.06)^* \quad (0.04)^{**} \\ & - 10.72 \ln M2_t + 0.44 GDS_t \\ & (0.00)^{***} \quad (0.06)^* \\ & - 55.04 DUM2004 - 95.6 \\ & (0.00)^{***} \quad (0.25) \end{aligned} \quad (20)$$

⁴⁵ Adj-R² = 0.95; LM(1) = 0.79 (0.38); LM(2) = 0.83 (0.66); BPG = 10.45 (0.40); J - B = 0.44 (0.80); RESET(1) = 2.41 (0.14)

$$\begin{aligned} \Delta RINT_t = & 24.07 \Delta \ln M2_t + 17.87 \Delta \ln M2_{t-1} \\ & (0.00)^{***} \quad (0.00)^{**} \\ & + 0.05 \Delta GDS_t - 0.47 \Delta GDS_{t-1} - 1.19 ECT_{t-1} \\ & (0.67) \quad (0.00)^{***} \quad (0.00)^{***} \end{aligned} \quad (21)$$

Private sector credit is negatively and significantly affected by public debt in the short term, although it does not appear to be a transmission channel in the long term.

- **Public debt may not influence interest rates in the presence of government intervention, but it is likely to affect credit to the private sector.** While public debt affects private sector financing through the lending rate, the equilibrium interest rate tends to be relatively unresponsive to market perceptions in financially repressed economies. In such contexts, public debt may have a significant effect on private credit but not on the interest rate if the government intervenes in the banking sector (e.g., through administrative controls on interest rates, direct involvement in credit allocation, or control over financial institutions) (Reinhart et al. 2011; Anyanwu et al. 2017). High levels of government borrowing may deter banks from lending to riskier sectors, such as private businesses (Msafir et al. 2022).
- **In the long run, public debt and its squared term have opposite signs, but neither is statistically significant (Equation 22).** Domestic credit to the private sector does therefore not appear to be a channel through which total public debt affects long-term economic growth in The Gambia. The money supply, however, has a positive and statistically significant coefficient, suggesting that expansionary monetary policy supports the growth of bank lending to the private sector. This finding is consistent with studies such as Guo and Stepanyan (2011), Imran and Nishat (2013), and Islam (2022). Conversely, private investment appears to constrain domestic credit to the private sector in The Gambia, which is inconsistent with expectations and other studies such as Islam

(2022). The negative relationship may be explained by the limited repayment capacity of households and businesses and by credit rationing. According to Hoffman (2004), economic activity influences credit through both supply and demand channels. Demand for credit is shaped by economic conditions that drive consumption and investment, while the supply of credit is shaped by cash flows and income levels, which determine the repayment capacity of companies and households. When repayment capacity is low, financial institutions may become reluctant to extend credit. Therefore, the state of economic activity can determine the credit supply. The negative sign may also reflect the low reimbursement capacity and reluctance of banks to provide credit due to low household income. GDP per capita exerts a positive effect on private sector credit, supporting the view that credit growth to the private sector is often an outcome of economic growth (Islam 2022).

- **In the short term, total public debt has a negative and statistically significant effect on private sector credit (Equation 23).** Its square, on the other hand, is positive and statistically significant, indicating a U-shaped relationship between public debt and private credit. The negative and significant coefficient of public debt suggests a crowding out effect on private sector credit. The coefficient of the lagged error correction term (ECT_{t-1}) is negative and significant. The diagnostic analysis confirms the model's suitability⁴⁶ and stability (Appendix 19).

$$\begin{aligned} \ln DCP_t = & -1.7 \ln Ttdebt_t + 0.2 \ln Ttdebtstq_t \\ & (0.37) \quad (0.43) \\ & + 0.9 \ln LM2_t - 0.5 \ln PRIGDP_t \\ & (0.00)^{***} \quad (0.00)^{***} \\ & + 1.4 \ln Percap_t - 10.1 \\ & (0.06)^* \quad (0.28) \end{aligned} \quad (22)$$

⁴⁶ Adj-R² = 0.92; LM(1) = 1.49 (0.22); LM(2) = 2.67 (0.26); BPG = 12.31 (0.42); J - B = 0.12 (0.94); RESET(1) = 0.24 (0.63).

$$\begin{aligned}
\Delta \ln DCP_t = & -4.13 \Delta \ln Ttdebt_t \quad 0.12 \Delta \ln Ttdebt_t \\
& (0.00)^{***} \quad (0.04)^{**} \\
& + 0.48 \Delta \ln Ttdebtsq_t - 0.20 \Delta \ln Prigdp_t \\
& (0.00)^{***} \quad (0.00)^{***} \\
& + 0.20 \Delta \ln Percap_t - 0.81 \Delta \ln Percap_{t-1} \\
& (0.055) \quad (0.04)^{**} \\
& - 0.72 ECT_{t-1} \\
& (0.00)^{***}
\end{aligned} \tag{23}$$

The results for external public debt are consistent with those for total public debt and confirm that private public investment as well as real interest rates are long-run transmission channels through which public debt affects economic growth. External public debt has a non-linear effect on private investment in the long-run under an inverted-U curve, with a statistically positive and significant coefficient of external debt and a statistically negative and significant coefficient of its quadratic term at 1 percent significance level, and an optimal threshold of 50.4 percent of GDP (Equation A7 in Appendix 20). This supports the assumption that an increase in The Gambia's external debt stock (beyond the threshold) would result in existing and potential investors anticipating higher and new taxes to service the debt, reducing expectations of return on investment and discouraging private investment. Likewise, external public debt has a non-linear effect on public investment (Equation A8 in Appendix 21) and real interest rates (Equation A9 in Appendix 22) in the long run under an inverted-U curve, with a statistically positive and significant coefficient of external debt and a statistically negative and significant coefficient of its quadratic term at 1 percent significance level, and optimal thresholds of 51.0 percent of GDP and 33.6 percent of GDP, respectively. Continued accumulation of external debt increases the debt burden, reducing long-term investment spending due to the government's fiscal consolidation efforts. The results suggest that initially, rising public debt leads to higher real interest rates due to increased

risk premiums. However, once debt exceeds the critical threshold, excessive debt negatively affects economic growth and heightens financial instability, prompting interventionist policies that ultimately reduce real interest rates. Private sector credit is negatively affected in the short term by external public debt, although it does not appear to serve as a long-term transmission channel for the impact of external public debt on economic growth (Equation A10 and Equation A11 in Appendix 23).

2.5. Analyzing the impact of the expiration of external debt service deferral

External debt servicing has a direct impact on economic growth. It exerts a resource-draining effect that can slow economic growth and contribute to over-indebtedness (Abuzaid 2011). In addition, external debt servicing increases the demand for often scarce foreign exchange, introducing an exchange rate risk (Abbas and Christensen 2010) and reducing resources that could have been used for social services (El Aboudi and Khanchaoui 2021). If debt is contracted at a floating rate, this exposes the country to changes in global interest rates, which may lead to an increase in the cost of debt servicing (Elhendawy 2022; IMF 2017). Debt servicing is crucial to debt sustainability, as repaying current debt determines the ability to borrow in the future (Lwanga and Mawejje 2014; Karaijiene 2015). In the context of highly indebted countries, debt servicing can drain public revenues to such an extent that economic growth remains low, even in the presence of structural reforms (AKos and István 2019). Moreover, external debt servicing can increase a country's vulnerability to external shocks and macroeconomic crises (Anderu et al. 2019; Bekun and Alola 2016; Dey and Tarequ 2020). Given the potential consequences, it is essential to assess the impact of the expiration of external debt service deferrals in The Gambia beginning in late 2024.

2.5.1. Model specification

The study applied the ARDL technique to analyze the relationship between external debt service and real

GDP, with the goal of predicting the impact of expiring external debt service deferral on economic growth. The model is based on Akanbi et al. (2022) and Salisu et al. (2024) and is described as follows :

$$RGDP = f(EXDEBT, DEBTSERV, INV, GOV, RINT, IMPOR) \quad (24)$$

Where real GDP (RGDP) is a function of external debt stock as a percentage of GDP (EXDEBT), external debt service as a percentage of GDP (DEBTSERV), real investment as a percentage of GDP (INV), imports of goods and services as a percentage of GDP (IMPOR), government consumption expenditure as a percentage of GDP (GOV), and real interest rates (RINT). Annual data cover 1993–2023 and were sourced from the World Development Indicators (WDI) database, except investment, which came from the IMF national economic accounts database. This has been transformed into a stochastic form to be estimated as follows:

$$\begin{aligned} \ln RGDP_t = & \beta_0 + \beta_1 \ln EXDEBT_t + \beta_2 \ln DEBTSERV_t \\ & + \beta_3 \ln INV_t + \beta_4 GOV_t + \beta_5 RINT_t \\ & + \beta_6 \ln IMPOR_t + \mu_t \end{aligned} \quad (25)$$

Where β_0 is a constant, $\beta_1, \dots, \beta_6$ are coefficients of the independent variables, and μ is the error term. As the variables EXDEBT, DEBTSERV, and INV were introduced in the first section, this section will show the impact of imports, government expenditure, and real interest rates on economic growth.

- **Imports** can positively influence economic growth by supporting the development of industrial sectors, especially through importation of technological goods and machinery, which enhance productivity (Lee 1995). Imports of medical products also extend life expectancy and improve workforce health (Uddin and Khanam 2017). However, imports can negatively affect growth by widening external imbalances and increasing vulnerability to external shocks (Esfahani 1991).
- **Public consumption expenditure** affects economic growth differently under the Keynesian and classical

economic views. The Keynesians perspective holds that government spending can simulate economic expansion by increasing household purchasing power, thereby boosting aggregate demand and output through expenditure multipliers (Romer 1996). By contrast, the classical school argues that public consumption expenditure is inefficient due to the crowding out effect or Ricardian equivalence. The crowding out effects occurs when increased government spending reduces private sector activity by raising interest rates, as the government's need to finance the fiscal deficit through borrowing pressures the credit market, increasing interest rates (Barro 1974). Under Ricardian equivalence, government expenditure has a neutral impact on the private sector. An increase in current government expenditure can be viewed by the private sector as an increase in future taxes, prompting households and firms to reduce consumption and investment in anticipation of future tax burdens (Bernheim 1989).

- **Interest rates** have a mixed impact on output (Drobyshevsky et al. 2017). Within the framework of the theory of irreversible investment, Arrow (1968) and Bertola and Caballero (1994) argue that rising interest rates have a negative effect on output by increasing the cost of borrowing while encouraging immediate investment as firms seek to avoid future financing costs. Wickens (2008) outlined the mechanisms through which these two opposing effects influence output in open economies. An increase in interest rates leads to local currency appreciation, which in turn increases the volumes of imports of intermediate goods and capital equipment—thereby supporting output. However, currency appreciation can also reduce the competitiveness of domestically produced goods, worsening net exports and output

The variables of this study are integrated in a mixed order (i.e. order 0 and order 1), justifying the use of the ARDL model. The results of the stationarity tests are presented in Tables A11 and A12 in Appendix 26.1 and Appendix 26.2). Equation A12 in Appendix 24 represents the ARDL model combining the corresponding long-term multipliers and the coefficients of the short-term dynamics.

External debt has a negative but statistically insignificant impact on real GDP. The analysis reveals a negative and insignificant influence of external debt on real GDP (Equation 26). This finding does not contradict the results presented in Section 2, where external debt was shown to positively influence economic growth up to a threshold of 34.7 percent. Over the period 1993–2023, there were six years in which external debt did not reach this threshold. This result supports the assertion by Pattillo et al. (2011)⁴⁷ that the relationship between debt and economic growth can be better represented by a non-linear relationship.

External debt service has an insignificant negative effect on real GDP. This partly supports Saungweme and Odhiambo's (2019) argument that debt relief initiatives may implicitly reduce debt servicing costs, as well as Clements et al.'s (2003) argument that debt service may be insignificant in the growth equation because its effect materializes instead through its impact on investment. Akanbi et al. (2022) interpret this negative coefficient of external debt service as a manifestation of a resource depletion effect.

Government consumption expenditure and imports have a negative but insignificant effect on growth. A 1 percent increase in consumption expenditure reduces real GDP by 0.61 percent. This result supports the policy strategy advocated by the Bretton Woods institutions that recommends a reduction in recurrent expenditure in developing countries to stimulate growth by transferring funds to infrastructure development (Mitchell 2005). An increase in government consumption expenditure usually comes at the expense of capital expenditure or private sector investment. The negative correlation between imports and real GDP aligns with studies by Tahir et al. (2015) and Esfahani (1991), reflecting heightened

external deficits and increased vulnerability to external shocks due to high levels of imports.

Real interest rates have a positive but insignificant effect on GDP. This result is consistent with the findings Njie and Badjie (2021) for The Gambia. Higher real rates of return lead to higher levels of savings, which in turn spur economic growth.

Investment has a positive and significant effect on GDP. A 1 percent increase in investment increases real GDP by 0.5 percent. This positive relationship is consistent with expectations, suggesting that higher investment supports economic growth by stimulating domestic demand. Imports are negatively correlated with real GDP, although the relationship is statistically insignificant. The diagnostic analysis confirms the model's suitability⁴⁸ and stability (Appendix 28).

$$\begin{aligned} \ln Rgdp_t = & -0.24 \ln Exdebt_t - 0.16 \ln Debtsest_t \\ & (0.12) \quad (0.45) \\ & + 0.52 \ln Inv_t - 0.09 \ln Impor_t - 0.61 \ln Gov_t \\ & (0.00)^{***} \quad (0.79) \quad (0.07)^* \\ & + 0.01 RINT_t + 3.16 \\ & (0.34) \quad (0.14) \end{aligned} \quad (26)$$

$$\begin{aligned} \Delta \ln Rgdp_t = & 0.01 \Delta \ln Inv_t - 0.02 \Delta \ln Gov_t \\ & (0.79) \quad (0.77) \\ & + 0.0004 \Delta RINT_t - 0.18 ECT_{t-1} \\ & (0.38) \quad (0.00)^{***} \end{aligned} \quad (27)$$

2.5.2. Accuracy of prediction, forecast assumptions, and forecasts

The accuracy of prediction indicates that the real GDP forecasts are of good quality. Actual GDP values and simulated GDP series (GDPF) align closely,

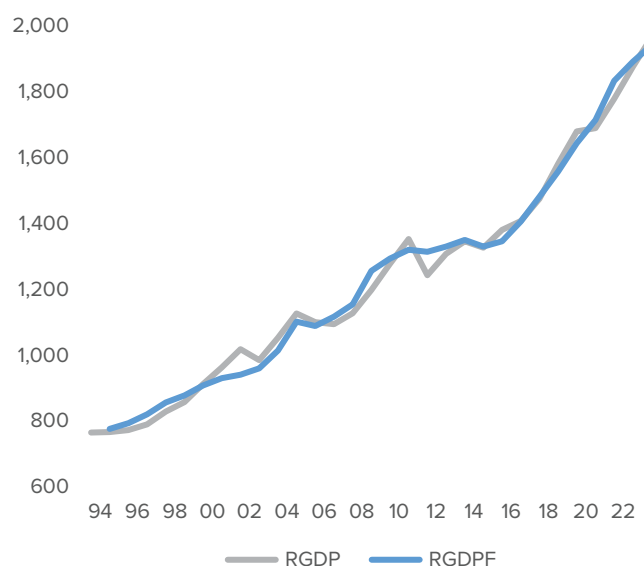
⁴⁷ Since the objective of this section is to focus on external debt servicing in relation with certain forecasts, the linear form was adopted, as the original study by Pattillo et al. (2011) also used both linear and non-linear specification. The non-linear specification has already been used in previous sections.

⁴⁸ Adj-R² = 0.98; LM(1) = 1.63 (0.20); LM(2) = 3.63 (0.16); BPG = 12.99 (0.22); J – B = 1.79 (0.41); RESET(1) = 0.02 (0.89)

underscoring the reliability of the forecasts (Figure 38 and Figure 39).⁴⁹

This study provided a forecast of real GDP and projected its growth rate between 2025 and 2028. This forecast required providing future values of the explanatory variables, which in turn necessitated assumptions about those variables. For external debt and external debt service, the study relied on projections from the IMF (2024), which indicate that external debt service payments will rise significantly following the expiration of the debt service deferrals as the end of 2024.⁵⁰ As a percentage of GDP, external debt is projected to rise from 2.0 percent in 2024 to 2.5 percent in 2025, 2.7 percent in 2026 and 2027, and 3.0 percent in 2028, averaging 2.7 percent per year in 2025–2028. To build a reference scenario without a resumption of debt service payments, the study assumed debt service levels equivalent to the average observed over a 15-year period from 2009 to 2023. The projected annual increases in

Figure 38. Real GDP and Real GDP Forecast Series, 1994–2022



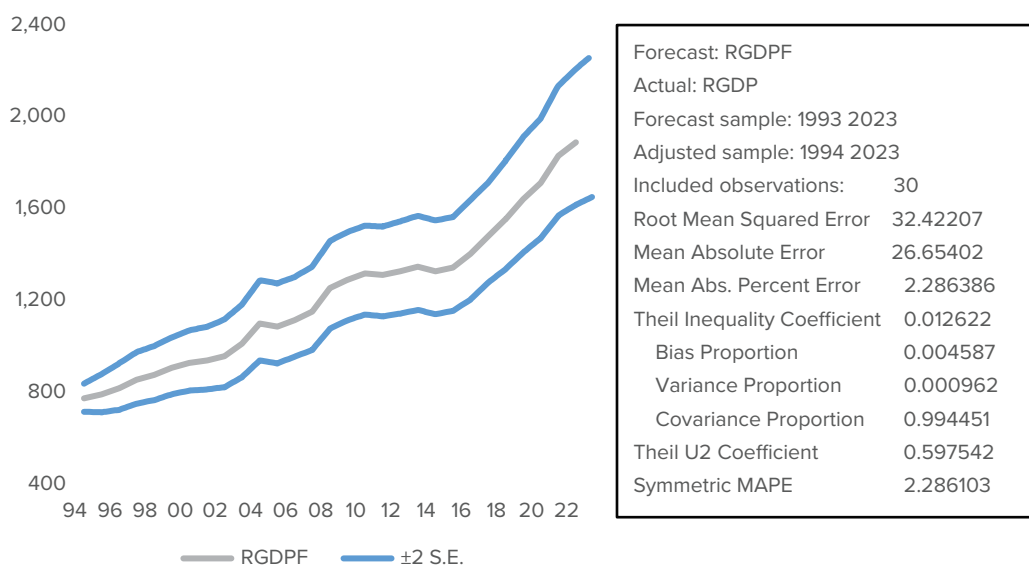
Source: Author's calculation using Eviews 10.

⁴⁹ The historical simulations do not deviate drastically from the observed values. The data presented alongside the RGDPF graph (Figure 39) allow a statistical evaluation of the predictive quality of the model. This study utilized two statistics independent of the dependent variable's measurement scale: mean Absolute Percentage Error and Theil Inequality Coefficient. The Theil Inequality Coefficient ranges from 0 to 1, with a value close to zero indicating a good fit. In this study, the two statistics have values of 2.89 and 0.01 respectively—both under 5 percent—indicating strong predictive performance of the model. This is also confirmed by the decomposition of the Mean Squared Error into three types of proportions: bias proportion, which indicates how much the mean of the forecasts deviates from the mean of the current values of the series, variance proportion, which indicates how much the variation of the forecast values deviates from that of the current values, and covariance proportion, which measures non-systematic forecast errors. For a reliable forecast, the first two proportions should yield low values. In this case, the bias proportion and variance proportion are 0.005 and 0.001, respectively. All four statistics confirm that the model's predictive performance is very strong.

⁵⁰ External debt service payments are set to increase from US\$54.8 million in 2024 to US\$76.0 million in 2025, before reaching US\$87.9 million in 2026, US\$91.9 million in 2027, and US\$16.5 million in 2028, averaging US\$90.6 million annually between 2025 and 2028.

debt service as a share of GDP are 0.5 percent in 2025, 0.2 percent in 2026 and 2027, and 0.3 percent in 2028. For the other explanatory variables included in the model, the study assumed they would continue to follow the average rate of change observed over the period 1993–2023 (Table 3).

Resuming bilateral external debt servicing may reduce economic growth by 1.3 ppts between 2025 and 2028. Given past investment levels, GDP growth, which remained strong at an estimated 7.09 percent in 2024, is projected to drop to 3 percent by 2028 if current economic trends persist. External debt servicing places a significant burden on The Gambia's revenue, resulting in lower real GDP compared to a scenario without debt payments. This outcome is largely explained by the debt transmission channels, particularly investment, which plays a critical role in driving economic growth. Increased debt servicing may also constrain essential imports, negatively impacting economic growth. The adverse effects tend to diminish over time, especially as the pace of economic growth slows.

Figure 39. RGDPF forecast series, 1994–2022

Source: Author's calculation using Eviews 10.

Table 3. Forecast assumptions for the impact of debt deferral on economic growth

	External debt (PPG)/GDP	External debt service/GDP		Real investment (7,94 percent growth)	Public final consumption/GDP (–1,73 decline)	Real interest rate (–0,196 percent)	Import/GDP (–9,19 percent growth)
		Without payment	With payment				
2024	40.0	2.4	2.40	2102.7	7.25	3.58	29.8
2025	37.8	2.52	2.92	2232.5	7.12	2.88	27.1
2026	35.9	2.74	3.15	2338.5	6.99	2.32	24.6
2027	33.9	2.71	3.11	2437.2	6.88	1.86	22.3
2028	32.0	2.96	3.36	2516.0	6.76	1.50	20.3

Source: Author's calculation using Eviews 10.

Table 4. GDP forecasts with and without external debt service payment resumption

	<i>Without payment</i>		<i>With deferred debt payments</i>		
	<i>RGDP_SIM</i>	<i>RGDP growth</i>	<i>RGDP_SIM2</i>	<i>RGDP growth</i>	<i>Gap in RGDP growth</i>
2023	1963.60		1963.60		
2024	2078.29	5.84	2078.29	5.84	0
2025	2200.74	5.89	2191.37	5.44	−0.45
2026	2328.77	5.82	2311.53	5.48	−0.33
2027	2470.82	6.10	2446.05	5.82	−0.28
2028	2620.05	6.04	2589.00	5.84	−0.20

Source: Author's calculation using Eviews 10.

2.6. Options for curbing the growth of public debt and reducing debt-related risks

Public debt remains high and negatively affects the economy through several transmission channels. These include low domestic savings, weak tax revenues, large external deficits, the fiscal burden of SOEs, limited external private capital investment, and macro-fiscal vulnerabilities from climate shocks. Total, external, and domestic public debt exceeds optimal levels, negatively impacting economic growth. The key long-run transmission channels are public and private investment as well as interest rates.

The findings of this study underscore the critical importance of maintaining optimal levels of public debt and managing it efficiently to avert adverse effects on economic growth. With both external and domestic debt exceeding optimal thresholds, public debt is crowding out public and private investment and credit to the private sector, potentially creating instability in the macroeconomic system if debt levels were to rise further. This situation could further jeopardize economic growth. To mitigate such risks, the government is called upon to enhance debt management and strengthen fiscal consolidation efforts to avoid debt repayments leading to excessive budget overruns or the need for new debt financing. Public borrowing should be conducted on

terms that not only align with debt sustainability but also yield long-term growth dividends for the economy.

A set of policy options can help balance the use of public debt for financing public expenditure needs and sustaining economic growth while avoiding excessive debt risks. These include: (i) strengthen domestic revenue mobilization; (ii) improving public spending efficiency; (iii) ensuring a robust competition policy framework by developing antitrust laws and setting up independent and well-functioning enforcement agencies; (iv) improving the institutional environment for debt transparency; (v) developing climate finance and resilient debt instruments; and (vi) exploring debt-for-development swaps, (vii) tapping into the regional market to boost exports and reduce external imbalances; (viii) attracting more FDI and remittances for investment.

- **Strengthening domestic revenue mobilization.** Efforts include: (i) reducing tax incentives and exemptions; (ii) continuing to strengthen tax administration; and (iii) expanding the tax base. Recent revenue-boosting measures, along with the Cabinet's September 2024 adoption of the revised Duty Waiver Policy, will require effective implementation. The authorities will also need to accelerate the Cabinet's adoption of the revised Gambia Investment and Export Promotion Agency Act to rationalize tax incentives. In addition, the Domestic Revenue Mobilization Strategy outlines further

measures, although an implementation roadmap is still needed. Certain reforms present low-hanging fruits, such as digitizing the Integrated Tax Administration System (ITAS) and pursuing transformative initiatives like expanding electronic tax registration, filing, and payments. The Gambia also faces tax base risks from abusive transfer pricing and treaty shopping, underscoring the need to build capacity in the tax administration to protect domestic revenue.

- Enhancing the efficiency of public spending:** Planned reforms aim to rationalize public spending and include approving a roadmap for implementing program-based budgeting, preparing a study on rationalizing and consolidating public agencies, and strengthening the management of investment projects (e.g., by expanding the use of IFMIS to all new donor and government-funded projects and expanding the investment prioritization and selection tool by the Gambia Strategic Review Board to domestically financed and public-private partnerships). Commitment to these reforms is crucial for fiscal and debt sustainability. Complementary reforms are also needed, including: (i) targeting subsidies to the most vulnerable; (ii) reducing SOE budget allocations; and (iii) improving efficiency in expenditure. For example, electricity subsidies—representing 3.2 percent of total spending or 0.8 percent of GDP—mostly benefit affluent households due to their better access to electricity, higher level of ownership of electrical appliances, and higher consumption of electricity. The top 20 percent of households in terms of deciles of per capita disposable income capture 53.4 percent of all electricity subsidies, while the bottom 40 percent receive only 11.2 percent. This indicates inequity and suggests the need for alternative policy instruments, such as transfers to vulnerable households and ending generalized electricity subsidies. Government fiscal injections into SOEs, estimated at 5 percent of GDP (MOFEA 2021), present further opportunities for budgetary savings. In addition, The Gambia 2020 Public Expenditure Review (PER) highlighted large spending inefficiencies in health, education, and security—among the sectors that account for the largest share of public spending—that if addressed could generate fiscal savings of about 4.9 percent of GDP (World Bank 2020).

- Ensure a robust competition policy framework by developing antitrust laws and setting up independent and well-functioning enforcement agencies.**

Improving the business environment is essential to enhance productivity and expand the revenue base. The Gambia faces challenges in advancing policy and institutional reforms, as reflected in its low score on the Country Policy and Institutional Assessment, particularly in macroeconomic policy and public sector governance. The authorities need to urgently focus on developing a comprehensive national strategy for good governance, addressing governance and corruption vulnerabilities, and implementing a solid competition policy framework. This would require the development of antitrust laws, an independent and well-functioning enforcement agency, independent regulatory bodies, and judicial support (Cherif et al. 2020). Institutional reforms will need to be complemented by pursuing investments in infrastructure to accelerate capital accumulation and productivity and improve domestic and international connectivity.

- Improving the institutional environment to increase debt transparency.** Fostering debt transparency and better debt management can mitigate some of the costs associated with debt accumulation and reduce political-economy pressures to increase borrowing (Kose et al. 2020). The Gambian authorities have made important progress in implementing debt management reforms and increasing transparency, particularly in output reporting, institutional framework for reporting, legal requirements for reporting, and debt records, although there are several areas in need of improvement⁵¹.

⁵¹ Several reforms have been undertaken since the last 4 years including the publication of a Medium-Term Debt Strategy consistent with the Medium-term Fiscal Framework; publication of quarterly reports on external debt commitments, agreements and disbursements for 2019 on its website; publication of an annual borrowing plan (systematically published since 2021); approval of the framework for the management of government loan guarantees; publication of the annual public debt bulletin, including government guarantees extended to all SOEs; publication of a report on outstanding arrears between Government and SOEs and among SOEs; elaboration of a regulatory instrument adopting a credit risk assessment score card for the provision of public guarantees and on lending to SOEs.

Table 5. Potential gains from domestic revenue mobilization reforms

<i>Policy measure</i>	<i>Revenue gains (percent of GDP)</i>	<i>Source</i>
Reduce tax incentives, exemptions, and duty waivers	4–6	- A study by Oxford Economics Africa in 2022 on The Gambia's tax expenditure found that the country had foregone potential revenue in tax relief averaging 4.95 percent of GDP over 2028–2020 (6.96 percent in 2018, 3.98 percent in 2019, and 3.93 percent in 2020) through tax incentives for investment in priority sectors and aid-funded projects (Oxford Economics 2022). - The Gambia PER 2020 found that tax revenues are about 4–6 percent lower than the country's potential due to generous tax incentives, multiple tax rates, difficulties in taxing government institutions, and the prevalence of zero-rated goods (World Bank 2020). - The Gambia Domestic Revenue Mobilization strategy estimates tax revenue losses due to tax exemptions at 4.2 percent of GDP (MOFEA, 2024).
Introduce electronic tax registration (electronic filing and electronic payments)	1.6	The introduction of e-filing and e-payment would help streamline the tax process, increase the share of on-time payments, reduce tax compliance costs, and increase tax revenue. Raising the adoption of e-filing by 50 percent of total tax filing in low-income countries could boost tax revenues by 1.6 percent of GDP (Manabu and Andualem 2023). In Burkina Faso, the adoption of tax e-filing and e-payment in 2020 helped increased the number of taxpaying firms and individuals recorded in the government's taxpayer database by 76 percent over 5 years, from 95,515 in 2017 to 168,623 in July 2023 (World Bank 2023c). In The Gambia, while the Integrated Tax Administration System is being prepared, the revenue administration has not yet enabled electronic filling for any of its core taxes or taxpayer segments.
Improve expenditure efficiency	4.9	The Gambia PER 2020 found that tackling spending efficiency in education, health, and security—among the sectors that account for the largest share of public spending—could potentially generate 4.9 percent of GDP in fiscal savings (World Bank 2020).
Reduce budget allocations to SOEs	5–6	Government transfers to SOEs, which are unbudgeted, are estimated at 5–6 percent of GDP (World Bank 2021).

Current debt reports are up-to-date and adequate, but there are gaps, including missing information such as data on the composition of the debt stock (e.g., fixed vs. floating rates) and details on on-lending to SOEs. While the 2014 PFM Act provides a sound legal framework, enforcement should be strengthened by, for example, requiring debt reporting from

non-guaranteed SOEs or other government-related entities. The World Bank's Transparency Heatmap indicates areas for improvement, such expanding the coverage of debt instruments (including historical guarantees and current on-lent credit by beneficiaries and creditors) and debt sectoral coverage (including non-guaranteed debt from SOEs and subnational

government debt under the non-financial public sector (World Bank 2023d).

- **Developing climate finance and climate-resilient debt instruments.** Climate finance includes funding from public, private, and alternative sources at local, national, regional, and international levels. It aims to support actions that contribute to climate change mitigation and adaptation. There are several climate finance options, featuring diverse instruments such as disaster risk management tools (e.g., contingency funds, traditional insurance policies, insurance-linked securities like catastrophe bonds, and disaster risk facilities), thematic bonds (e.g., green bonds), debt for climate swaps, and carbon pricing initiatives. Not all options are suitable for every country, as their effectiveness depends on a country's specific context—including its policy and governance environment, macro-financial conditions, financial market development, and access to concessional funds. The Gambian authorities should initiate a climate finance strategy as part of their climate-resilience efforts, and they should explore innovative debt instruments like debt for nature and climate swaps that align with the local context. These climate-resilient instruments can help mitigate the financial impact of climate shocks without imposing a significant fiscal burden.
- **Exploring debt-for-development swaps:** Debt swaps are agreements between a government and one or more of its creditors to restructure existing sovereign debt into new liabilities that include a commitment to fund specific development goals (WB and IMF 2024).⁵² These goals may include nature conservation, climate action, improving education or nutrition, or support for refugees. The spending commitment is often associated with the country's decision to pursue an important development policy. Given that The Gambia is at high risk of debt distress with a

sustainable debt outlook, it could be a strong candidate for this instrument. Debt-for-development swaps can help smooth debt amortization profiles, support sound liability management (e.g., reduced debt stocks and, possibly, lower liquidity pressures), while supporting high-impact development projects and potentially improving the balance of payments and fund high-impact local development projects (replacing debt service in foreign currency with expenditures with high local content). However, implementing such instruments requires a comprehensive assessment to ensure their appropriateness, including their impact on debt sustainability, potential financial gains, debt management capacity, and transparency. Despite these challenges, these instruments hold significant potential benefits for The Gambia.

- **Taping into the regional market to boost exports and reduce external imbalances.** Exports are dominated by edible fruits and nuts, fish and crustaceans, and oil seeds and oleaginous fruits, representing 55 percent of total exports in the third quarter of 2024. The Gambia's top export destinations are China and India, accounting for more than 60 percent of its exports. The country's imports are dominated by mineral fuels, representing more than 40 percent of total imports. Food imports are also part of the top imports, accounting for 20 percent of total imports in the third quarter of 2024 (GBOS 2024) and representing more than 50 percent of food consumption. The intra-regional market represents 39.6 percent of total imports, but only 11 percent of exports went to ECOWAS in 2022. The Gambia needs to increase its exports to the regional market, which could be done by capitalizing on trade opportunities provided by ECOWAS and the African Continental Free Trade Area (AfCFTA). The country adopted the five-tiered ECOWAS Common External Tariff in January 2017, became the 14th West African country to have signed the region-to-region Economic Partnership Agreement with the European Union in August 2018, and became the 22nd nation to ratify the African Continental Free Trade Area (AfCFTA) in April 2019. The national AfCFTA implementation strategy, validated in March 2024, identifies high-value products with high export potential to increase exports

⁵² The country's commitment to allocate payments toward the swap's development objective (e.g., a marine conservation fund) constitutes a liability that reduces future cash flows available for other purposes. Although this obligation is not classified as public debt and thus excluded from debt statistics, it functions similarly by constraining fiscal space.

to various African markets and improve participation in regional value chains. The Gambia must strengthen its internal productive capacity to leverage regional market opportunities. It can do this by: (i) increasing FDI inflows to acquire technologies; (ii) strengthening research and development to learn and assimilate imported technologies; (iii) improving firms' access to finance; (iv) reform education to increase human capital development and ultimately support industrial development; (v) developing a favorable environment for SMEs promotion; and (vi) investing in regional industrial value chains.

- **Increasing the attractiveness and efficiency of external capital flows (FDI and remittances).** Despite having an open investment regime and modern business regulations, supply-side constraints, vulnerability to external shocks, and persistent bottlenecks impede private sector development and FDI inflows (UNCTAD 2017). Supply-side constraints include an infrastructure gap, weak development of human capital, weak competition, limited size and weak diversification of the domestic economy, and limited involvement of the domestic financial sector in investment financing. Although FDI positively correlates with economic growth in The Gambia (Gaye and Njie, 2023), FDI inflows remain low. To attract more FDI, the country should pursue a series of policy reforms to improve its macroeconomic and institutional framework, including enhancing competition (notably by reforming SOEs), deepening financial markets, enhancing regional integration to overcome the obstacles posed by the small size of the national market, improving the quality of physical and human capital, and improving the business climate to better exploit sectors with high growth potential to diversify the economy. The Gambia should also better leverage remittances for investment by promoting diaspora investment and establishing partnerships with financial institutions to reduce remittance transfer costs.

Tackling the financing and institutional challenges and commitment to reforms are essential to implementing the proposed policy reforms. The implementation of the reforms requires sustained efforts to tackle major obstacles in terms of financing, institutional capacity and engagement of key stakeholders. The magnitude of financing constraints is illustrated by financing requirements of the National Development plan 2023–2027 estimated at US\$3.5 billion. Only \$0.7 billion of funding was available in December 2023, implying a financing gap of 80 percent of the estimated cost, which could affect its implementation if the Government does not mobilize more fiscal resources. To address the funding requirements, the government is exploring a three-pronged strategy : domestic resource mobilization, innovative financing, and concessionary financing. Implementing the proposed policy options will thus need to be part of ongoing resource mobilization efforts, with the view to strengthening the link between policies with the Medium-Term Expenditure Framework (MTEF) and annual budgets to ensure that development priorities are appropriately financed. Implementing reforms also poses a challenge in terms of institutional framework and public administration capacity for coordination and monitoring. A reform monitoring committee has recently been set up at the Ministry of Finance and Economic Affairs. The authorities will need to ensure that this committee functions effectively, with adequate resources and back up at a high level of State apparatus. Limited administrative capacity has been identified as hampering the delivery of timely and quality public services. The authorities will need to pursue efforts in strengthening the capacity of public administration in terms of processes and human resource qualifications. The implementation of the suggested policy options will also require strong political commitment to reforms. This will need to be accompanied by the ability to preserve the momentum from development partners' support, engage national stakeholders including the private sector and civil society, and align adequate sectoral experts within the different policy priorities.

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Appendix

Appendix 1

Table A6. Balance of payments

	US\$ million			Percent of GDP		
	2022	2023	2024	2022	2023	2024
1. Current account	−91.7	−126.7	−142.1	−4.2	−5.5	−5.7
A. Goods (net)	−642.7	−823.3	−863.9	−29.8	−35.4	−34.5
Exports, f.o.b.	51.3	95.6	120.9	2.4	4.1	4.8
Imports, f.o.b.	694.0	918.9	984.8	32.2	39.5	39.3
B. Services (net)	82.7	74.7	147.7	3.8	3.2	5.9
Services exports	215.3	237.8	315.3	10.0	10.2	12.6
Services imports	132.6	163.1	167.6	6.1	7.0	6.7
C. Income (net)	−31.4	−31.7	−32.0	−1.5	−1.4	−1.3
Income credits	13.2	13.1	13.8	0.6	0.6	0.6
Income debits	44.6	44.8	45.8	2.1	1.9	1.8
D. Current transfers	514.6	597.6	634.2	23.9	25.7	25.3
Official transfers	40.0	64.8	50.0	1.9	2.8	2.0
Remittances	462.00	531.8	570.0	21.4	22.9	22.7
Other transfers	12.6	1.0	14.2	0.6	0.0	0.6
2. Capital and financial account	−19.5	160.1	93.7	−0.9	6.9	3.7
E. Capital account	82.7	159.9	139.3	3.8	6.9	5.6
F. Financial accounts	−102.2	0.2	−45.6	−4.7	0.0	−1.8
Foreign direct investment	99.7	102.4	106.5	4.6	4.4	4.2
Portfolio investment	4.1	4.5	5.1	0.2	0.2	0.2
Other investment	−206.0	−106.7	−157.2	−9.6	−4.6	−6.3
3. Errors and omissions	0.0	0.0	0.0	0.0	0.0	0.0
Overall balance (1+2+3)	(107.9)	(9.36)	(19.7)	−5.0	−0.4	−0.8
Memorandum items						
Gross international reserves in US\$ million	546	474	477			
Gross international reserves in months of imports	5.3	4.2	4.7			
Nominal GDP (million US\$)	2,157	2,325	2,508			

Source: CBG, IMF and World Bank staff calculations.

Appendix 2

Table A2. Summary of Fiscal Operations

	<i>Dalasi (million)</i>			<i>Percent of GDP</i>		
	2022	2023	2024	2022	2023	2024
Total revenue and grants	22,905	29,513	35,408	19.2	20.7	21.1
Domestic revenue	14,496	17,842	23,529	12.1	12.5	14.0
Tax revenue	11,159	13,915	18,798	9.3	9.8	11.2
Tax on goods and services	4,667	6,145	7,611	3.9	4.3	4.5
Direct revenue	3,853	4,255	5,805	3.2	3.0	3.5
Tax on international trade	2,596	3,459	5,320	2.2	2.4	3.2
Non-tax revenue	3,337	3,927	4,731	2.8	2.8	2.8
Grants	8,409	11,671	11,879	7.0	8.2	7.1
Budget support	2,300	11,920	3,234	1.9	8.4	1.9
Project	6,109	4,332	8,645	5.1	3.0	5.1
Total expenditures	29,831	34,925	41,315	25.0	24.5	24.6
Current	17,034	18,520	24,513	14.3	13.0	14.6
Wages and compensation	5,627	6,805	7,003	4.7	4.8	4.2
Goods and services	4,057	3,902	5,098	3.4	2.7	3.0
Subsidies and transfers	4,733	4,790	7,371	4.0	3.4	4.4
Interest payments	2,617	3,023	5,040	2.2	2.1	3.0
External	553	678	767	0.5	0.5	0.5
Domestic	2,064	2,346	4,273	1.7	1.6	2.5
Capital	12,798	16,405	16,743	10.7	11.5	10.0
Externally financed	10,178	13,744	14,129	8.5	9.7	8.4
Gambia locally financed	2,619	2,661	2,614	2.2	1.9	1.6
Fiscal balance	−6,926	−5,412	−5,907	−5.8	−3.8	−3.5
Deficit financing	6,385	5,287	5,247	5.3	3.7	3.1
Domestic	2,826	744	2,126	2.4	0.5	1.3
External	3,559	4,542	3,121	3.0	3.2	1.9
Statistical discrepancy	541	125	660	0.5	0.1	0.4
Memorandum items:						
Nominal GDP (million)	119,477	142,336	168,109			

Source: MOFEA; IMF; World Bank staff calculations.

Appendix 3

Table A3. Empirical literature review on the impact of public debt on economic growth

<i>Author(s)</i>	<i>Country and data</i>	<i>Methodology</i>	<i>Result</i>
Alsamara et al. (2024)	14 Middle Eastern and North African countries. Annual data over 1980–2021	Dynamic panel threshold regression approach	Nonlinear relationship
Arjun & Mishra (2024)	18 emerging countries. Annual data during 1996 to 2020.	Panel cointegration, panel ARDL, and Dumitrescu & Hurlin panel causality test causality	Negative relationship
Kabemba, & Kabwe. (2024)	Zambia. Monthly data over January 2011–December 2021	ARDL model	Negative relationship
Martin et al (2024)	47 developing countries from 1970 to 2019	Panel threshold regression model (PTRM) and a dynamic panel threshold model (DPTM)	Nonlinear relationship
Nagarajan et al. (2024)	Malaysia. Annual data over 1980–2022	Threshold autoregressive (TAR) model	Nonlinear relationship
Penzin & Akanegbu (2024)	6 countries of West African Monetary Zone. Yearly and Quarterly 2000–2019	ARDL and threshold regression analysis	Nonlinear relationship
Tarawalie & Mbayoh (2024)	Sierra Leone. Annual data over 1980–2022	Ordinary Least Squares	Nonlinear relationship
Obiero & Topuz (2023)	Kenya. Annual data : 1970–2018	Smooth Transition Regression	Nonlinear relationship
Ayana et al. (2023)	39 SSA countries. Annual data over the period 2011–2021.	System GMM estimation	Negative relationship
Rexhepi & Zeqiraj (2023)	11 European Union new member states. Annual data period 2000–2019	Dynamic panel regression	Nonlinear relationship
Phiri & Fotoyi (2022)	South Africa. Quarterly data over 1960–2020	Threshold nonlinear ARDL	Nonlinear relationship
Sandow et al. (2022)	31 SSA countries. Annual data spanning 2005 to 2017	System-Generalized Method of Moment (system-GMM) and the Panel Smooth Transition Regression (PSTR) methods	Nonlinear relationship
Asteriou et al. (2021)	14 Asian countries. Annual data over 1980–2012	Asymmetric panel ARDL method.	Negative relationship
Law et al. (2021)	71 developing countries from 1984 to 2015.	panel threshold regression	Nonlinear relationship

(continues)

Table A3. Empirical literature review on the impact of public debt on economic growth (Continued)

Author(s)	Country and data	Methodology	Result
Ndoricimpa (2021)	39 African countries Annual data: 1980–2012	Panel smooth transition regression approach	Nonlinear relationship
Ngakosso et al. (2021)	Republic of Congo. Annual data over 1986–2015	vector error correction model (VECM)	Nonlinear relationship
Sharaf (2021)	Egypt. Annual data over 1980–2019	nonlinear autoregressive distributed lag (NARDL)	Nonlinear relationship
Tarawalie & Jalloh (2021)	15 ECOWAS countries. Annual data over 2000–2019	Pooled Ordinary Least Squares (POLS), Fixed Effect Model (FEM), Random Effect Model (REM) and Panel Corrected Standard Errors (PCSE) techniques.	Nonlinear relationship
Bouchrara et al. (2020)	36 countries over Annual data: 1990–2013	Panel Smooth Transition Regression	Nonlinear relationship
Fofana N'Zue (2018)	ECOWAS countries. Annual over 1990–2016	Panel CS-ARDL	Nonlinear relationship
Joshua et al. (2020)	South African economy	ARDL	Positive relationship
Nembot et al. (2020);	33 SSA countries. Annual data over 1980–2017	Generalized Method of Moments (GMM)	Nonlinear relationship
Qureshi & Liaqat (2020)	123 countries. Annual data over 1990–2015	Panel VAR models	Negative relationship
Zaghdoudi (2020)	Middle- and low-income countries over 2002–2016	Dynamic panel threshold model	Nonlinear relationship
Akram–Rath (2019)	India. Quarterly data over 1997–2013	Markov switching and threshold regression models	Nonlinear relationship
Adekunle et al. (2019)	Nigeria. Annual data: 1981 to 2015	Threshold regression	Nonlinear relationship
Asafo et al. (2019)	48 SSA countries. Annual data over 1990–2017	two-step system General Method of Moments (GMM) technique.	Negative relationship
Hakimi et al. (2019).	23 countries	Seemingly unrelated regression model	negative relationship
Mhlaba–Phiri, 2019	South African quarterly data: 2002: q1 and 2016: q4	ARDL	negative relationship
Okoye (2019)	Nigeria. Annual data covering 2001–2016	ordinary least squares regression	Positive relationship

(continues)

Table A3. Empirical literature review on the impact of public debt on economic growth (Continued)

<i>Author(s)</i>	<i>Country and data</i>	<i>Methodology</i>	<i>Result</i>
Ahlborné & Schweickert (2018)	111 developed and developing countries. Average annual data of 5 years: 1971–2010.	FE estimation; GMM estimation; 2 Stage Least Squares estimation (2SLS)	(Neutral or negative relationship)
Ciftçioğlu & Sokhanvar (2018)	12 emerging economies of Central and Eastern Europe. Annual data over 1995–2014	Fixed effects' version of panel regression model	Negative relationship
Esteve, and Tamarit (2018)	Spanish economy Annual data 1851–2013	Dynamic Ordinary Least Squares (DOLS) method	Negative relationship
Fadlallah & Chakhat (2018)	Morocco. Quarterly data from 2004Q1 to 2013Q4.	vector error correction model (VECM)	Nonlinear relationship
Ferando & Serafim (2018)	Angola (18 provinces). Annual data: 2004–2015	Spatial autocorrelation model, Hans-Philips linear; spatial dynamic model; spatial 3sls model	negative relationship
Kharusi, S. A., & Ada, M. S. (2018)	Oman. Annual data for the period 1990–2015	Autoregressive Distributed Lag c	Negative relationship
Ncanywa & Masoga (2018)	South Africa. Quarterly time series data over 1995–2016.	Impulse response function, Granger causality, and ARDL	Negative or positive relationship
Shkolnyk & Koilo (2018)	Emerging economies. Annual data for the period 2006–2016.	Multiple regression model	Negative relationship
Thao (2018)	Six ASEAN countries. Annual data over 1995–2015	General Method of Moments (GMM)	Positive relationship
Baharumshah et al., (2017).	Malaysia. Quarterly data over 1980–2014	Markov-switching intercept autoregressive heteroskedasticity error correction model (MSIAH-ECM)	Nonlinear relationship
Chaudhry et al. (2017)	25 developing countries. Annual data over 1990–2014	Fully Modified OLS method	Positive relationship
Chen, Yao, Hu, and Lin (2017)	65 developed and developing economies over 1991–2014	Panel smoothing transition regression (PSTR) approach	Nonlinear relationship
Chiu and Lee (2017)	61 countries. Annual data: 1985–2009	Panel Hausman test	Positive relationship
Chudik, Mohaddes, Pesaran & Raissi (2017)	40 (advanced and developing) countries. Annual data over the 1965–2010 period	Cross-sectionally augmented ARDL (CS-ARDL) and Cross-sectionally Distributed lags (CS-DL)	Negative relationship

(continues)

Table A3. Empirical literature review on the impact of public debt on economic growth (Continued)

Author(s)	Country and data	Methodology	Result
Kim, Ha, and Kim (2017)	77 countries 1990 to 2014	Pooled ordinary least square, fixed effects models and dynamic panel GMM models	Positive relationship
Gómez-Puig & Sosvilla-Rivero (2016).	European Economic and Monetary Union (EMU). Annual data over 1960–2012	ARDL	Negative relationship
Omotosho et al. (2016)	Nigeria. quarterly data: 2005–2015	Threshold Regression	Nonlinear relationship
Owusu-Nantwi & Erickson (2016)	Ghana. Annual data: 1970–2012	Johansen cointegration and the vector error correction	Positive relationship
Siddique et al. (2016)	HIPC countries. Annual data over the period 1970 to 2007	ARDL dynamic panel specification	Positive relationship
Al-Refai (2015)	Jordan. Annual data: 1981 to 1995	OLS	Positive relationship
Blake (2015)	Jamaica. quarterly data from 1990 to 2014	ARDL model	non-linear relationship
Eberhardt & Presbitero (2015)	118 (low-income, lower middle-income, upper middle-income and high income) countries over 1961–2012	ECM specification, with estimates for a standard two-way fixed effects and pooled standard Common Correlated Effects (CCE)	Nonlinear relationship
Gómez-Puig & Sosvilla-Rivero (2015)	EMU-11 peripheral countries Annual data: 1980–2013	Granger-causality breakpoint test by Bai and Perron n (1998, 2003)	Nonlinear relationship
Khursheed and Siddiqui (2016).	South Asian countries. Annual data from 1994–2014.	multiple regression	Positive relationship
Mitze and Matz, 2015	German federal states. Annual data between 1970 and 2010	dynamic error correction models	Negative relationship
Mupunga & Le Roux (2015)	Zimbabwe. Annual data (1980–2012)	Instrumental variable. Threshold approach consistent with the approach of Hansen (1996, 2000).	Nonlinear relationship
Pereima, Merki, and Correia, (2015)	a large sample of 154 countries Annual data: 1996–2012	Threshold multiple panel regression models (TMR).	Negative relationship
Slimani et al. (2015).	Tunisia. Annual data over 1970–2012	quadratic approach regression	Nonlinear relationship

(continues)

Table A3. Empirical literature review on the impact of public debt on economic growth (Continued)

<i>Author(s)</i>	<i>Country and data</i>	<i>Methodology</i>	<i>Result</i>
Baum et al., 2013;	12-euro area countries for the period 1990–2010	dynamic threshold panel	Nonlinear relationship
Szabo (2013)	EU-27 countries	OLS	Negative relationship
Checherita-Westphal & Rother (2012)	12-euro area countries. Annual data over 1970–2009	Instrumental variable (IV), GMM estimator	Nonlinear relationship
Égert (2012)	29 advanced and emerging economies multi-year (5-year, 8-year and 10-year) 1960–2010.	nonlinear threshold models	Nonlinear relationship
Tuffour (2012)	Ghana. Annual data over the period 1970–2009.	Non-linear Least Squares and Two Stage Least Square	Nonlinear relationship
Uzun et al., 2012;	19 transition economies. Annual data: 1991–2009	ARDL	positive relationship
Cecchetti et al. (2011)	18 OECD countries. Annual data from 1980 to 2010	Non-dynamic panel data models with fixed effects	Nonlinear relationship
Abbas & Christensen (2010)	93 low-income and emerging countries. Annual data over 1975–2004	OLS fixed effects, system GMM and pooled OLS regressions	Positive relationship
Kumar & Woo (2010)	38 advanced and emerging economies. Annual data over 1970–2007.	Pooled OLS and BE (between estimator) and d SGMM estimator	Negative relationship
Reinhart & Rogoff (2010)	44 countries spanning up to two centuries of data	Analyze of historical dataset on public (government) debt	Nonlinear relationship
Hassan & Bakar (2008).	Annual data for the period of 1970–2005	Johansen Cointegration Tests. VECM and VAR	Positive relationship
Clements et al. (2003)	55 low-income countries. Annual data: 1970–99	Fixed effects and system General Method of Moments (GMM).	Nonlinear
Pattillo et al. (2002)	93 developing countries Annual data over 1969–1998	Generalized Method of Moments (GMM)	Nonlinear
Iyoha, 1999	50 SSA countries. Annual data over 1971–1994	Simultaneous equations estimated by two-stage least squares	Negative relationship

Appendix 4. Unit roots tests for the per capita real GDP equation

The study used the Ng-Perron (2001) unit root test and the Zivot and Andrews (1992) unit root test to examine the stationarity of variables. The Ng-Perron unit root test does not allow for structural breaks; it is suitable for small samples (Alimi, 2014). However, standard unit root tests may give fallacious results if structural breaks are present in series (Kırıkkaleli and Gökmenoglu, 2020). The Zivot and Andrews test allows structural breaks. It uses three models to test a unit root: (1) the model A, which allows a one-time change in the level of the series, (2) the B model, which allows a one-time change in the slope of the trend function, and (3) the C model, which combines a one-time change in the level and the slope of the trend function of the series. Studies generally use the A or C model (Muhammad et al., 2006). Sen (2003) demonstrated that using Model A when the rupture aligns with Model C results in a substantial loss of power.

However, if the rupture is characterized according to model A, but that the model C is used, the loss of power is minor, which suggests that the model C is superior to model A. Based on these observations, this study used the Model C to analyze unit roots. The Ng-Perron unit root test reveals that $\ln \text{PERCAP}$, $\ln \text{TTDEBT}$, $[\ln \text{TTDEBT}]^2$, $\ln \text{EXDEBT}$, $[\ln \text{EXDEBT}]^2$, $\ln \text{DEBTSERV}$ and $\ln \text{INV}$ are non-stationary at their levels but become stationary in first differences. The variables $\ln \text{DOMDEBT}$, $[\ln \text{DOMDEBT}]^2$ and $\ln \text{LABOR}$ are stationary in level with constant and in trend. The Zivot–Andrew unit root test shows that domestic debt, its square and the labor force are stationary at level $I(0)$, while all other variables became stationary in first difference $I(1)$ in the presence of structural breaks. It emerges from the two-unit root tests above that the variables are integrated in mixed order, i.e. $I(0)$ or $I(1)$. The literature suggests using the autoregressive distributed lag (ARDL) approach for the study of long-run and short-run regressions when a combination of variables integrated at $I(0)$ and $I(1)$ is found.

Appendix 4.1

Table A4. Ng-Perron (2001) unit root test for the per capita real GDP equation

	<i>MZa</i>	<i>MZt</i>	<i>MSB</i>	<i>MPT</i>
	Ng Perron in level			
$\ln \text{PERCAP}$	−8.30677	−1.90157	0.22892	11.3662
$\ln \text{TTDEBT}$	−5.17668	−1.58317	0.30583	17.4900
$[\ln \text{TTDEBT}]^2$	−5.43548	−1.62348	0.29868	16.6824
$\ln \text{EXDEBT}$	−5.52743	−1.60960	0.29120	16.3324
$[\ln \text{EXDEBT}]^2$	−5.83984	−1.65611	0.28359	15.5086
$\ln \text{DOMDEBT}$	−3851.67***	−43.8837***	0.01139***	0.02404***
$[\ln \text{DOMDEBT}]^2$	−732.455***	−19.1354***	0.02613***	0.12681***
$\ln \text{LABOR}$	−27.3623***	−3.61867***	0.13225***	3.78897***
$\ln \text{DEBTSERV}$	−11.8735	−2.30686	0.19429	8.33342
$\ln \text{INV}$	−13.4733	−2.51771	0.18687	7.19258

(continues)

Table A4. Ng-Perron (2001) Unit Root Test for the per capita real GDP equation (Continued)

	<i>MZa</i>	<i>MZt</i>	<i>MSB</i>	<i>MPT</i>
<i>Ng Perron in first difference</i>				
ln TTDEBT	−22.1198**	−3.32261**	0.15021	4.13763
ln TTDEBT	−21.0650**	−3.24412**	0.15401**	4.33343**
[ln TTDEBT)] ²	−22.9118**	−3.38361**	0.14768**	3.98342***
ln EXDEBT	−21.5530**	−3.28264**	0.15231**	4.22864**
[ln EXDEBT)] ²	−23.9800***	−3.46261***	0.14440***	3.80034***
LDOMDEBT	stationary in level			
[ln DOMDEBT)] ²				
ln LABOR				
ln DEBTSERV	−23.8534***	−3.29100**	0.13797***	4.75721**
ln INV	−35.6556***	−4.22224***	0.11842***	2.55599***

*** Significance level of 1 percent, ** Significance level of 5 percent.

Source: Authors' estimations with Eviews 10.

Appendix 4.2

Table A5. Zivo-Andrew unit root tests for the per capita GDP equation

	<i>Level</i>	<i>Break year</i>	<i>1st difference</i>	<i>Break year</i>
LPERCAP	−4.284521	2011	−6.623514***	2011
LTTDEBT	−5.434664**	2007		
[LTTDEBT)] ²	−5.206367**	2007		
LEXDEBT	−7.608777***	2007		
[LEXDEBT)] ²	−6.832901***	2007		
LDOMDEBT	−3.597716	2004	−6.390025***	2010
LDOMDEBTSQ	−3.507517	2004	−6.271650***	2010
LACTIVE	−4.615783	2003	−5.124843**	2013
LDEBTSERV	−3.669153	2008	−6.031958***	2004
LINV	−3.541619	2006	−7.537812***	2004

***Significance level of 1 percent, **Significance level of 5 percent.

Source: Authors' estimations with Eviews 10.

Appendix 5. Generalized ARDL model for the real GDP per capita equation

In reference to Diallo and Fofana N'zué (2021), the generalized ARDL model (p, q) is as follows:

$$Y_t = \alpha_t + \sum_{i=1}^p \delta_i Y_{t-i} + \sum_{i=0}^q \beta_i X_{t-i} \quad (A1)$$

Equation (1) can be expressed as the following ARDL model:

$$\begin{aligned} \nabla \ln PERCAP_t &= \beta_0 + \sum_{i=1}^p \beta_{1i} \nabla \ln PERCAP_{t-i} \\ &+ \sum_{i=0}^{q_1} \beta_{2i} \nabla \ln DEBT_{t-i} + \sum_{i=0}^{q_2} \beta_{3i} \nabla (\ln DEBT_{t-i})^2 \\ &+ \sum_{i=0}^{q_3} \beta_{4i} \nabla LABOR_{t-i} + \sum_{i=0}^{q_4} \beta_{5i} \nabla \ln INV_{t-i} \\ &+ \sum_{i=0}^{q_6} \beta_6 \nabla DEBTSERV + \delta_1 \ln PERCAP_{t-1} \\ &+ \delta_2 \ln DEBT_{t-1} + \delta_3 (\ln DEBT_{t-1})^2 \\ &+ \delta_4 LABOR_{t-1} + \delta_5 \ln INV_{t-1} \\ &+ \delta_6 \ln DEBTSERV_{t-1} \epsilon_{1t} \end{aligned} \quad (A2)$$

where Δ is the first difference operator and the variables are defined above. The parameters δ_1 to δ_6 are the corresponding long-term multipliers, while parameters β_1 to β_6 are the coefficients of short-term dynamics of the underlying ARDL model. A joint significance test which does not imply any cointegration hypothesis ($H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = 0$), unlike the alternative hypothesis

(H_1 : at least one of the Δ is different from zero) is made for the equation (3). The F-statistic is compared to critical limits from Narayan (2005), which are more suitable for small sample observations. If the calculated statistic F is greater than the higher critical bound, the null hypothesis is rejected, indicating that there is a cointegration between the variables. If co-integration exists in the long run, the next step is to estimate the long-run equation. The ARDL (p,q) model can be formulated as:

$$\begin{aligned} \ln percap_t &= \alpha + \beta_1 \ln DEBT_t + \beta_2 (\ln DEBT_t)^2 \\ &+ \beta_3 LABOR_t + \beta_4 \ln INV_t \\ &+ \beta_5 \ln DEBTSERV_t + \mu_t \end{aligned} \quad (A3)$$

Where μ is error term in the long-run, t is time, α is intercept, and β is coefficient. A further step is to estimate the short-run model utilizing the Error Correction Model (ECM). ECM can be expressed as:

$$\begin{aligned} \nabla \ln PERCAP_t &= \alpha + \sum_{i=1}^p \phi_{1i} \nabla \ln PERCAP_{t-i} \\ &+ \sum_{i=0}^{q_1} \phi_{1i} \nabla \ln DEBT_{t-i} + \sum_{i=0}^{q_2} \phi_{2i} \nabla (\ln DEBT_{t-i})^2 \\ &+ \sum_{i=0}^{q_3} \phi_{3i} \nabla LABOR_{t-i} + \sum_{i=0}^{q_4} \phi_{4i} \nabla \ln INV_{t-i} \\ &+ \sum_{i=0}^{q_6} \phi_{5i} \nabla DEBTSERV_{t-i} + \gamma ECT_{t-1} + \epsilon_t \end{aligned} \quad (A4)$$

Where θ and ϕ are the short-run coefficients and γ is the speed of adjustment.

Appendix 6. Results of co-integration tests for the real GDP per capita equation

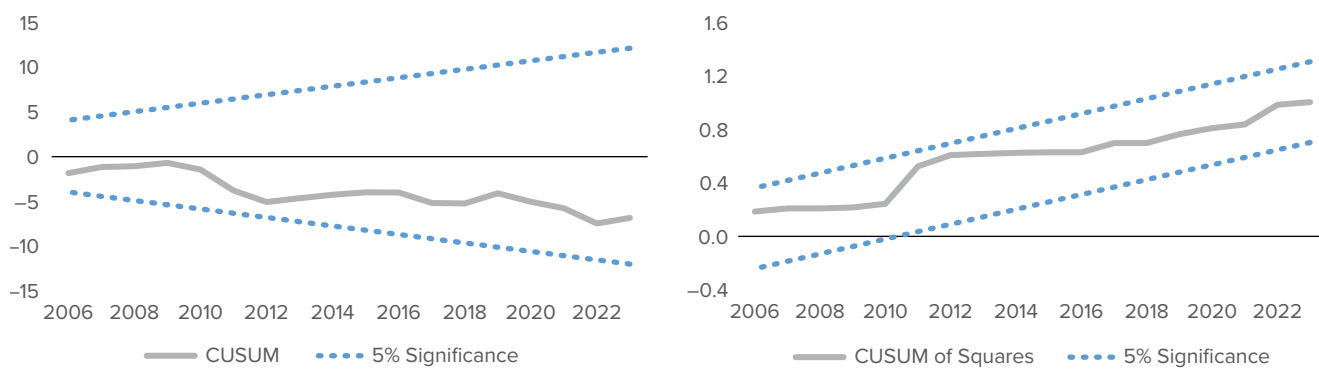
Table A6. Bounds F-statistic test results for real GDP per capita equation

Null hypothesis: No long-run relationships exist	Value	K	Significance	Critical value bounds Narayan (2005)	
Estimated ARDL models and Optimal lag	Value	K			
$F_{\ln \text{PERCAP}} (\ln \text{PERCAP}/\ln \text{TTDEBT}, \ln \text{TTDEBTSQ}, \ln \text{LABOR}, \ln \text{INV}, \ln \text{DEBTSEV}) \text{ARDL}(1, 0, 0, 2, 0, 2)$	4.668014**	5	10 percent	2.407	3.517
$F_{\ln \text{PERCAP}} (\ln \text{PERCAP}/\ln \text{EXDEBT}, \ln \text{TTDEBTSQ}, \ln \text{LABOR}, \ln \text{INV}, \ln \text{DEBTSEV}) \text{ARDL}(1, 0, 0, 2, 0, 2)$	4.426098**	5	5 percent	2.91	4.193
$F_{\ln \text{PERCAP}} (\ln \text{PERCAP}/\ln \text{DOMDEBT}, \ln \text{TTDEBTSQ}, \ln \text{LABOR}, \ln \text{INV}, \ln \text{DEBTSEV}) \text{ARDL}(4, 1, 0, 1, 0, 1)$	6.165909***	5	1 percent	4.134	5.761

Note: ***, ** significance respectively at 1 percent and 5 percent.

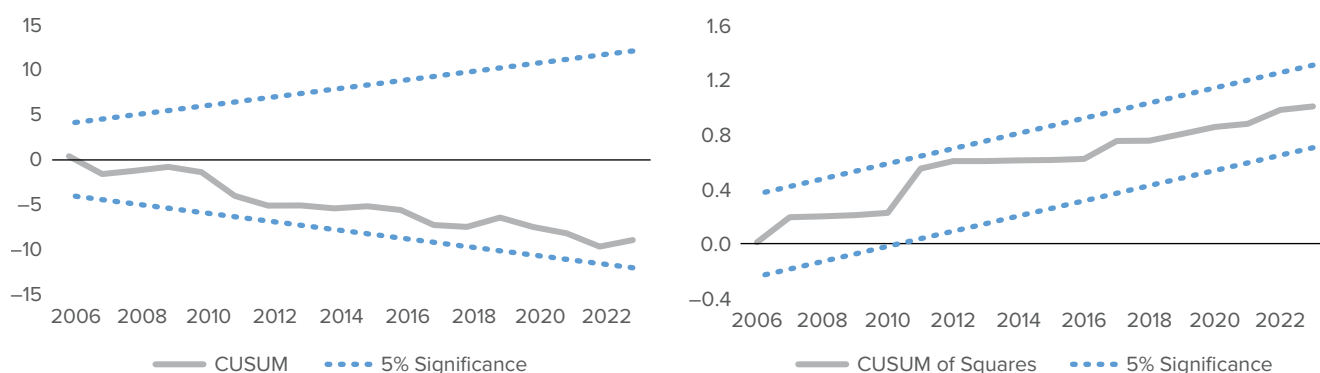
Source: Authors' calculation using Eviews 10.

Appendix 7. CUSUM and CUSUMSQ stability tests (per capita real GDP with total public debt)



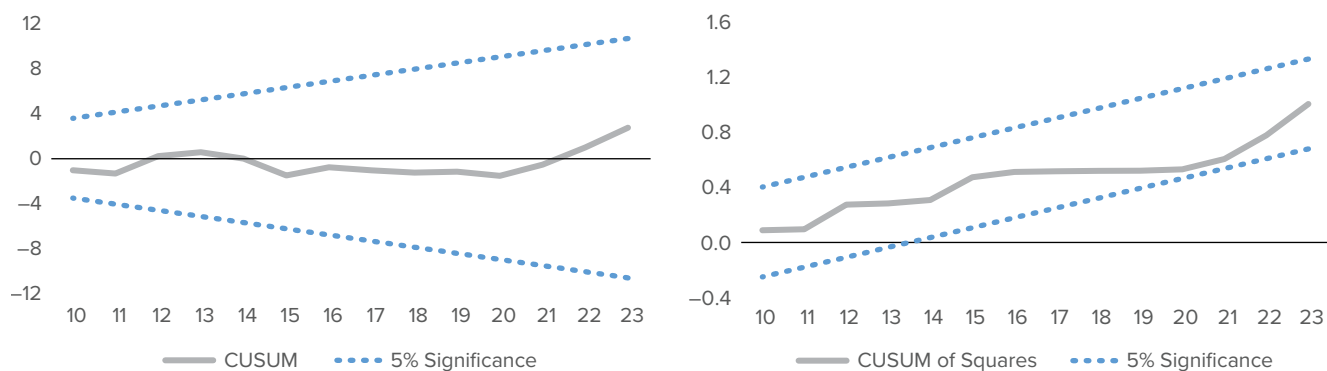
Source : Authors' estimations with Eviews 10.

Appendix 8. CUSUM and CUSUMSQ stability tests (per capita real GDP with external public debt)



Source: Auteurs' estimations with Eviews 10.

Appendix 9. CUSUM and CUSUMSQ stability tests (per capita real GDP with domestic public debt)



Source: Authors' estimations with Eviews 10.

Appendix 10

Table A7. Empirical literature review on the transmission channels of public debt to economic growth Haut du formulaire

<i>Author(s)</i>	<i>Country and data</i>	<i>Methodology</i>	<i>Channel found</i>
Schclarek (2005)	Panel data for 59 developing countries and 24 industrial economies over 1970 and 2002	GMM system.	Capital accumulation
Silva (2020)	Portuguese quarterly external debt data over for 1999–2019	OLS estimation and 2 SLS.	Public and private investment
Pattillo et al. (2004).	Panel data set of 61 developing countries over 1969–1998.	OLS, instrumental variable, fixed effects, differenced GMM and system GMM	Capital accumulation and TFP growth.
Qureshi and Liaqat (2020)	Data for 123 countries for the period 1990–2015.	Panel vector autoregression model.	Savings and investment
Hassan and Meyer (2021)	Annual data for 30 SSA countries over 1985–2019.	GMM model.	Private investment, public investment, TFP and interest rates.
Checherita-Westphal and Rother (2012).	12 Euro zone over 1970–2009. long-term	Dynamic panel models.	Private saving, TFP and public investment
Clements and Krolzig (2003)	55 LICs over 1970–1999.	Fixed effects and GMM system.	Public investment.
Kumar and Woo (2010)	38 advanced and emerging economies over 1970–2007.	Pooled OLS method, between estimators, fixed effects and system GMM.	Labor productivity growth, investments and capital accumulation
Shabbir (2013).	70 developing countries over 1976–2011	Hausman test	Fixed capital formation in the private sector.
Akram (2017)	Sri Lanka over 1975–2011.	ARDL model	Investment.
Bal and Rath (2018)	Indian economy over 1970–2013	ARDL model	Household savings, public investment, and TFP growth.
Beyene and Kotosz (2022)	Highly indebted poor countries (HIPC) over 1990–2017.	Seemingly Unrelated Regression (on) and Simultaneous Equations Models (SEMS)	Human Capital Development (HCD)
Haque et al. (2023)	30 LMICs over 1999–2019.	Two-step GMM	TFP channel

(continues)

Table A7. Empirical literature review on the transmission channels of public debt to economic growth Haut du formulaire (Continued)

<i>Author(s)</i>	<i>Country and data</i>	<i>Methodology</i>	<i>Channel found</i>
Dawood (2024)	32 Asian Developing Economies over 1995–2020.	Two-stage GMM) and a dynamic common correlated estimation (DCCE) model	Private investment, TFP, and national savings
Ebi and Imoke (2017)	Nigeria over 1970–2014.	Error Correction Model	Investment, interest rates and private savings.
Turan & Iyidogan (2023)	53 developing economies	Dynamic panel threshold regression method.	Public investment and private sector credit.
Benayed and Gabsi (2020)	20 LICs in SSA over 2000–2010.	OLS, fixed effects, difference GMM and system GMM.	Credit to the private sector

Appendix 11. Unit root tests for the transmission of the impact of public debt to economic growth

The study used the Ng-Perron (2001) unit root test and the Zivot and Andrews (1992) unit root test to examine the stationarity of variables. Following the explanation in the previous section (appendix 2), this study performed the Ng-Perron test (2001) for the analysis without structural breaks and the Zivot and Andrews (1992) model C to allow structural breaks for stationarity tests. The Ng-Perron unit root test reveals that

$\ln TTDEBT$, $[\ln TTDEBT]^2$, $\ln PRIGDP$, $\ln PBIGDP$, $\ln TRADE$, DCP , $RINT$ and $\ln M2$ are non-stationary at their levels but become stationary in first differences. The Zivot–Andrew unit root test reveals that total public debt, its square, interest rate and broad money are stationary at level $I(0)$, while all other variables became stationary in first difference $I(1)$ in the presence of structural breaks. The structural breaks in total debt and its square occurred in 2007, coinciding with debt cancellation under the HIPC initiative. The ARDL approach is suggested for analyzing long-run and short-run regressions with mixed $I(0)$ and $I(1)$ variables.

Appendix 12.1**Table A8. Ng Perron unit root test for the transmission of the impact of public debt to economic growth**

	<i>MZa</i>	<i>MZt</i>	<i>MSB</i>	<i>MPT</i>
Ng Perron in level				
LPERCAP	−8.30677	−1.90157	0.22892	11.3662
ln TTDEBT	−5.17668	−1.58317	0.30583	17.4900
[ln TTDEBT)] ²	−5.43548	−1.62348	0.29868	16.6824
ln PRIGDP	−11.0003	−2.33171	0.21197	8.35001
ln PBIGDP	−10.7840	−2.13389	0.19788	9.31813
ln TRADE	−11.5337	−2.39249	0.20743	7.94633
DCP	−9.85732	−2.21579	0.22479	9.26280
ln DCP	−9.78161	−2.20625	0.22555	9.33838
RINT	−14.9682	−2.68621	0.17946	6.37279
ln M2	−11.0306	−2.30386	0.20886	8.47827
Ng Perron in first difference				
ln TTDEBT	−22.1198**	−3.32261**	0.15021**	4.13763**
ln TTDEBT	−21.0650**	−3.24412**	0.15401**	4.33343**
[ln TTDEBT)] ²	−22.9118**	−3.38361**	0.14768**	3.98342**
ln PRIGDP	−18.8418**	−3.06934**	0.16290**	4.83635**
ln PBIGDP	−21.4260**	−3.26521**	0.15239**	4.29986**
ln TRADE	−18.0690**	−2.99000**	0.16548**	5.13693**
DCP	−25.4967***	−3.56366***	0.13977***	3.61386***
ln DCP	−24.8266***	−3.51832***	0.14172***	3.69938***
RINT	−17.7990**	−2.98190**	0.16753**	5.12743**
ln M2	−25.7253***	−3.56441***	0.13856***	3.67062***

Appendix 12.2

Table A9. Zivot Andrews unit root test for the transmission of the impact of public debt to economic growth

	<i>Level</i>	<i>Break year</i>	<i>First difference</i>	<i>Break year</i>
LPERCAP	-4.284521	2011	-6.623514***	2011
LTTDEBT	-5.434664	2007		
[ITTDEBT)] ²	-5.206367	2007		
ln PRIGDP	-4.178086	2001	-6.810263***	2001
ln PBIGDP	-3.372353	2018	-7.193766***	2005
ln TRADE	-4.289191	2014	-6.053636***	2011
DCP	-3.707214	2004	-5.960965	2004
ln DCP	-3.765364	2004	-5.809033***	2004
RINT	-6.309416***	2006		
ln M2	-6.030828***	2004		

Appendix 13. Results of co-integration tests for the transmission of the impact of public debt on economic growth.

The results of the Bounds tests indicate a cointegration relationship between the variables, suggesting that they move together in the long run. The values of the calculated Fisher statistic are 10.00, 10.65, 39.72 and 10.49

for the private investment equation, public investment equation, interest rate equation and private sector credit equation, respectively, all exceeding the critical value tabulated by Narayan (2005) at the 1 percent significance level, leading to the rejection of the null hypothesis of no cointegration (table A10). It is therefore concluded that there is a cointegration relationship between the variables included in the model, which means that they move together in the long run.

Table A10. Bounds F-statistic test results for public debt transmission to economic growth

<i>Null Hypothesis: No long-run relationships exist</i>			<i>Significance</i>	<i>Critical value bounds Narayan (2005)</i>	
Estimated ARDL models and Optimal lag	Value	K			
$F_{\ln PRIGDP}$ (ln PRIGDP/ln TTDEBT, ln TTDEBTSQ, ln TRADE, DCP) ARDL(2, 1, 2, 1, 1)	10.00401***	4	1 percent	3.058	4.223
$F_{\ln PBIGDP}$ (ln PBIGDP/ln TTDEBT, ln TTDEBTSQ, ln TRADE, RINT) ARDL(2, 1, 1, 0, 0, 1)	10.64680***	4	1 percent	4.28	5.84
F_{RINT} (ln RINT/ln TTDEBT, ln TTDEBTSQ, ln M2, GDS, DUM2004) ARDL(1, 0, 0, 2, 2, 0)	39.72060***	5	1 percent	2.39	3.38
$F_{\ln DCP}$ (ln DCP/ln TTDEBT, ln TTDEBTSQ, ln M2, ln PRIGDP, ln PERCAP): ARDL(1, 2, 1, 0, 1, 2)	10.48776***	5	1 percent	3.06	4.15

Note: *** show significant 1 per cent level of significance.

Source: Authors' calculation using Eviews 10.

Appendix 14. Generalized ARDL model for the private investment equation.

Equation (12) for private investment can be expressed as the following ARDL model, which will be applied to other transmission channels:

$$\begin{aligned}
\nabla \ln LPRIGDP_t = & \beta + \sum_{i=1}^p \beta_{1i} \nabla \ln PRIGDP_{t-i} \\
& + \sum_{i=0}^{q_1} \beta_{2i} \nabla \ln IIDEBT_{t-i} + \sum_{i=0}^{q_2} \beta_{3i} \nabla (\ln TTDEBT_{t-i})^2 \\
& + \sum_{i=0}^{q_3} \beta_{4i} \nabla \ln TRADE_{t-i} + \sum_{i=0}^{q_4} \beta_{5i} \nabla DCP_{t-i} \\
& + \delta_1 \ln PRIGDP_{t-1} + \delta_2 \ln TTDEBT_{t-1} \\
& + \delta_3 (\ln DEBT_{t-1})^2 + \delta_4 \ln TRADE_{t-1} \\
& + \delta_5 DCP_{t-1} + \varepsilon_{1t}
\end{aligned} \tag{A5}$$

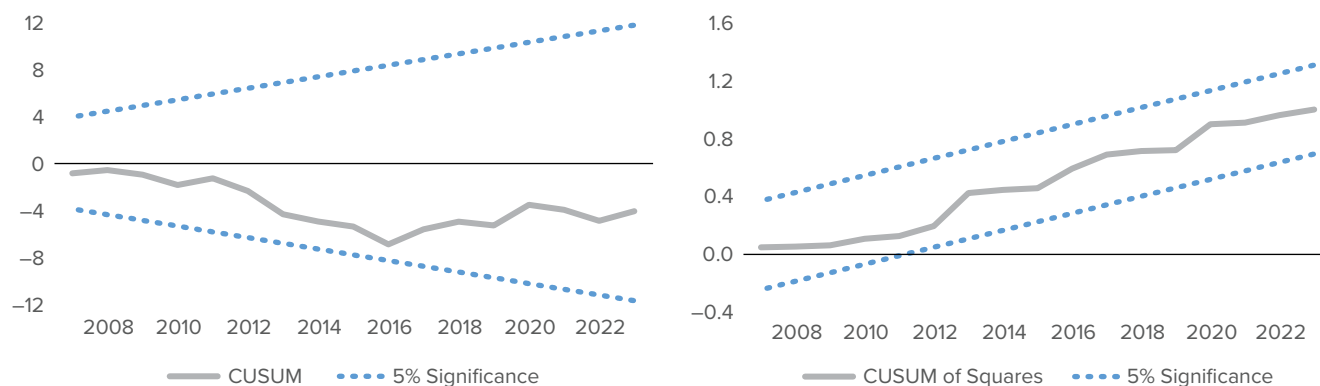
where Δ is the first difference operator and the different variables are defined as before. The parameters δ_1 to δ_6 are the corresponding long-term multipliers, while parameters β_1 to β_6 are the coefficients of short-term dynamics of the underlying ARDL model. We conduct a joint significance test that does not imply a cointegration hypothesis, where

the null hypothesis states that all parameters are equal to zero ($H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = 0$), contrasting with the alternative hypothesis indicating at least one parameter differs from zero (H_1 : at least one of the Δ is different from zero) is made for the equation. As in the previous section, the F Statistic is compared to the critical limits generated by Narayan (2005) to test the null hypothesis. When co-integration exists in the long-run, the next step is to estimate the long-run equation. A further step is to estimate the short-run model utilizing the Error Correction Model (ECM). ECM is provided in the co-integration test previously that can be expressed as:

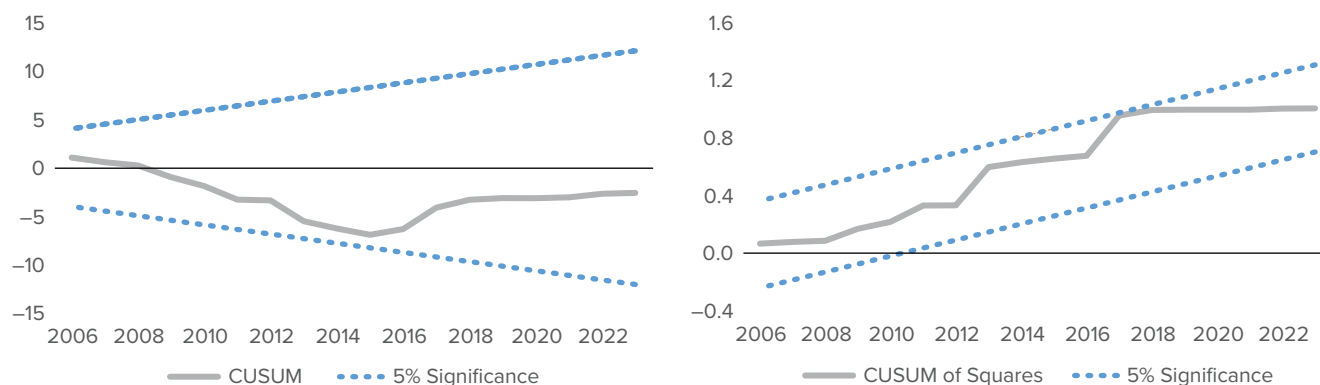
$$\begin{aligned}
\nabla \ln LPRIGDP_t = & \beta_0 + \sum_{i=1}^p \phi_{1i} \ln PRIGDP_{t-i} \\
& + \sum_{i=0}^q \phi_{2i} \ln TTDEBT_{t-i} + \sum_{i=0}^{q_2} \phi_{3i} \nabla (\ln TTDEBT_{t-i})^2 \\
& + \sum_{i=0}^{q_3} \phi_{4i} \nabla \ln TRADE_{t-i} + \sum_{i=0}^{q_4} \phi_{5i} \nabla DCP_{t-i} \\
& + \gamma ECM_{t-1}
\end{aligned} \tag{A6}$$

Where ϕ are the short-run coefficients and γ is the speed of adjustment. The same process can be applied to equations 11, 12, and 13 to estimate their corresponding ARDL model.

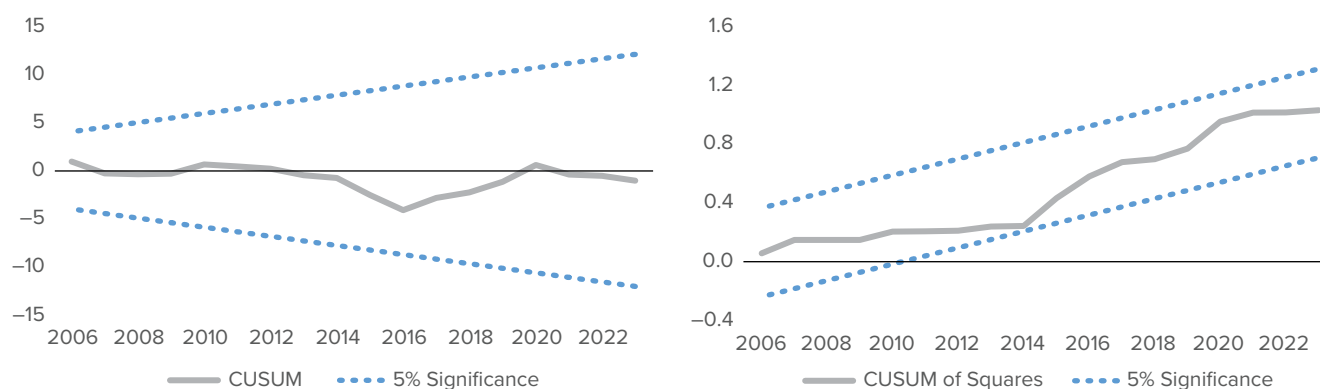
Appendix 15. CUSUM and CUSUMSQ stability tests for private investment equation



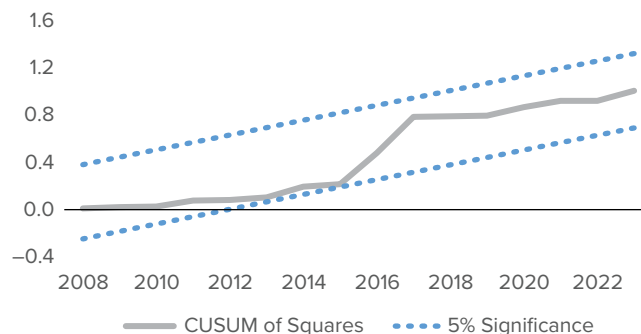
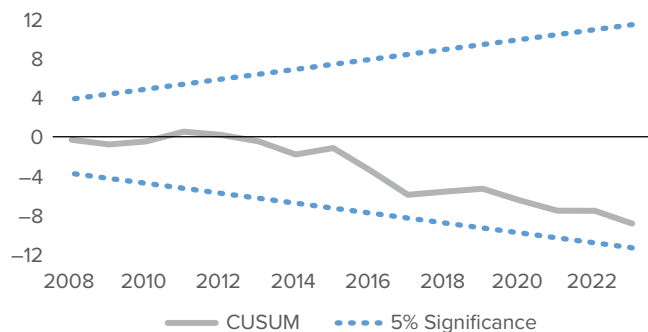
Appendix 16. CUSUM and CUSUMSQ stability tests for public investment equation



Appendix 17. CUSUM and CUSUMSQ stability tests for interest rate equation



Appendix 18. CUSUM and CUSUMSQ stability tests for private sector credit equation



Appendix 19. Long term equation of the impact of external public debt on private investment

$$\ln PRIGDP_t = 18.09 \ln EXDEBT_t \quad (0.00)^{***}$$

$$- 2.31 \ln EXDEBTSQ_t + 2.35 \ln TRADE_t \quad (0.00)^{***} \quad (0.05)^{**}$$

$$+ 0.20 DCP_t - 43.03 \quad (0.01)^{**} \quad (0.00)^{***} \quad (A7)$$

Appendix 21. Long term equation of the impact of external public debt on real interest rate

$$RINT_t = 74.8 \ln EXDEBT_t \quad (0.00)^{***}$$

$$- 10.6 \ln EXDEBTSQ_t - 11.4 \ln M2_t \quad (0.00)^{***} \quad (0.00)^{***}$$

$$- 65.2 \ln PERCAP_t - 585.0 \quad (0.0)^{***} \quad (0.00)^{***} \quad (A9)$$

Appendix 20. Long term equation of the impact of external public debt on public investment

$$\ln PBIGDP_t = 12.81 \ln EXDEBT_t \quad (0.00)^{***}$$

$$- 1.63 \ln EXDEBTSQ_t - 3.45 \ln TRADE_t \quad (0.00)^{***} \quad (0.00)^{***}$$

$$- 0.07 RINT_t - 8.09 \quad (0.0)^{***} \quad (0.23) \quad (A8)$$

Appendix 22. Long-term and short-term equations of the impact of external public debt on private sector domestic credit

$$\ln DCP_t = -1.42 \ln EXDEBT_t + 0.17 \ln EXDEBTSQ_t \quad (0.28) \quad (0.32)$$

$$+ 0.89 \ln M2_t - 0.44 \ln PRIGDP_t \quad (0.00)^{***} \quad (0.00)^{***}$$

$$+ 1.30 \ln PERCAP_t - 10.07 \quad (0.09)^* \quad (0.23) \quad (A10)$$

$$\begin{aligned}
\Delta \ln DCP_t &= -3.13 \Delta \ln EXDEBT_t \\
&\quad (0.00)^{***} \\
&+ 0.40 \Delta \ln EXDEBTSQ_t - 0.02 \Delta \ln EXDEBTSQ_{t-1} \\
&\quad (0.00) \quad (0.00)^{***} \\
&- 0.14 \ln PRIGDP + 0.20 \Delta \ln PERCAP_t \\
&\quad (0.00)^{***} \quad (0.54) \\
&- 0.62 \Delta \ln PERCAP_{t-1} - 0.69 ECT_{t-1} \\
&\quad (0.10)^* \quad (0.00) \quad (A11)
\end{aligned}$$

Appendix 23. Generalized ARDL model for the impact of debt deferral expiry on economic growth

The following ARDL model was specified and estimated to test the cointegration relationship among the study variables:

$$\begin{aligned}
\Delta \ln RGDP &= C_0 + \delta_1 \ln RGDP_{t-1} + \delta_2 \ln EXDEBT_{t-1} \\
&+ \delta_3 \ln DEBTSERV_{t-1} + \delta_4 \ln INV_{t-1} + \delta_5 \ln GOV_{t-1} \\
&+ \delta_6 \ln RINT_{t-1} + \delta_7 \ln IMPOR_{t-1} \\
&+ \sum_{i=1}^p \phi_{1i} \Delta \ln RGDP_{t-i} + \sum_{i=0}^q \phi_{2i} \Delta \ln EXDEBT_{t-i} \\
&+ \sum_{i=0}^q \phi_{3i} \Delta \ln DEBTSERV_{t-i} + \sum_{i=0}^q \phi_{4i} \Delta \ln INV_{t-i} \\
&+ \sum_{i=0}^q \phi_{5i} \Delta \ln GOV_{t-i} + \sum_{i=0}^q \phi_{6i} \Delta \ln RINT_{t-i} \\
&+ \sum_{i=0}^q \phi_{7i} \Delta \ln IMPOR_{t-i} + \epsilon_t \quad (A12)
\end{aligned}$$

where Δ is the first difference operator and the different variables are defined as before. Parameters δ_1 to δ_7 represent the long-term multipliers, while θ_1 to θ_7 indicate the short-term dynamics of the ARDL model. A joint significance test, without implying a cointegration hypothesis ($H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = \delta_7 = 0$), is conducted against the alternative hypothesis (H_1 : at

least one Δ is non-zero). As described previously, the F Statistic is compared to the critical limits generated by Narayan (2005). If the calculated statistic F is greater than the higher critical bound, the null hypothesis is rejected, indicating that there is a cointegration between the variables. Once cointegration is confirmed, the next step involves estimating the long-run equation. A further step is to estimate the short-run model utilizing the Error Correction Model (ECM). ECM is provided in the co-integration test previously that can be expressed as:

$$\begin{aligned}
\Delta \ln RGDP &= \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta \ln RGDP_{t-i} \\
&+ \sum_{i=0}^q \alpha_{2i} \Delta \ln EXDEBT_{t-i} + \sum_{i=0}^q \alpha_{3i} \Delta \ln DEBTSERV_{t-i} \\
&+ \sum_{i=0}^q \alpha_{4i} \Delta \ln INV_{t-i} + \sum_{i=0}^q \alpha_{5i} \Delta \ln GOV_{t-i} \\
&+ \sum_{i=0}^q \alpha_{6i} \Delta \ln RINT_{t-i} + \sum_{i=0}^q \alpha_{7i} \Delta \ln IMPOR_{t-i} \\
&+ \gamma ECT_{t-1} + \epsilon_t \quad (A13)
\end{aligned}$$

Where α_i are the short-run coefficients and γ is the speed of adjustment.

Appendix 24. Unit root tests for the impact of debt deferral expiry on economic growth

The results of the Ng-Perron (2001) unit root test in appendix 17 and the Zivot-Andrew (1992) unit root test allow the use of an ARDL model. Ng-Perron unit root test shows that $\ln RGDP/\ln EXDEBT$, $\ln DEBTSERV$, $\ln INV$ and $\ln IMPOR$ are non-stationary at their levels but become stationary in first differences. $\ln(INTP)$ and $\ln(CPI)$ are stationary at their levels. According to the Zivot-Andrew unit root test, all variables except $\ln(IMPOR)$ became stationary in first difference $I(1)$ in the presence of structural breaks. Thus, it emerges from these two-unit root tests that the variables are integrated in mixed order, i.e. $I(0)$ or $I(1)$. The ARDL approach is recommended for long-run and short-run regressions with variables integrated at $I(0)$ and $I(1)$.

Appendix 25.1

Table A11. Ng Perron unit root for the impact of debt deferral expiry on economic growth

	<i>MZa</i>	<i>MZt</i>	<i>MSB</i>	<i>MPT</i>
Ng Perron in level				
ln RGDP	−9.46405	−2.08351	0.22015	9.99240
ln EXDEBT	−6.50645	−1.76506	0.27128	14.0065
ln DEBTSERV	−11.4208	−2.28286	0.19989	8.50779
RINT	−14.9679***	−2.65947***	0.17768***	1.91907***
ln inv	−13.4733	−2.51771	0.18687	7.19258
ln IMPOR	−11.8177	−2.42928	0.20556	7.71886
ln GOV	−8.89700	−2.10901	0.23705	10.2427
Ng Perron in first difference				
ln RGDP	−23.7657***	−3.44661***	0.14502***	3.83751***
ln EXDEBT	−21.0552**	−3.22351**	0.15310**	4.45361**
ln DEBTSERV	−41.3516***	−4.44886***	0.10759***	2.70844***
ln inv	−35.6556***	−4.22224***	0.11842***	2.55599***
ln IMPOR	−25.9058***	−3.57894***	0.13815***	3.63434***
ln GOV	−42.0220***	−4.54077***	0.10806***	2.38976***

Note: *, ** and *** significant at 10 percent, 5 percent and 1 percent level respectively.

Source: Authors' calculation using Eviews 10.

Appendix 25.2

Table A12. Zivot Andrews unit root test for the impact of debt deferral expiry on economic growth

	<i>Level</i>	<i>Break year</i>	<i>first difference</i>	<i>Break year</i>
ln RGDP	−4.361120	2011	−6.620441***	
ln EXDEBT	−4.383745	2008	−7.139563***	2004
ln DEBTSERV	−3.766334	2008	−6.312913***	2004
RINT	−6.309416	2006		
ln inv	−3.541619	2006	−7.537812***	2004
ln IMPOR	−7.202829***	2017		
ln GOV	−4.699473	2008	−5.596015	2005

Note: *, ** and *** significant at 10 percent, 5 percent and 1 percent level respectively.

Source: Authors' calculation using Eviews 10.

Appendix 26. Results of co-integration test for the impact of debt deferral expiry on economic growth

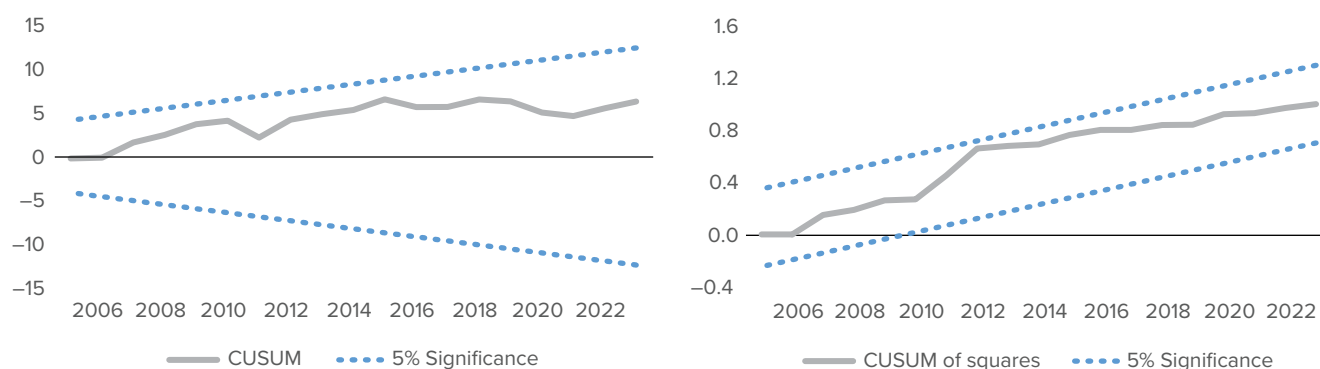
The value of the calculated Fisher statistic is 5.03, greater than the critical value at the 5% significance level. The null hypothesis of no cointegration cannot be accepted. It is therefore concluded that there is a cointegration relationship between the variables included in the equation, which means that they move together in the long run.

Table A13. Bounds F-statistic test results for external debt service's impact on real GDP

<i>Null hypothesis: No long-run relationships exist</i>			<i>Significance</i>	<i>Critical value bounds Narayan (2005)</i>	
Estimated ARDL models and Optimal lag	Value	K	10 percent	2.334	3.515
$F_{\ln \text{RGDP}} (\ln \text{RGDP}/\ln \text{EXDEBT}, \ln \text{DEBTSERV}, \ln \text{INV}, \ln \text{GOV}, \text{RINT}, \ln \text{IMPOR})$ ARDL(1, 0, 0, 1, 0, 1, 1)	4.953453**	6	5 percent	2.794	4.148
			1 percent	3.976	5.691

Source: Author's calculation using Eviews 10.

Appendix 27. CUSUM and CUSUMSQ stability tests for the impact of debt deferral expiry on economic growth



Source: Author's calculation using Eviews 10.



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