INTERNATIONAL MONETARY FUND

IMF Country Report No. 25/261

GUATEMALA

SELECTED ISSUES

September 2025

This paper on Guatemala was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on July 31, 2025.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090
Telephone: (202) 623-7430 • Fax: (202) 623-7201
E-mail: publications@imf.org Web: http://www.imf.org

International Monetary Fund
Washington, D.C.

INTERNATIONAL MONETARY FUND

GUATEMALA

SELECTED ISSUES

July 31, 2025

Approved By
Western Hemisphere Department

Prepared By Carolina Bloch (FAD) and Andrea Paloschi (RES).

CONTENTS

PUBLIC SPENDING ADEQUACY AND EFFICIENCY IN GUATEMALA: SECTORAL GAPS AND PRIORITIES[1]

Guatemala faces the challenge of closing persistent social and infrastructure gaps with one of the lowest public spending levels among developing economies. In 2024, combined spending on education, health, and social assistance remained below 6 percent of GDP, and capital spending reached just 2.4 percent of GDP—levels well below regional and income peers, and inadequate to address structural development constraints. This low level of spending reflects the state's limited capacity to expand service coverage, improve quality, and reduce long-standing disparities in secondary school attendance, maternal and child health, and access to water and sanitation. In support of the government's efforts to improve the quality of spending, this paper provides a preliminary diagnostic of spending adequacy and efficiency in education, health, social assistance, and infrastructure, using an aggregate and sectoral lens, and assessing some of the institutional and PFM constraints hindering the government's capacity to plan, execute and evaluate allocation of public resources.

A. Introduction and Motivation

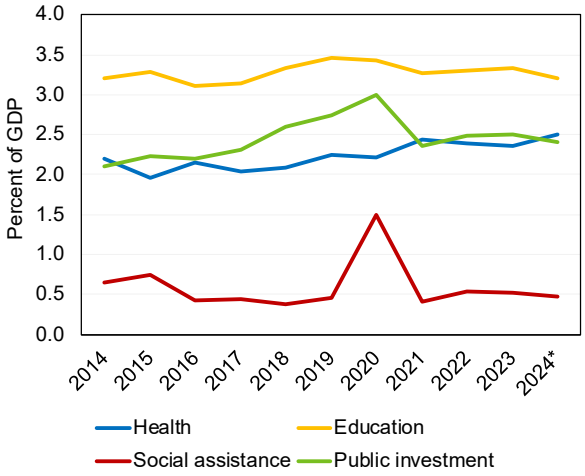
1. Guatemala has maintained a broadly stable macro-fiscal position under a low-revenue, low-spending model. In 2024, general government expenditure stood at just 14.6 percent of GDP in 2024, while revenues were barely above 12 percent. Fiscal space remains constrained, with little prospect of tax reform, and rigidities that severely limit flexibility for reallocating budget resources in response to new policy priorities. Moreover, while prudent macroeconomic management has helped maintain debt sustainability and created buffers that the new administration is seeking to use to increase investment in human and physical capital, a fragmented political landscape in Congress has limited the approval of structural reforms.

2. A historical underinvestment in social sectors has translated into uneven access to essential services and stagnant development outcomes. For over a decade, public spending on education has remained between 3.0 and 3.5 percent of GDP (Figure 1A), health spending between 2 and 2.5 percent of GDP, and social assistance around 0.5 percent (except for an uptick during the COVID-19 pandemic where it tripled); all substantially below regional and income group peers (Figure 1.B). Meanwhile, public investment has averaged just 2.4 percent of GDP, insufficient to close the country's large infrastructure gaps. These persistent shortfalls in social and capital spending have constrained human and physical capital accumulation, reinforced geographic and income-based disparities, and contributed to Guatemala's weak performance on key development indicators—including some of the region's highest rates of stunting, maternal mortality, and school dropout (see section B).

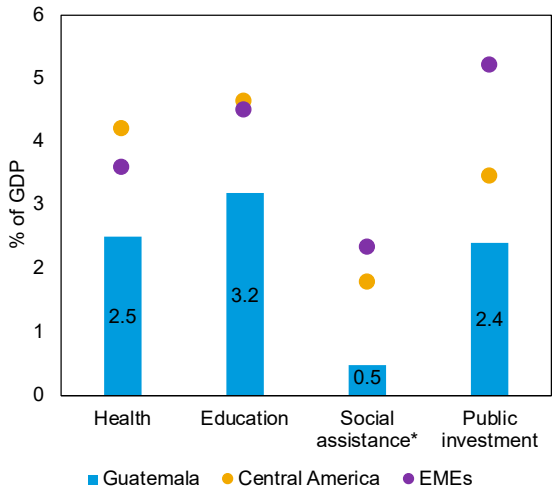
[1] Prepared by an FAD team comprising Carolina Bloch, Mariano Moszoro, Jean-Baptiste Gros, and Marianela Armijo. Research support was provided by Kardelen Cicek and Mengfei Gu. The findings reflect inputs from a scoping mission on public spending review carried out in April 2025.

Figure 1. Evolution of Social Spending and Public Investment Since 2014, and Comparative SDG Performance

A. Evolution of Government Spending on Health, Education and Social Assistance



B. Comparison of Social Spending and Public Investment Against Peers



Source: IMF staff calculations using data from IMF GFS-COFOG, World Bank World Development Indicators, World Bank ASPIRE, UN SDR Report, and Guatemalan authorities

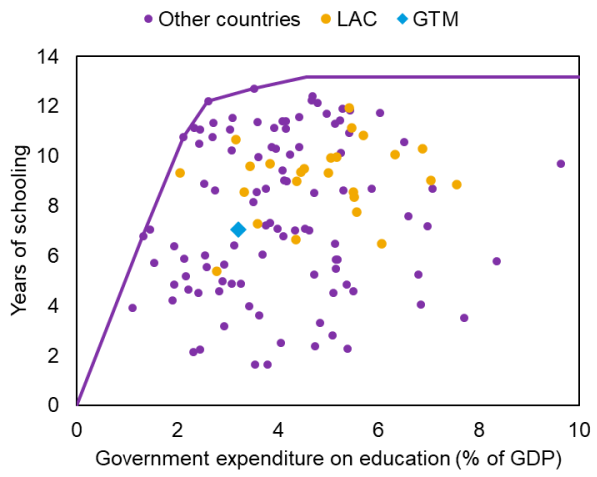
Notes:

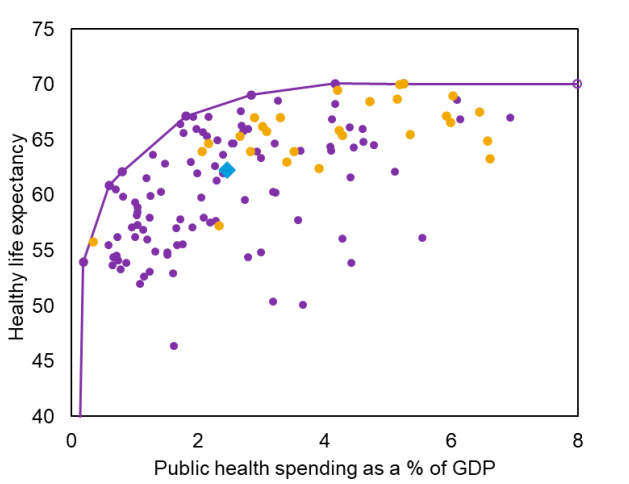
- LAC = Latin America and the Caribbean; EMEs = Emerging Market Economies.
- In panel A, spending numbers for 2024 are based on data provided by the authorities, while numbers for previous years are from IMF GFS-COFOG.
- In panel B, yellow dot represents LAC (and not Central America) for social assistance spending.
- There is some overlap between public investment and public spending on health and education (between 5 and 10% of public investment corresponds to health and education infrastructure).
- Social assistance does not include contributory pensions, unemployment, disability and survivor benefits.

3. Recognizing the persistent gaps in social outcomes, the new administration has demonstrated strong will to improve spending quality and efficiency. The General Government Policy (PGG) 2024-28 identifies as core objectives the expansion of coverage and quality in education and health, the reduction of chronic malnutrition, investments in rural infrastructure, and a more coherent approach to social protection. These priorities are broadly consistent with the longer-term goals set out in the National Development Plan (*K'atun 2032*) and aligned with the SDG framework. Authorities are also aware of bottlenecks related to spending planning, execution and evaluation, and are seeking improvements, including through better planning and prioritization of infrastructure projects and stronger execution capacity at the local level. The government has emphasized the importance of results-based execution and is implementing tools to monitor public spending and institutionalize accountability. These efforts aim to lay the groundwork for a gradual and credible increase in core spending areas without undermining fiscal sustainability; starting with infrastructure, which was largely prioritized in the 2025 budget, but extending to education, health, and social protection.

4. While recent budgets reflect efforts to align spending with development priorities, Guatemala latest data[2] suggest challenges in translating resources into measurable improvements, as illustrated by efficiency frontier analyses. In all four core sectors – health, education, social assistance and infrastructure – Guatemala falls significantly below the efficiency frontier, underperforming in healthy life expectancy, years of schooling, poverty reduction, and infrastructure access (Figures 2.A-2.D). This does not imply that the country is wasting resources, but rather that, with a relatively modest level of spending, it remains far from the results that would be technically achievable. This raises a fundamental question: if spending were to increase gradually between now and 2029 or 2032 (horizon years of the national plans), how could it be used to move closer to that efficiency frontier? As the next sections show, in education, this could mean greater investment in secondary schooling and quality improvements. In health, it could involve strengthening primary care and prevention to reduce avoidable deaths. Countries that have successfully narrowed these gaps have done so by combining incremental increases in spending with institutional reforms that improve the efficiency and equity of service delivery. These frontiers therefore provide a reference point for Guatemala's medium-term strategy to improve outcomes in a fiscally constrained environment. The remainder of this paper uses cross-country benchmarking and distributional analysis to identify options for reallocating and scaling up spending in ways that could bring Guatemala closer to the efficiency frontier, within the bounds of realistic fiscal space. This analysis should support discussions on future spending trajectories, including through the medium-term fiscal framework (MTFP, or MFMP in Guatemala).

Figure 2. Efficiency Frontiers for Health, Education, Social Assistance, and Public Investment

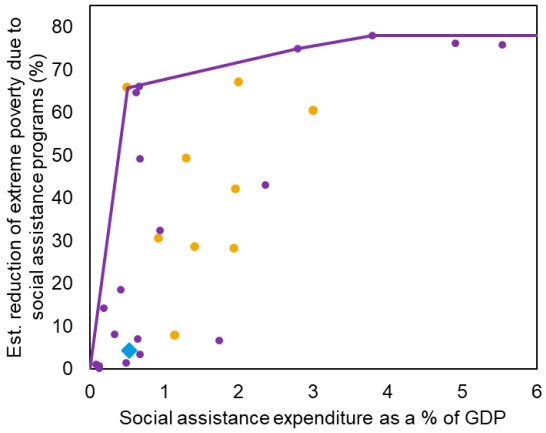




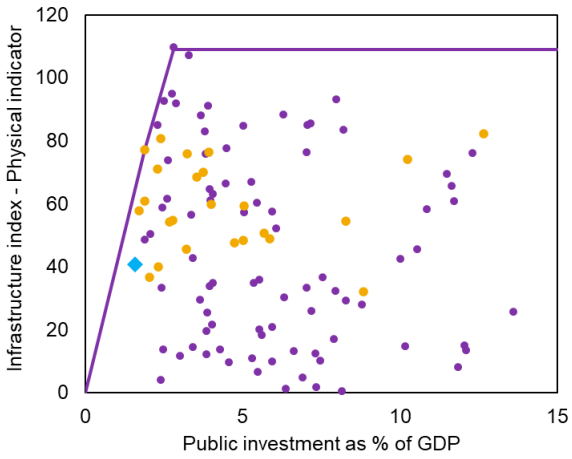
[2] While data related to public spending on each sector by Guatemala are more recent (2024), the latest available on outcomes are from previous years: 2022 for average years of schooling, 2023 for life expectancy, 2023 for the estimated poverty reduction, and 2017 for infrastructure index.

Figure 2. Efficiency Frontiers for Health, Education, Social Assistance, and Public Investment (concluded)

C. Social Assistance Spending vs. Extreme Poverty Reduction



D. Public Investment vs. Physical Infrastructure Index



Source: IMF staff elaboration using data from WB WDI and ASPIRE, UNESCO UIS.Stat, WHO GHE, ENCOVI and IMF Tool for Investment and Efficiency (2021).

Notes:

- *Poverty headcount reduction*: Simulated change on poverty headcount due to social assistance programs. Poverty headcount ratio is the percentage of the population below the extreme poverty line and it is measured assuming the absence of the programs (pre-transfer welfare distribution). Data are calculated using 2023 ENCOVI for Guatemala, and WB ASPIRE for all other countries (average since 2014 to smooth data volatility).
- The physical infrastructure indicator combines data on the volume of economic infrastructure (length of road network, electricity production, and access to water) and social infrastructure (number of secondary teachers and hospital beds). While this indicator provides a sense of the coverage of infrastructure networks and physical output of public investments, it does not fully measure the quality of the infrastructure. For a detailed description of the methodology, see "Making Public Investment More Efficient" International Monetary Fund, 2015.

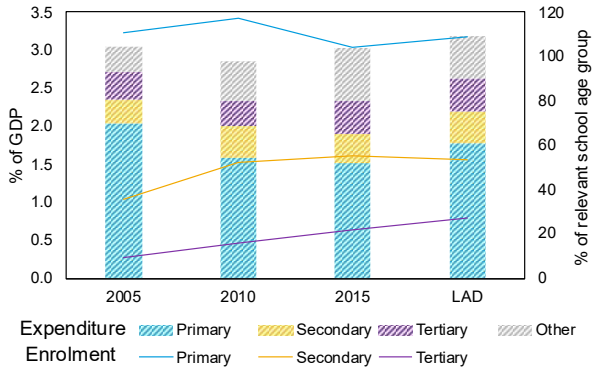
B. Sectoral Adequacy and Efficiency Gaps

Education

5. Addressing persistent gaps in school retention, learning outcomes, and infrastructure has become a central priority for the new administration's education agenda. The government's strategy aims to improve access and quality equity through four flagship actions: school construction and rehabilitation, expansion of early childhood care, implementation of a nationwide maintenance program, and the creation of regional technical institutes. These actions are designed to reverse stagnation in secondary enrolment and reduce geographic and socioeconomic inequities in educational outcomes. While authorities are working to increase retention, coverage remains limited in the context of the estimated 1.7 million secondary school–aged adolescents who remain outside the education system.

6. These ambitious goals contrast with persistently low levels of public education spending and a misalignment between spending patterns and policy priorities. Over the past two decades, education spending has hovered around 3 percent of GDP, well below international benchmarks, and has not been sufficient to support meaningful gains in access or quality (Figure 3). While primary enrolment is near universal, secondary education has seen little progress since 2010, with net enrolment rates stagnating and dropout rates remaining high. At the same time, tertiary enrolment has tripled, despite limited improvements in upper-secondary completion, pointing to growing disparities and inefficiencies in resource allocation. Guatemala's budget structure remains heavily concentrated in primary education, while secondary education is structurally underfunded.

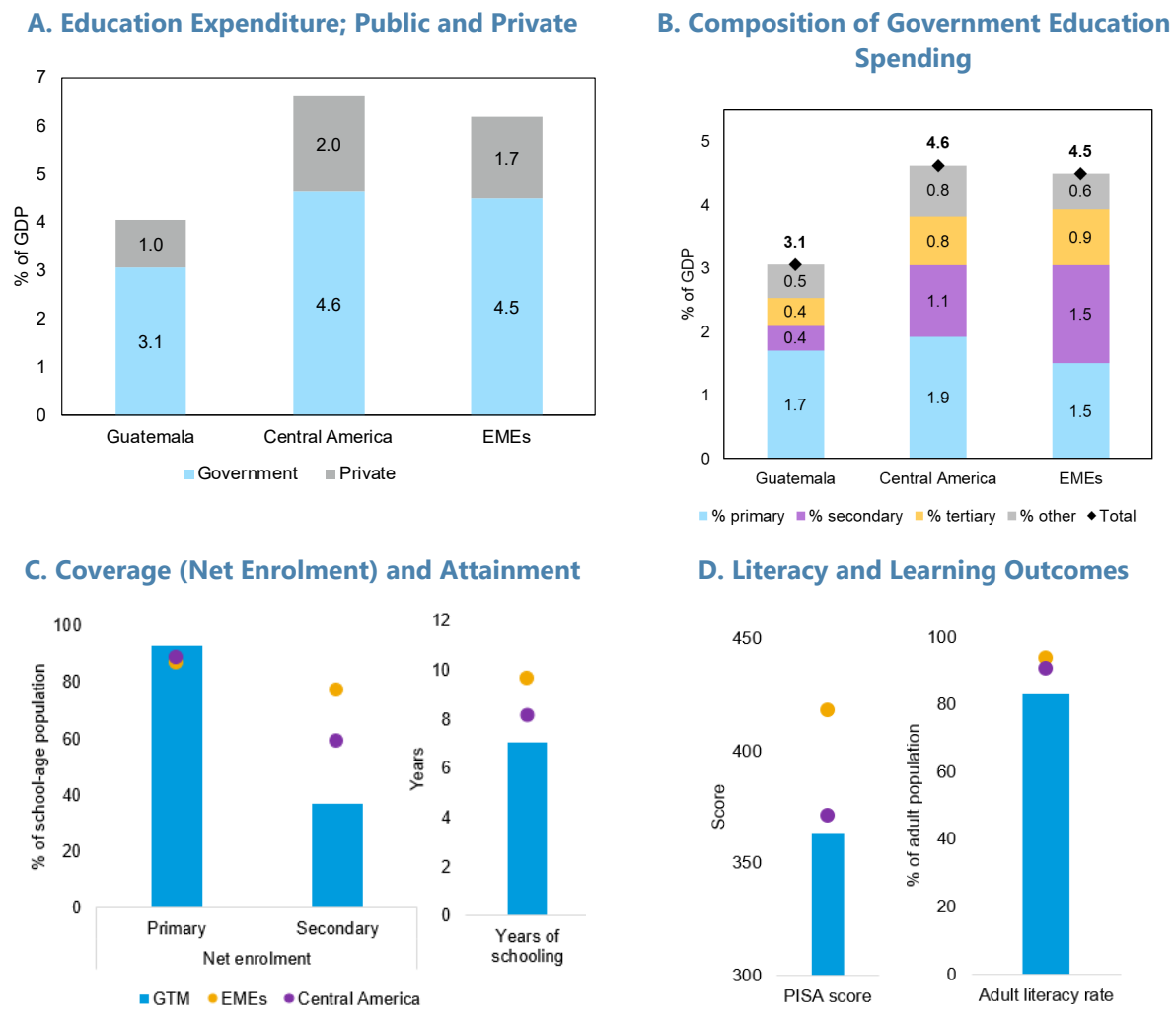
Figure 3. Trends in Education Spending and Enrollment Since 2005



Source: IMF staff calculations using data from UNESCO UIS. Stat, ENCOVI 2023

7. Benchmarking confirms that Guatemala underperforms in secondary education coverage and outcomes, despite comparable primary education indicators. Guatemala's education spending composition skews toward basic education, broadly in line with regional peers. However, it lags behind in secondary school coverage, with less than 40 percent enrolment, and shows comparatively low scores in international assessments such as PISA and lower adult literacy rates (Figure 4). This suggests persistent gaps in both access and learning outcomes. Meanwhile, tertiary education absorbs a share of public spending equal to that of secondary, including due to a constitutional mandate that allocates at least 5 percent of ordinary revenues to the University of San Carlos. While this is not a discretionary policy choice, it underscores broader budget rigidities (see section C) and raises concerns about efficiency and equity, given that access to higher education is concentrated among better-off students.

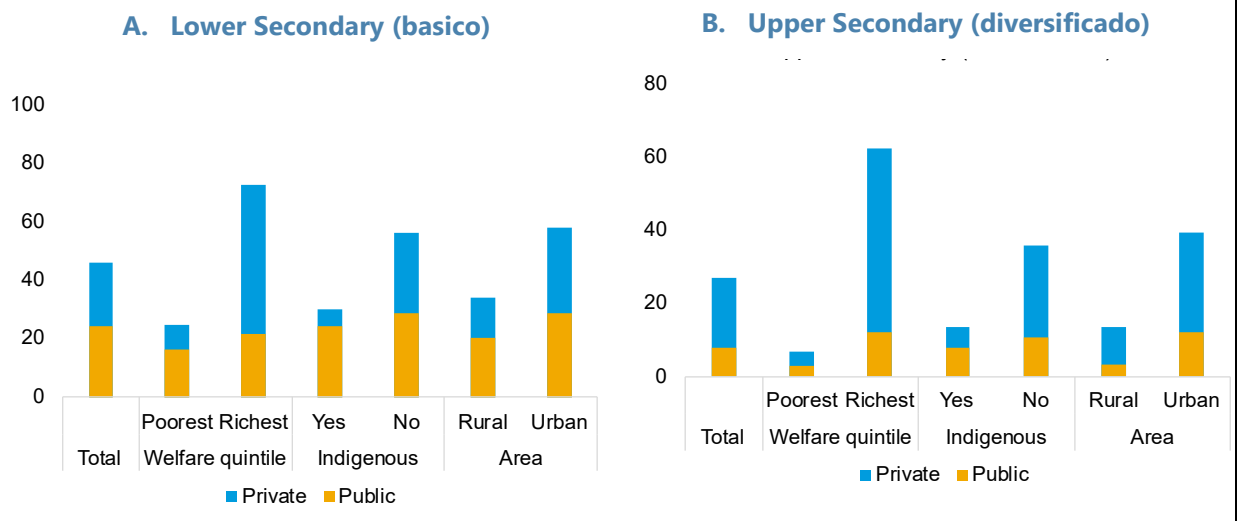
Figure 4. Benchmarking of Education Spending Composition and Outcomes



Source: IMF staff calculations using data from WB WDI, UNESCO UIS.Stat and ENCOVI 2023.

8. Inequities in access are particularly acute at the secondary level, where adolescents from rural, poor, and indigenous backgrounds are disproportionately excluded. Less than half of adolescents aged 12-15 attend lower secondary school, and fewer than one in three aged 15-18 continue to upper secondary education. Net attendance rates from the 2023 ENCOVI survey show that public spending at this level mostly benefits students from wealthier households who are more likely to remain in school (Figure 5). These distributional imbalances reduce the redistributive impact of education spending.

Figure 5. Net Attendance Rates in Secondary School



Source: IMF staff calculations using data from ENCOVI 2023.

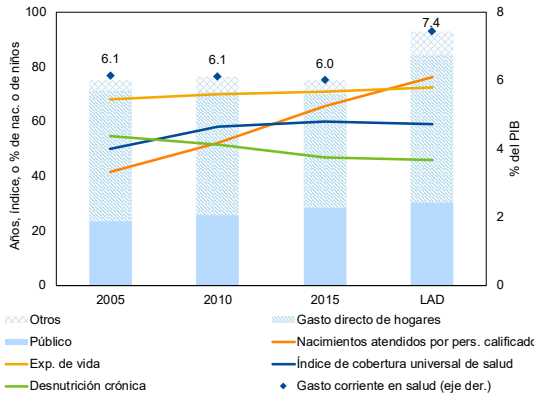
9. The government has acknowledged the challenge and outlined strategies to improve secondary school retention, but implementation remains at an early stage. National plans include measures to improve information systems, assess infrastructure gaps, and better deploy teachers. However, these initiatives are still limited in scale, and cost-effective solutions, such as introducing secondary shifts in existing primary schools or subsidizing transportation, have yet to be rolled out. In parallel, scholarship programs for secondary students remain modest in reach. These disparities also have broader implications for education policies and labor market inclusion: programs such as tertiary scholarships or youth employment subsidies disproportionately benefit those who complete secondary school, reinforcing regressive patterns. Strengthening retention will require not only scaling up promising interventions but also reprioritizing spending to target the most underserved students.

Healthcare

10. Expanding access to health services and addressing territorial inequalities are central to the Guatemala's health policy agenda. Despite some progress in health indicators, large gaps persist—particularly in maternal and child health and chronic malnutrition. In response, the PGG 2024–28 and the Ministry of Health's (MSPAS) institutional plan outlines a vision to expand coverage through the primary healthcare network (RISS), improve infrastructure and human resources, and enhance access to essential medicines. While detailed data on primary care allocations remain difficult to track due to the large number of executing units and overlapping activities, available evidence points to recent increases in budget allocations for key infrastructure investments, including in community health centers and hospitals. At the same time, strengthening the composition of spending to appropriately staff and equip primary care centers and improving rural service delivery are critical to achieve SDG 3 on health and well-being.

11. With only modest increases in public spending on healthcare, Guatemala's health system remains constrained by structural underfunding that limit progress toward universal coverage and effective improvements in population health. Increase in health expenditure has been largely driven by households direct spending (out-of-pocket) rather than government financing. The universal health coverage (UHC) index, which combines 14 tracer indicators of service coverage such as maternal and child health, incidence of diseases, service capacity and access, increased from 50 in 2005 to 58 in 2010, but remains at that level since then, reaching only 59 in 2021. The resulting picture in terms of outcomes is mixed. Trends since 2005 show that over the last two decades there has been some progress in raising life expectancy (Figure 6), which is currently at a level expected for its' GDP per capita. The share of births attended by skilled staff has significantly increased since 2005, but trends hide a temporary fall during the pandemic. Stunting rates have only seen modest decreases in the past 20 years. This suggests that, although the country is not so lagging in overall health, there are significant deficiencies in essential services, particularly those affecting women and children in vulnerable areas.

Figure 6. Trends in Health Spending and Outcomes since 2005

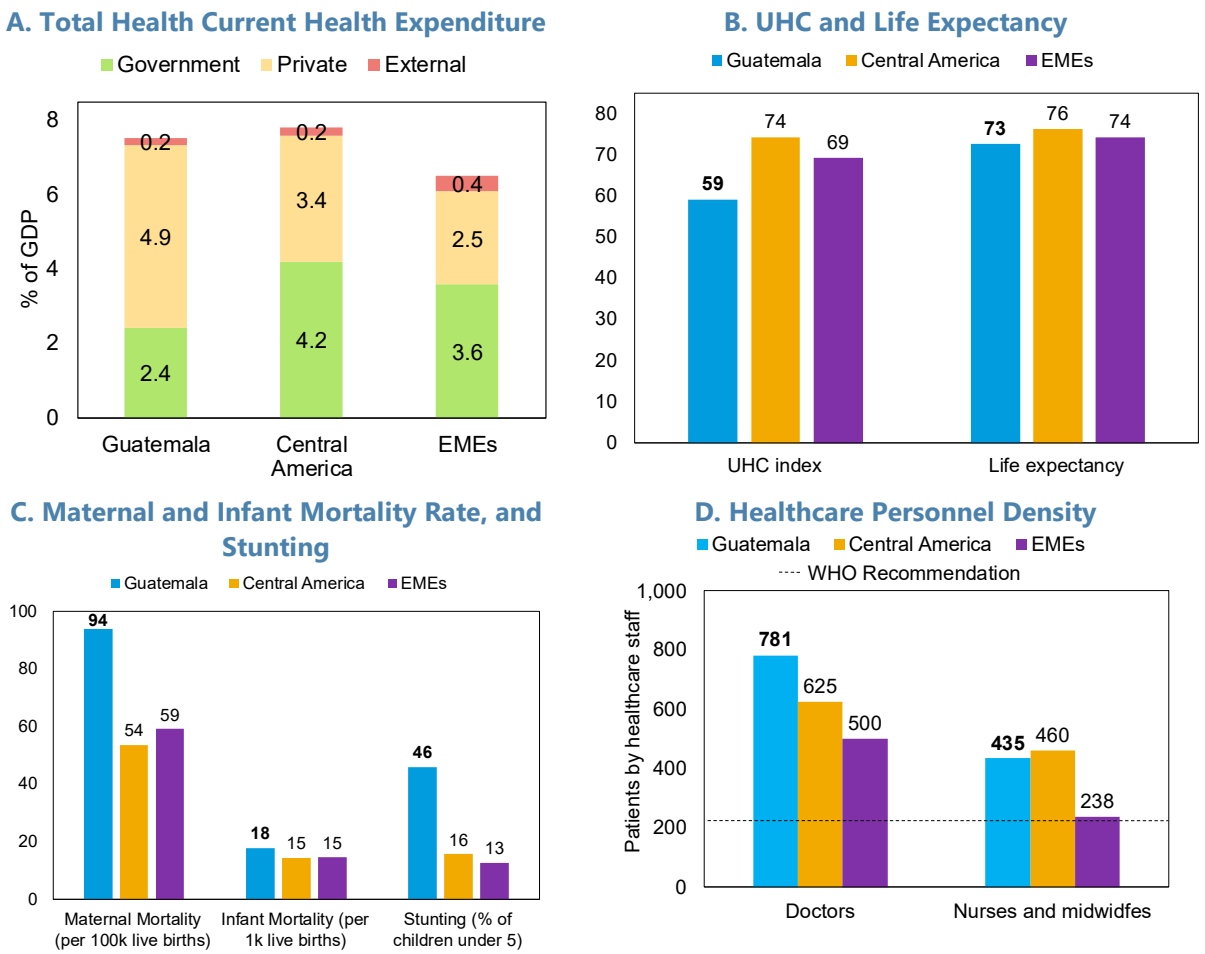


Source: IMF staff calculations using data from WB WDI, WHO GHE and Guatemalan authorities.
Note: Latest available data are from 2022 for health expenditure, 2023 for life expectancy, 2021 for UHC Index and stunting rates, and 2017 for births attended by skilled staff.

12. Healthcare financing in Guatemala relies heavily on household out-of-pocket spending, which has implications for service coverage and improvement of health outcomes. Public general government health spending was only 2.4 percent of GDP in 2022, significantly below the average for Central America (4.2 percent) and EMEs (3.6 percent) (Figure 7.A). Total health spending is comparable to regional peers only due to high levels of private out-of-pocket spending (4.9 percent of GDP), which exposes households to financial risk. Pharmaceuticals remain a key driver: a highly concentrated market, high prices, and uneven public availability leave many relying on private pharmacies. While recent reforms, such as centralized procurement through MSPAS and the expansion of *farmacias populares* (PROAM), aim to reduce costs and improve access, implementation is still at early stages, and market concentration remains a barrier.

13. Health outcomes reflect these systemic financing and delivery gaps. The UHC index remains below the regional average, while healthy life expectancy trails Central America and EMEs by 6-8 years (Figure 7.B). Maternal mortality is persistently high, with levels 30-50 percent above peer countries, and nearly half of children under five are chronically malnourished (Figure 7.C). These outcomes step from constrained service delivery, including a shortage of trained personnel (Figure 7.D) and insufficient infrastructure. Many rural health posts are staffed by auxiliary nurses with limited training, while advanced services are concentrated in Guatemala City. Cultural and logistical barriers also contribute to low service uptake, with more than one-third of births still occurring at home with *comadronas*. These gaps are particularly pronounced in rural and indigenous communities, underscoring the need for stronger investment in frontline care and more equitable resource distribution.

Figure 7. Benchmarking of Health Spending, Financing and Outcomes



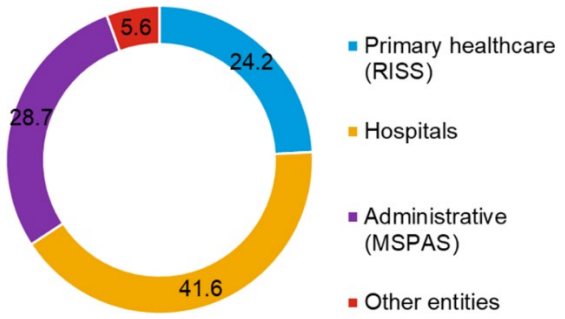
Source: IMF staff calculations using data from WB WDI and WHO GHE.
Note:

- Personnel density combines public and private health sector staff.
- Latest data available for Guatemala are 2022 for spending (other than public, which is from 2024), UHC index, and human resources; 2023 for life expectancy and mortality rates; and 2021 for stunting.

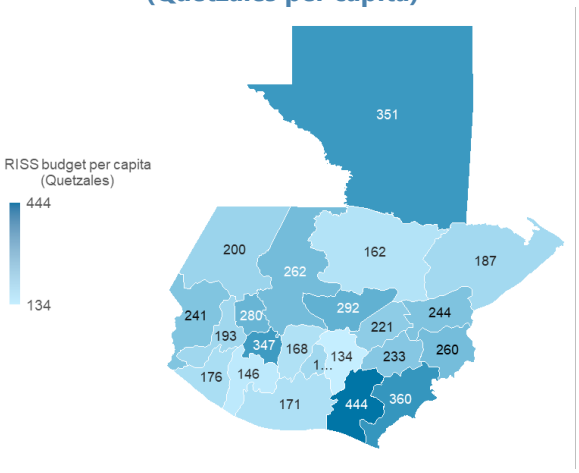
14. Budget allocations are skewed towards hospitals and administrative operations, with limited resources directed toward primary healthcare (PHC). The 2025 MSPAS budget allocates around one-fourth of resources to the *Redes Integradas de Servicios de Salud* (RISS), Guatemala's PHC network (Figure 8.A). While the exact calculation of PHC spending is complex and may not be fully reflected solely in RISS spending, estimates suggest that Guatemala's spending allocates around 0.6 percent to PHC (below the WHO's recommended 1 percent). This is problematic because the most urgent challenges, such as maternal mortality and chronic malnutrition, require interventions in primary care, prevention, and community visits. RISS budget is also unevenly allocated across the territory: Alta Verapaz, the poorest department in the country, receiving 162 Quetzales per capita (while the capita national average is Q213 per capita), while others like Santa Rosa have an allocation of Q444 per capita (Figure 8.B). Meanwhile, hospitals absorb over 40 percent of the health budget, of which a third goes exclusively to the two large urban hospitals, Roosevelt and San Juan de Dios. Despite MSPAS's institutional plan identifying primary care, maternal and child health, and indigenous health as core priorities, these areas remain underfunded. Rebalancing health spending toward prevention, frontline services, and underserved regions will be essential to improve equity and cost-effectiveness.

Figure 8. Health Budget Composition and PHC Spending per Capita

A. 2025 Health Budget Composition (percent of budget)



C. PHC Spending by Department (Quetzales per capita)



Source: IMF staff elaboration using MSPAS 2025 budget data.

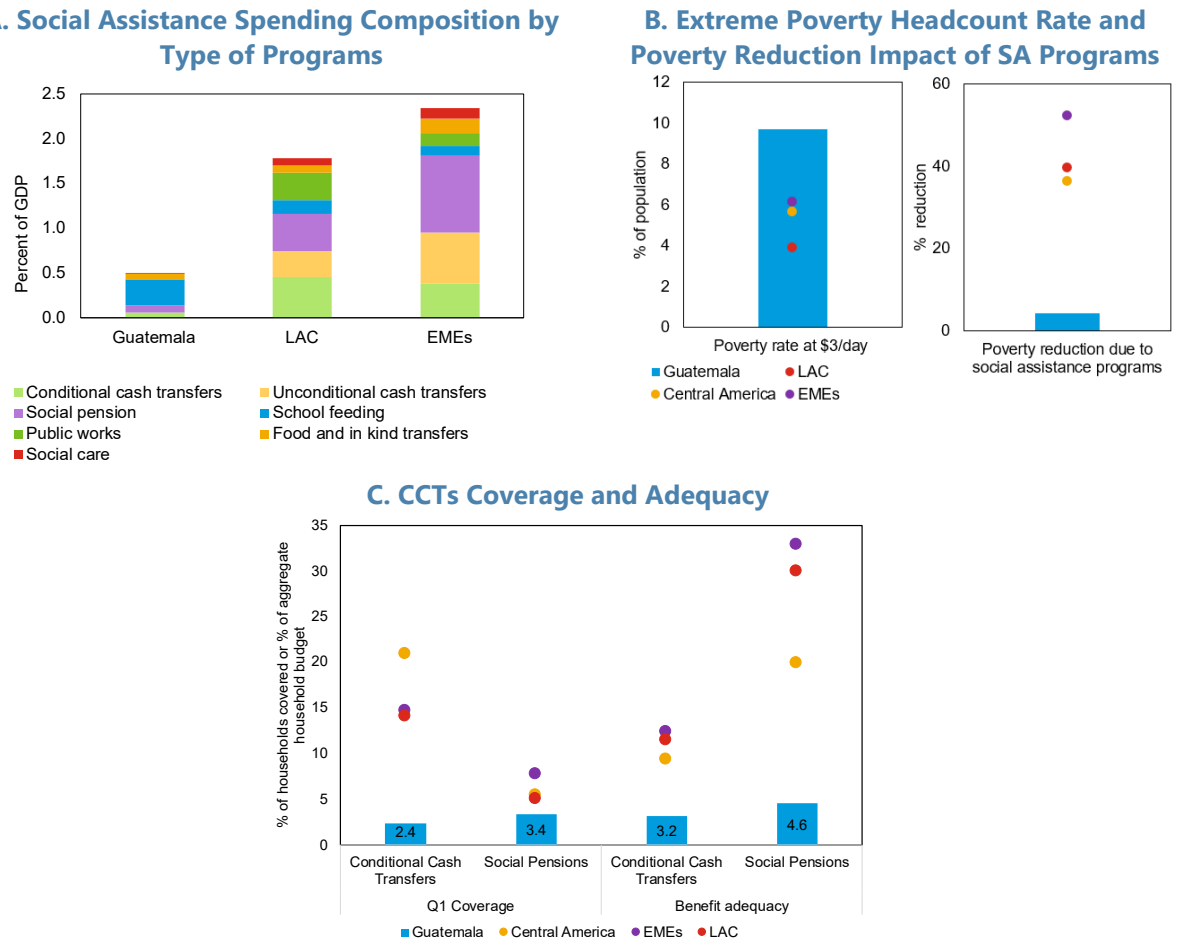
Social Assistance

15. The Guatemalan government has placed renewed emphasis on social protection to reduce chronic poverty and food insecurity. The PGG 2024-28 and MIDES's institutional plan emphasize the expansion of conditional cash transfers (CCTs), the institutionalization of the *Registro Social de Hogares* (RSH; Guatemala's social registry) as the main targeting tool, and the operationalization of the Mano a Mano strategy. Key programs include the Bono Social (Q500 monthly to poor households with children or prenatal needs) and the Bolsa Social (Q250 monthly for food insecure households in Guatemala City). While coverage remains limited, it is increasing: by mid-2024, CCT beneficiaries more than doubled, and the government targets 500,000 by 2027. The RSH is central to this effort, aiming to replace legacy targeting mechanisms with a unified,

transparent system. The government also plans to scale up nutritional and early childhood interventions through improved coordination with MSPAS and SESAN, focusing on municipalities with high incidence of stunting and poverty. Despite these ambitions, structural and institutional constraints, especially budget rigidity and operational fragmentation, continue to hinder implementation at scale.

16. Despite recent institutional progress, Guatemala's social assistance system remains underfunded, fragmented, which in turn limits its impact. At just 0.6 percent of GDP, spending on social assistance is roughly one-third of the LAC average and one-quarter of that of EMEs (Figure 9.A). This low spending is spread across a fragmented set of programs, reducing the scale and effectiveness of individual interventions – particularly conditional cash transfers and social pensions. As a result, social assistance reduces poverty by less than 5 percent in Guatemala, compared to 35–50 percent in peer countries (Figure 9.B). Even among the poorest households, only 2-4 percent receive conditional cash transfers, compared to 10-20 percent in the region (Figure 9.C).

Figure 9. Benchmarking of Social Assistance Spending, Coverage and Adequacy Against Peers

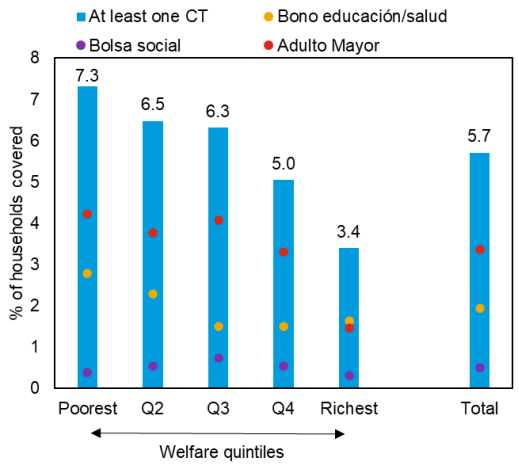


Note: In the first panel, LAC is used as a comparator as there are not enough data points for Central America on the WB ASPIRE database.
Source: IMF staff calculations using data from WB ASPIRE, ENCOVI 2023 and Guatemalan authorities.

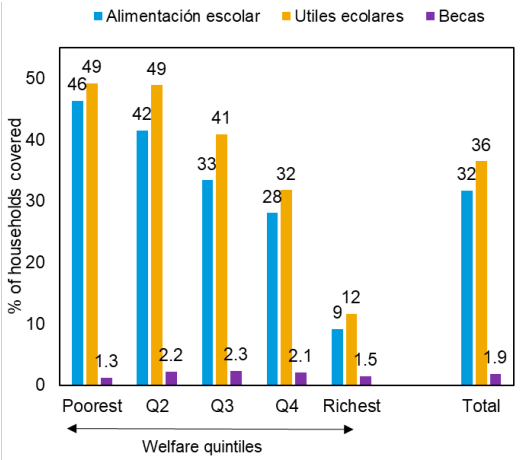
17. Poverty levels in Guatemala remain high despite the existence of social assistance programs, in part because these programs operate at limited scale and with weak targeting performance. As of 2023, only about 3 percent of households received support from either Bono or Bolsa Social, with departmental coverage ranging from less than 1 percent in Escuintla and Sacatepéquez to nearly 7 percent in Chiquimula (Figures 10.A and 10.D). Alta Verapaz, where over 50 percent of the population lives in extreme poverty, has similar coverage levels as less vulnerable departments. Moreover, coverage is only marginally higher among the poorest quintile (3 percent) than the richest (2 percent), underscoring issues in targeting efficiency. Similar inefficiencies are found in the *Adulto Mayor* pension, which reaches just 16 percent of poor elderly, while a significant share of beneficiaries fall outside this group. Educational support programs (e.g., school feeding and materials) show broader coverage but limited targeting precision, and scholarships remain minimal and regressive (Figure 10.B).

Figure 10. Social Assistance Programs Coverage, Adequacy and Targeting

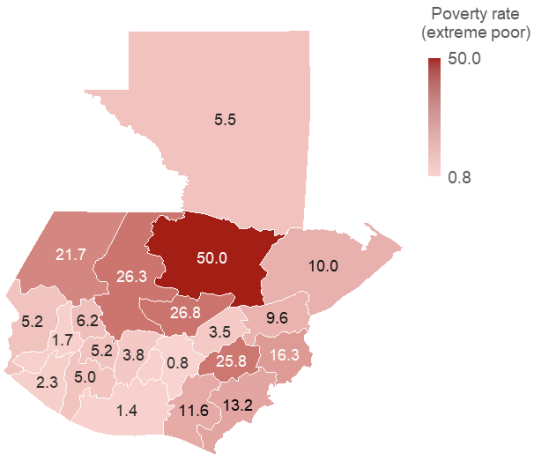
A. Coverage of Cash Transfers by Welfare Quintile



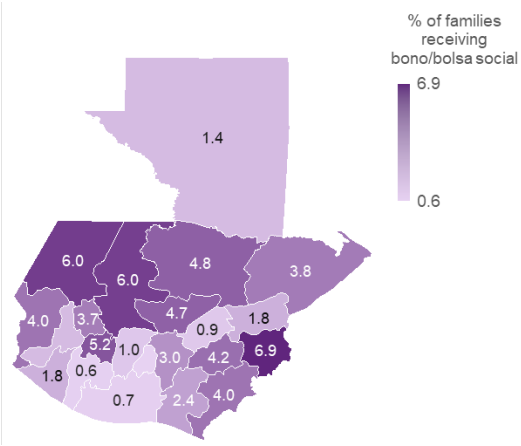
B. Coverage of Educational Support Programs by Welfare Quintile



C. Poverty Incidence by Department



D. Coverage of Bono or Bolsa Social by Department



Source: IMF staff calculations using data from ENCOVI 2023 and Guatemalan authorities.

18. The authorities are pursuing several reforms to strengthen social assistance, including the development of a social protection strategy, and the coordination of core programs under the Mano a Mano initiative. Central to these is the institutionalization and scale-up of the RSH, which aims to replace legacy registries with a unified, transparent, and standardized beneficiary identification system. By mid-2024, over 200,000 households had been registered, with a goal of reaching 500,000 by 2027, prioritizing 114 high-poverty municipalities. The RSH uses a proxy means test supplemented by two additional indicators and has already helped reduce the time for beneficiary onboarding from up to two years to a few months. It has supported the inclusion of 24,000 new Bono Social beneficiaries and enabled a rapid expansion of Bolsa Social. However, institutional barriers remain: the RSH lacks a formal legal framework, faces interoperability issues with other registries (e.g., RNB, RENAP, MSPAS databases), and is limited by local implementation and payment delivery constraints. The Mano a Mano strategy seeks to integrate programs across seven vulnerability dimensions using the RSH, but further clarification is needed on its territorial implementation. Overall, institutionalizing a coherent national social protection system will require a robust policy framework, improved program coordination, and further investment in operational and digital infrastructure.

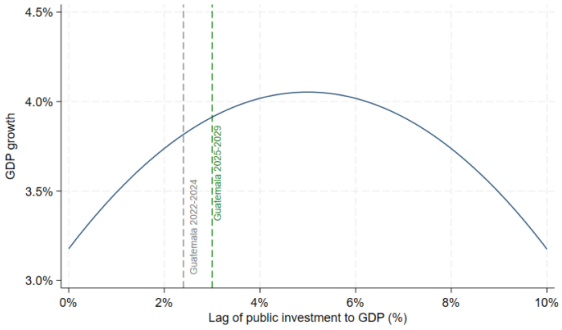
Infrastructure

19. Infrastructure has emerged as a central pillar of Guatemala's development strategy, with a stronger political commitment to scale up investment and improve budget execution. Capital allocations in the 2025 budget increased by over 50 percent from 2024 spending, reaching about 3.8 percent of GDP. Recent government strategies place strong emphasis on infrastructure, particularly in areas such as roads, electrification, transport modernization, and logistics. Institutional plans (e.g., MICIVI and SEGEPLAN) also outline planned reforms in water, sanitation, and energy. While this signals a break with past underinvestment, long-standing weaknesses in capital spending, particularly around planning, coordination, and execution, pose significant risks to implementation and are discussed further in this section.

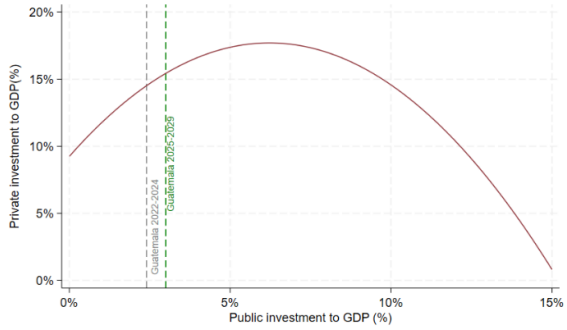
20. While political momentum and budget allocations have increased, capital investment levels remain well below what is needed to drive sustained growth. Despite recent efforts to increase it, Guatemala's public investment averaged just 2.4 percent of GDP between 2022 and 2024 and is projected to reach 3 percent by 2025-29. This remains significantly below the estimated 5-6 percent of GDP required to maximize GDP growth and crowd in private investment, as suggested by panel regression estimates (Figures 11.A and 11.B). The country's persistently low capital stock continues to hinder service delivery and economic diversification, especially in rural and indigenous areas where access to water, sanitation, and electricity remains limited.

Figure 11. Estimated Optimal Public Investment Against GDP Growth and Private Investment

A. Public Investment and GDP Growth



B. Public Investment and Private Investment

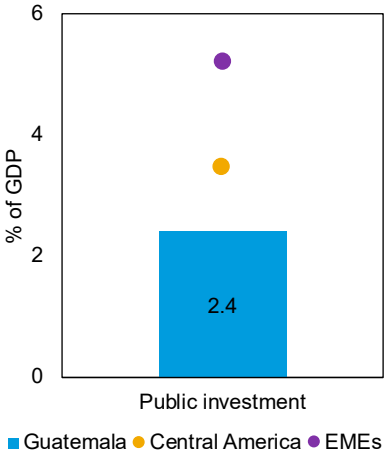


Note: Panel A shows the results of a panel regression of real GDP growth on lagged public investment as a percentage of GDP, while Panel B presents the results of a panel regression of private investment as a percentage of GDP on public investment as a percentage of GDP, both with country fixed effects. The sample includes Guatemala and four comparable countries: El Salvador, Honduras, Nicaragua, and Panama. The period analyzed is 1990–2019.
Source: IMF staff elaboration using data from the IMF's 'Investment and Capital Stock Database'.

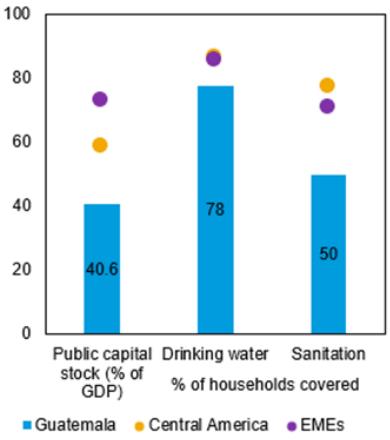
21. These historical shortfalls in investment are also reflected in persistent infrastructure gaps relative to regional peers. In 2024, Guatemala's capital spending stood at just 2.4 percent of GDP, below Central American average and less than half of that of other EMEs (Figure 12.A). Years of underinvestment have eroded the quality of infrastructure, with the public capital stock amounting to only 41 percent of GDP, compared to 60 to 80 percent in similar countries (Figure 12.B). The World Bank's Systematic Country Diagnostic highlights that Guatemala's infrastructure quality has declined since 2015, reinforcing a structural weakness in capital formation. Key infrastructure services such as drinking water and sanitation remain underprovided, with the latter reaching just half the population, far below the 70 percent benchmark in similar economies.

Figure 12. Benchmarking of Public Investment Spending and Key Related Outcomes

A. Public Investment as a Share of GDP



B. Capital Stock and Basic Infrastructure Coverage

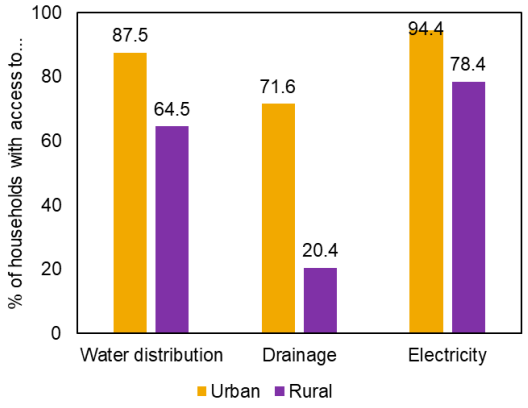


Source: IMF staff calculations using data from IMF WEO, EAT, and ENCOVI 2023.

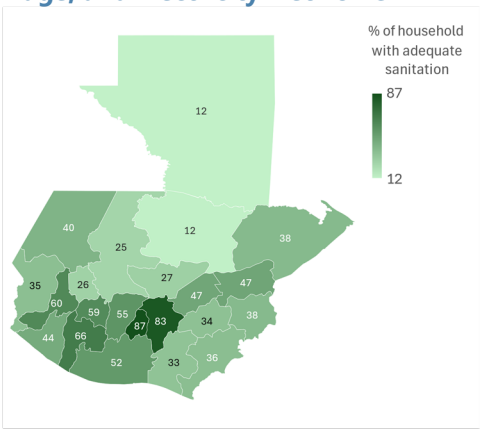
22. National gaps are compounded by deep territorial disparities and weak implementation capacity. Rural households are far less likely to be connected to essential services, with only 20 percent accessing drainage networks and significant lags in water and sanitation (Figure 13.A and 13.B). These gaps reflect not only historical underinvestment but also weak local capacity and budget execution. In 2024, only half of the transport budget and less than 20 percent of the energy budget were executed (Figure 13.C). Subnational execution rates varied widely, from 49 to 68 percent across departments, due to institutional and PFM weaknesses (Figure 13.D). Transfers to local development councils (CODEDEs) are substantial and growing, but have not consistently translated into effective service delivery amid concerns over political interference and fragmented oversight (ICEFI, 2024). Although efforts are underway (e.g., UNICEF's support to 22 municipalities and MINFIN's outreach to municipalities on planning and procurement), broader institutional support is needed. Public-private partnerships have had limited success due to weak regulatory frameworks, heavy bureaucracy and insufficient public sector capacity, raising concerns over prioritization and accountability.

Figure 13. Basic Infrastructure Coverage and Budget Execution

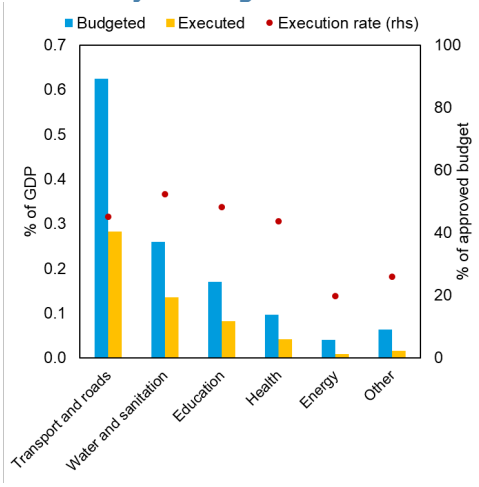
A. Share of Households Connected to Water, Drainage, And Electricity Networks



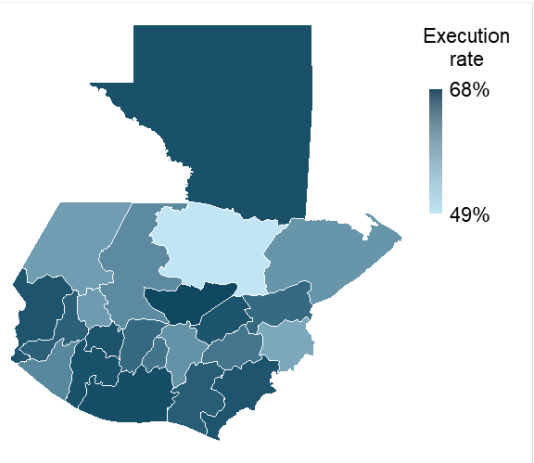
B. Share of Households Connected to Water, Drainage, and Electricity Networks



C. Investment Project Budget and Execution in 2024



D. Execution of the Current Budget for Local Government Investment in 2024



Note: Panel C data comes from SEGEPLAN data on infrastructure projects, which add to only around 0.6 percent of GDP (while total capital spending amounts to 2.4 percent of GDP executed public investment).
Source: IMF staff calculations using data from ENCOVI 2023 and Guatemalan authorities.

23. Addressing these challenges will require a more strategic and coordinated approach to public investment planning, with stronger involvement of MINFIN and SEGEPLAN in the decision-making process. The effective implementation of the government strategy is hindered by the absence of a list of prioritized, quantified projects in planning documents. Furthermore, the selection of multi-year projects requires a clear vision of the envelopes that can be allocated to short- and medium-term investments and suffers from the lack of a strong multi-year fiscal framework. Finally, the dialogue between MINFIN, SEGEPLAN and line ministries during the budget preparation over the status of major projects and investment allocations needs to be stepped up ensuring the financial viability of investment projects and their alignment with government priorities.

24. These planning weaknesses are further exacerbated during the budget approval process, undermining the government's ability to implement priority projects. During legislative discussions to vote on the budget law, new projects are often introduced by Congress without thorough examination or prioritization by the government, often outside the public investment information system (SINIP).[3] This situation creates additional unfunded commitments, putting pressure on financing ongoing projects that have already been prioritized. Moreover, mid-year project addition by MICIVI further complicates the budgetary landscape, making it difficult to maintain a coherent investment strategy (IMF, 2023).

25. Finally, gaps in project monitoring by line ministries lead to inadequate tracking of cost estimates for all priority investment projects in budget documents. The role of SEGEPLAN is crucial to ensure that monitoring, evaluation, reporting, and external communication are effectively carried out. However, the lack of coordination between information systems (SINIP, Guatecompras and SICOIN) severely hinders real-time project monitoring, resulting in missed opportunities for adjustments and improvements. Addressing these issues is essential to fostering a more effective and accountable investment process.

C. Institutional and PFM Considerations for Improving Spending Quality and Efficiency

26. Beyond spending levels, the effectiveness of Guatemala's public expenditure is shaped by how well planning, execution, and evaluation processes function. Structural weaknesses across these dimensions constrain the impact of public investment and social spending. As discussed in the previous sections, the limited resources that Guatemala has invested in health, education, social assistance and infrastructure have not consistently translated into improved service delivery or outcomes, highlighting institutional challenges in aligning plans, budgets, and results. Moreover, structural constraints such as fiscal rigidity and limited governability severely affect the government's leeway to design and implement expenditure policy. Addressing these challenges will require strengthening coordination between the main public finance and planning institutions –

[3] In 2023, Congress added Q499 million in projects, which represented 11 percent of the investment projects included in the budget bill presented by the Executive (see IMF's PIMA – CPIMA for Guatemala, 2023).

MINFIN, SEGEPLAN and Congress – to reinforce accountability mechanisms and ensure that spending on priority areas delivers concrete results.

27. One underlying factor is the weak implementation of Guatemala's results-based budgeting model, which hinders the government's ability to track progress and improve the effectiveness of public spending. Despite having adopted a results-based budgeting approach over a decade ago, its application remains fragmented and disconnected from decision-making. Many institutions define annual output indicators and targets for budget programs, but these are rarely linked to outcomes or used to assess progress towards priority results indicators outlined in the PGG. Planning and budgeting tools operate in silos, and execution reports often focus on activity levels rather than whether spending is contributing to close actual service gaps. For instance, the Ministry of Health reports how many women receive prenatal care, but does not assess whether services reach the priority population or improve maternal health outcomes. As a result, there is little visibility on whether public resources are translating into tangible progress. These shortcomings reflect institutional fragmentation, insufficient integration between SEGEPLAN and MINFIN, and a lack of clarity on how performance data should inform fiscal decisions. Reviewing and strengthening the results-based budgeting model (e.g., through clearer responsibilities, better data systems, and more consistent use of results information in the entire budget process) will be essential to improve accountability and policy effectiveness.

28. Beyond the limitations of results-based budgeting, broader disconnects persist between development plans and budget allocations, which remain largely incremental. Despite the existence of comprehensive planning instruments such as K'atun 2032, the PGG 2024–28, and sectoral strategic institutional plans (PEIs), Guatemala still struggles to translate strategic objectives into concrete resource allocation. Allocations continue to rely heavily on historical trends and input targets, with little reference to coverage goals, cost structures, or performance indicators. For example, while the PGG identifies priority sectors and defines strategic results, these are not linked to program-level budget ceilings or systematically aligned with the financing needs of vulnerable populations. The case of nutrition illustrates this disconnect: despite the existence of a national strategy (POASAN) and coordination through CONASAN, allocations to high-need municipalities under the child malnutrition program declined from 31 percent in 2019 to just 11.5 percent in 2025. These gaps reflect broader challenges in operationalizing development plans through the budget and underscore the need to strengthen planning-budget linkages and accountability for results.

29. The limited integration of planning and budgeting also undermines the effectiveness of Guatemala's medium-term expenditure frameworks. Instruments such as the Medium-Term Fiscal Framework (MFMP) and the multiannual budget process have been introduced to guide fiscal policy and spending priorities, but their use remains largely procedural rather than strategic. In most cases, expenditure projections are based on baseline adjustment (e.g., salary or inflation growth) and not on a rigorous costing of sectoral strategies or expected changes in service delivery. For instance, while the MFMP defines general fiscal policy guidelines based on national plans such as K'atun 2032 and the PGG, it does not quantify policy goals or assess their consistency with fiscal projections; in

practice, expenditure paths are shaped more by inertia and rigidities than by a systematic assessment of financing needs or policy priorities. Strategic results outlined in the multiannual budget, such as targets for 2029, are not clearly costed or accompanied by the resources and institutional reforms needed for their achievement. Efforts are underway to improve the realism and coherence of the MFMP (authorities are starting by aligning revenue paths with tax policy and revenue administration measures) – but institutional fragmentation, weak monitoring capacity, and the lack of enforcement mechanisms still limit the framework's credibility. A more functional medium-term framework would require reconciling technical and political priorities, validating sectoral results and spending paths jointly with line ministries, and ensuring that resource allocations reflect measurable efforts to close coverage and quality gaps in priority sectors.

30. Rigid budget structures and weak execution practices further undermine the strategic allocation of public resources. MINFIN estimates that 93 percent of the 2025 budget is considered "rigid", tied to earmarked revenues, legal mandates, or pre-existing commitments such as public sector wages and pensions. A large share of these rigidities stems from constitutional or legal provisions, such as institutional contributions and transfers. In practice, this limits the government's ability to shift spending toward underfunded programs or to scale up initiatives that show promising results. These rigidities are compounded by politically driven reallocations during both budget approval and execution. For instance, the 2025 budget includes an extraordinary increase for local development councils (CODEDEs) of around 0.5 percent of GDP, in part accommodated by reallocating funds away from education, labor, and agriculture (ICEFI, 2024).[4] These ad hoc changes weaken the coherence of the budget, often reflect political rather than technical considerations, and raise concerns about their impact on service delivery. Although the Organic Budget Law provides rules for budget modifications (Article 32, Decree 101-97), and PEFA standards stress the need for limits and consistency, administrative reallocations remain broad and largely discretionary. Strengthening ex-ante controls and improving transparency around budget modifications could enhance the credibility and strategic orientation of the budget.

31. Finally, the absence of a robust framework for evaluating results limits the government's ability to assess the effectiveness of public spending. Despite over a decade of efforts to implement results-based budgeting, there is still no institutionalized process to evaluate whether programs achieve their intended outcomes. Targets and indicators exist for several priority areas, but are rarely accompanied by baseline data, cost-effectiveness analysis, or mechanisms to track progress against coverage gaps. In particular, Guatemala lacks a monitoring system that links budget execution to progress on strategic PGG goals such as reductions in maternal mortality, chronic malnutrition, and implementation of the "Mano a Mano" strategy. Under the current framework, results monitoring is expected only at the end of the PGG period in 2029, with no intermediate assessments of deviations in budget allocations, underexecution, or performance

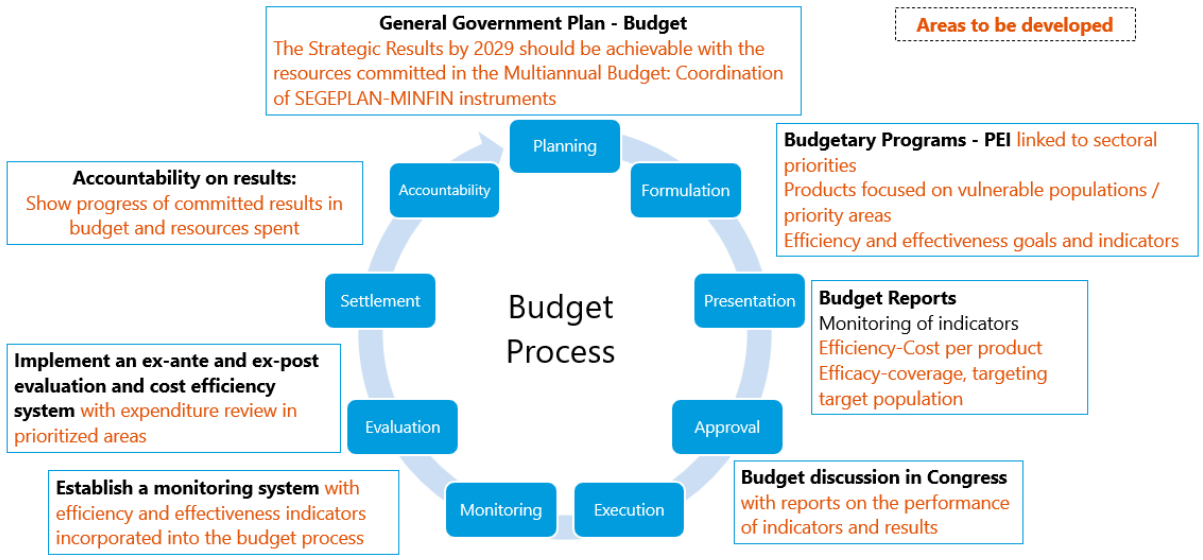
[4] The authorities note that the 2025 allocation increase to CODEDEs is part of constitutionally mandated transfers, which make up only 11.8 percent of the approved budget. Therefore, such allocations are not necessarily politically motivated.

against targets.[5] This reflects a broader evaluation weakness—performance data is rarely used to inform budget decisions. International experience shows that ministries of finance play a central role in institutionalizing tools and processes to improve the quality of public spending, including top-down strategies to guide budget formulation, the use of ex-ante and ex-post evaluations, and regular spending reviews to inform reallocations and strengthen accountability.

32. Building on recent reform momentum, Guatemala now has an opportunity to advance toward a more results-oriented and efficient public spending system. The authorities have stepped up efforts to strengthen local public investment planning and execution through CODEDEs, improve transparency and fiscal forecasting (e.g., by revising the MFMP), and enhance performance monitoring through results-based budgeting. While these reforms have often operated in silos or at a pilot level, they provide an important foundation for a more coherent and impact-oriented expenditure system. The constitutional and legal framework already assigns key roles to SEGEPLAN for evaluation and to MINFIN for budget integration. In line with Article 35 of the Organic Law of the Executive, MINFIN and SEGEPLAN also share responsibility for defining the policies guiding the formulation, prioritization, evaluation, and selection of investment projects and programs to be executed with domestic and external resources, creating an opportunity to embed these practices across government. There is also clear interest from the authorities in advancing a results-based execution approach, and early steps have been taken. However, to achieve the ambitious targets outlined in the PGG and in the multiyear budget through 2029, it is essential to develop an actionable implementation strategy. This should include updating baselines, reviewing and sequencing expected results for 2026-29, aligning these with realistic expenditure projections, and clearly assigning responsibilities across relevant ministries and programs. Weak implementation capacity (reflected by limits in both physical and financial execution) in key institutions such as MICIVI currently threatens the achievement of these goals. Institutionalizing a results-oriented budgeting culture, anchored in stronger data systems, clearer accountability, and strategic leadership from the MINFIN, will be essential to translate reform efforts into lasting improvements in spending quality, service delivery, and development outcomes. Figure 14 illustrates how these reform priorities can be embedded across the stages of the budget process and highlights areas for further development to improve the quality and effectiveness of public spending.

[5] There has recently been a partnership signed with J-PAL to evaluate *Mano a Mano*.

Figure 14. Budget Process and Quality of Public Expenditure

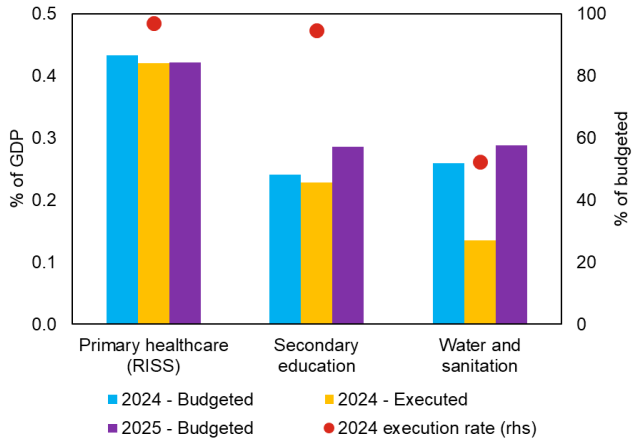


Source: Authors' elaboration based on exchanges with Guatemalan authorities.

D. Conclusion

33. Guatemala has launched several promising initiatives to improve the quality and efficiency of public spending, which now need to be consolidated and institutionalized. The government has taken important steps to improve the alignment of public spending with national priorities, paving the way for a more strategic approach to spending allocation. There are growing opportunities to build on recent initiatives such as strengthening local investment planning through CODEDEs, improving transparency and fiscal forecasting via the MFMP, and enhancing performance monitoring through results-based budgeting. While these reforms have often operated in silos or at a pilot level, they provide an important foundation for a more coherent and impact-oriented expenditure system. The 2025 budget also signals commitment to increasing resources to key development areas such as secondary education and water and sanitation. However, as shown in Figure 15, the persistent gap between budgeted and executed spending, especially in infrastructure, underscores a core challenge: adequacy alone is not enough. Without stronger institutional capacity to implement and monitor public programs, increased allocations may not translate into better outcomes.

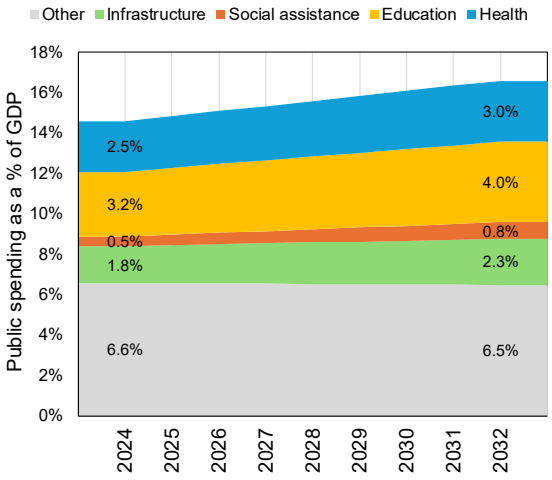
Figure 15. Budget Allocation and Execution, Selected Areas



Source: IMF staff calculations using data provided by the Guatemalan authorities.

34. More broadly, Guatemala faces a dual challenge: mobilizing additional fiscal space while improving the efficiency of existing spending. As Figure 16 illustrates, even a gradual reallocation of 2 percentage points of GDP toward priority sectors over the next decade could accelerate progress toward the development goals set for 2029 and 2032, and move Guatemala closer to performance frontiers in education, health, and infrastructure. Guatemala's current spending levels remain well below those typically achieving the SDG targets. Closing this gap will require not just higher spending, but a more effective use of resources, supported by realistic costing exercises, credible fiscal frameworks, and coherent development strategies.

Figure 16. Illustrative Public Expenditure Paths for Guatemala Between 2024 and 2032



Source: IMF staff calculations using data from Guatemalan authorities and IMF.

35. While fiscal space may take time to materialize, efforts to evaluate the effectiveness of existing programs should begin now. Strengthening the link between spending and results through systematic spending reviews and a reviewed results-based budgeting model can help ensure that any additional resources are directed toward interventions with the highest social returns. Institutionalizing spending evaluations, such as through a value-for-money function in the MINFIN, could help address this gap. The Directorate of Fiscal Policy Analysis (DAPF) is well positioned to lead this agenda, fostering collaboration across ministries and aligning expenditure more closely with sectoral strategies and national development objectives.

References

Besley, T., & Persson, T. (2009). *The origins of state capacity: Property rights, taxation, and politics*. American Economic Review, 99(4), 1218–1244.

Besley, T., & Persson, T. (2010). *State capacity, conflict, and development*. Econometrica, 78(1), 1–34.

Centro de Investigaciones Económicas Nacionales (CIEN). (2024). *Análisis del Proyecto General de Ingresos y Egresos del Estado: Ejercicio Fiscal 2025*.

Gobierno de Guatemala. (2022). *Ministerio de Comunicaciones, Infraestructura y Vivienda – Plan Estratégico Institucional 2022–2032*.

Gobierno de Guatemala. (2022). *Ministerio de Educación – Plan Estratégico Institucional 2022–2029*.]

Gobierno de Guatemala. (2022). *Ministerio de Salud Pública y Asistencia Social – Plan Estratégico Institucional 2022–2032*.

Gobierno de Guatemala. (2024). *Metas Presidenciales 2024–2028*. Secretaría Privada de la Presidencia.

Gobierno de Guatemala. (2024). *Política General de Gobierno 2024–2028*. Guatemala: SEGEPLAN.

Gobierno de Guatemala. (2025). *Ministerio de Desarrollo Social – Plan Estratégico Institucional 2025–2032*.

Instituto Centroamericano de Estudios Fiscales (ICEFI). (2024). *Análisis del Presupuesto Aprobado para 2025*.

International Monetary Fund (IMF). (2023). *Public Investment Management Assessment – PIMA and Climate-PIMA (C-PIMA), Guatemala*. April.

Moszoro, M. (2018). *Public–private monopoly*. B.E. Journal of Economic Analysis & Policy, 18(2), 1–15.

Moszoro, M., Araya, G., Ruiz-Nuñez, F., & Schwartz, J. (2015). *What drives private participation in infrastructure in developing countries?* In C. Caselli, G. Corbetta, & V. Vecchi (Eds.), *Public-private partnerships for infrastructure and business development* (pp. 19–44). Palgrave Macmillan, New York.

Perez Ruiz, E., & Soto, M. (2019). *Attaining Selected Sustainable Development Goals in Guatemala: Spending, Provision, and Financing Needs*. IMF Working Paper No. 19/60.

World Bank. (2022). *Guatemala SCD Update: Building a Stronger Social Contract through Productive, Inclusive and Sustainable Growth*.

World Bank. (2024). *Poverty Outlook for Guatemala*.

PUBLIC INVESTMENT EFFICIENCY, GROWTH AND DEBT SUSTAINABILITY IN GUATEMALA[1]

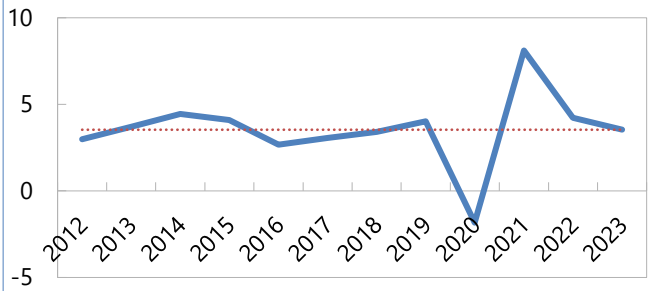
Increasing public spending efficiency is a key policy goal for Guatemala. What would be the expected consequences of such an increase on growth, consumption, debt policy, sovereign spreads and the external position? This study uses a standard open-economy sovereign default model calibrated to replicate observed patterns of public debt and sovereign spreads for the period 2012–24. Improving public spending efficiency to levels comparable with Costa Rica (approximately 20 percent) could produce a 2.3 percent increase in consumption and GDP, a 0.7 percent increase in debt-to-GDP with no increases in sovereign spreads. Higher levels of efficiency improvements generally help sustaining higher long-run levels of public debt-to-GDP without negative effects on sovereign spreads and the current account balance.

A. Economic Development in Guatemala

1. Guatemala's gross domestic product has increased by 3.5 percent on average from 2012 to 2023 (Figure 1). The country has experienced sustained and steady growth after the Great Recession, with growth rates around 3.5 percent from 2012 to 2019. The COVID-19 pandemic caused a 1.8 percent drop in GDP, but Guatemala has managed to recover strongly in 2021, 2022 and 2023, and returning to its historical growth rates.

2. Public debt-to-GDP remains low around 27 percent of GDP and sovereign spreads are moderate (Figure 2). Guatemala's public finances are healthy, with a debt-to-GDP ratio that has remained on a sustainable path over the years, with an increment of almost 5 percentage points in 2020, followed by a rapid convergence towards historical values. Despite moderate volatility, sovereign spreads have remained in a neighborhood of 2.4 percent, with a peak of 2.8 percent in 2020 and end-2024 spreads are below 2 percent.

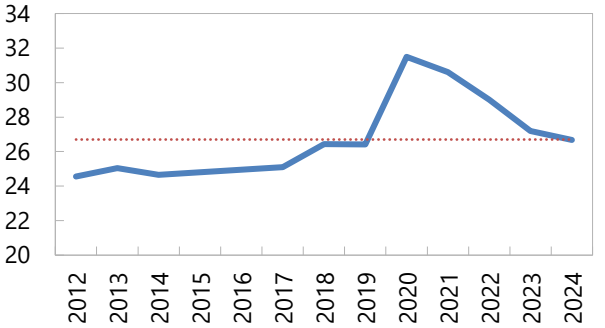
Figure 1. Gross Domestic Product
(Percent Growth)



Source: IMF Staff Elaborations

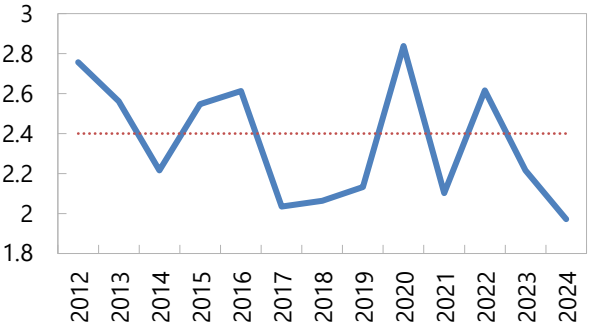
[1] Prepared by Andrea Paloschi.

Figure 2A. Debt-to-GDP
(percent)



Source: IMF Staff Elaborations

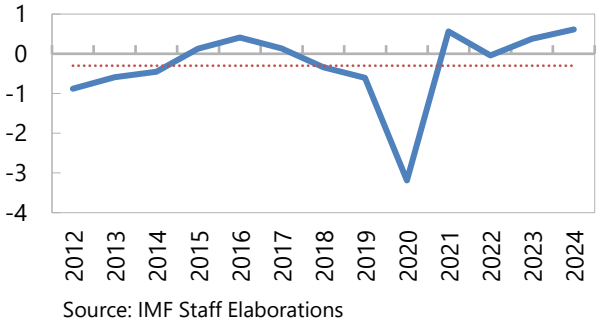
Figure 2B. Sovereign Spreads
(percent)



Source: IMF Staff Elaborations

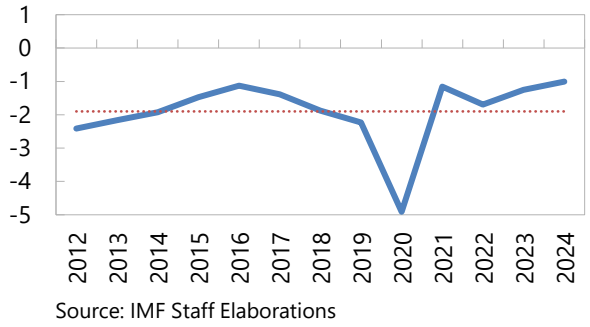
3. Guatemala's debt stability has been sustained by moderate primary and overall fiscal deficits (Figure 3). The country has recorded moderate negative primary balances, mainly determined by the COVID-19 pandemic (-3.2 percent). At end-2024 Guatemala has recorded a primary surplus close to 0.6 percent of GDP. The prudent fiscal policy, and the sustainable levels of public debt and sovereign spreads have translated into moderate levels of the overall fiscal balance. Over the period 2012-2024, Guatemala has reported an average fiscal balance-to-GDP ratio close to -2 percent, with a peak of -4.9 percent in 2020.

Figure 3A. Primary Balance-to-GDP
(percent)



Source: IMF Staff Elaborations

Figure 3B. Fiscal Balance-to-GDP
(percent)



Source: IMF Staff Elaborations

B. A Quantitative Model to Study Public Investment Efficiency Growth

4. This paper aims at studying the effects of a permanent increment in Public Investment Efficiency (PIE) on GDP, government debt and sovereign spreads. As outlined in Baum et al (2020), Guatemala's efficiency is limited, with a Physical Public Investment Efficiency Score of 0.49 for the period 2000-2019. We study the impact of a potential increase of Guatemala's PIE to the levels of Costa Rica (roughly 20 percent higher), a regional peer often studied for comparison purposes. To do so, in this project we construct a structural model that captures the change from a low-PIE to a high-PIE regime and its transitional dynamics. We study the dynamics of such transition using the

impulse response functions approach, which shows the evolution of GDP, consumption, government spending, government debt, sovereign spreads, among other outcomes. Furthermore, we compare different models of increased PIE to assess how PIE can affect the economy under different improvement scenarios.

5. We build a small open economy sovereign default model to reproduce the dynamics of the Guatemalan economy (Box 1). The model is an adaptation of the Arellano (2008) economy that incorporates production of a final good using private and public capital, which may differ in terms of productivity. In the model there are households, sovereign, and international investors. Households consume a single tradable good that is produced using labor, private capital and public capital; in addition, they pay lump-sum taxes to the sovereign. The sovereign collects lump-sum taxes and issue Eurobonds to international investors in order to finance investment in public capital; moreover, the sovereign has the option to default on its debt. International investors buy one-period defaultable claims from the sovereign. PIE represents a technology that converts public investment into units of public capital.

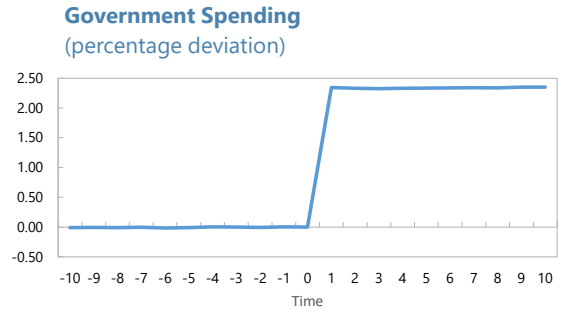
6. The model simulates an increase in PIE by 20 percent, comparable with Costa Rica, and generates an estimated 2.3 percent increase in GDP (Figure 4). We calibrate the model to replicate the observed levels of debt-to-GDP and sovereign spreads observed from 2012 to 2024. Additionally, we calibrate the model to match the long-run ratio of public to private capital in Guatemala. The PIE increment is modeled as a permanent and unexpected 20 percent increase. The model predicts a 2.3 percent increase in GDP, driven by higher public and private investment. Intuitively, increased PIE optimally calls for additional public investment, as the latter is relatively more productive. The complementary of the two sources of capital induces higher private investment, further contributing to higher GDP growth.

7. The model predicts a 0.6 percent increase in government debt in the long-run, with no significant changes in sovereign spreads. The increase in PIE leads to additional external borrowing, owing to higher future consumption and the sovereign's desire to better frontload the gains. The increase in debt comes at no extra default risk for the sovereign, since defaulting is more costly for a government with higher levels of GDP. The sovereign increases borrowing initially, which then stabilizes to permanently higher levels. Sovereign risk premia are not affected in equilibrium.

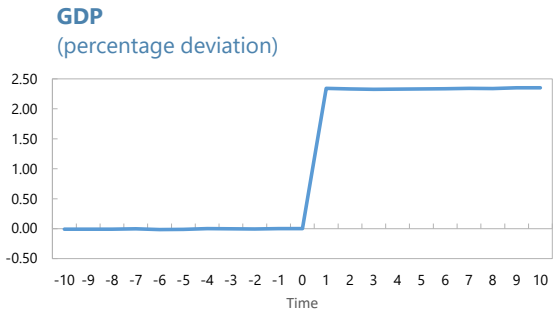
8. The external balance would temporarily deteriorate to finance extra units of consumption. The additional external borrowing post-PIE increases would temporarily deteriorate the Current Account (CA) Balance by 1 percent, freeing additional resource for households. In turns, private consumption temporarily increases by 4 percent, and rapidly converges to 2.3 percent above pre-shock values, as additional borrowing call for higher long-run interest payment on the stock of public debt.

Figure 4. Impulse Response Functions

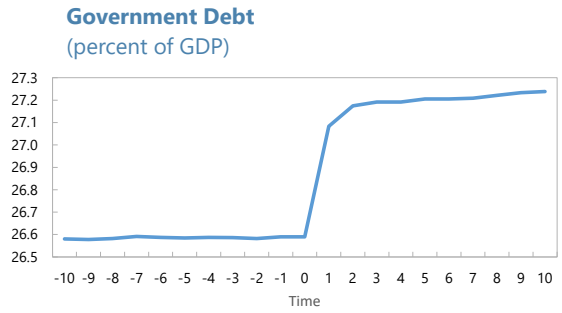
At time t=0 PIE increase by 20%, leading to higher government (investment) spending….



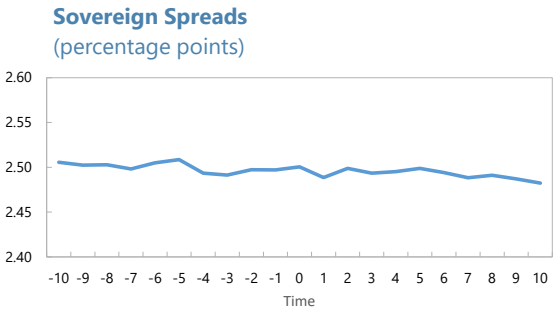
…leading to higher levels of GDP.



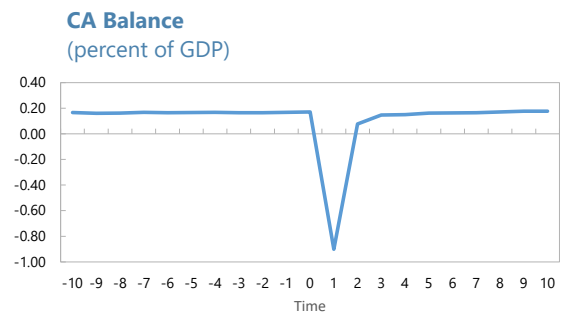
…which allows to sustain higher levels of public debt….



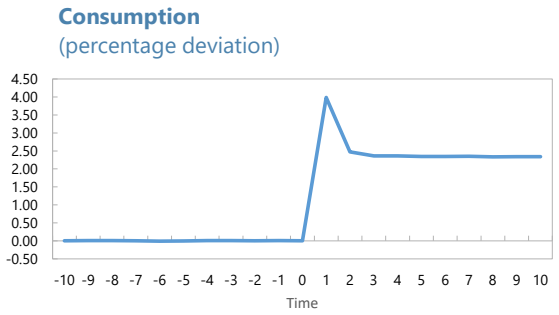
…without hampering sovereign default premia….



The additional borrowing temporarily deteriorates the CA balance…



…helping sustaining additional consumption in the short-run.

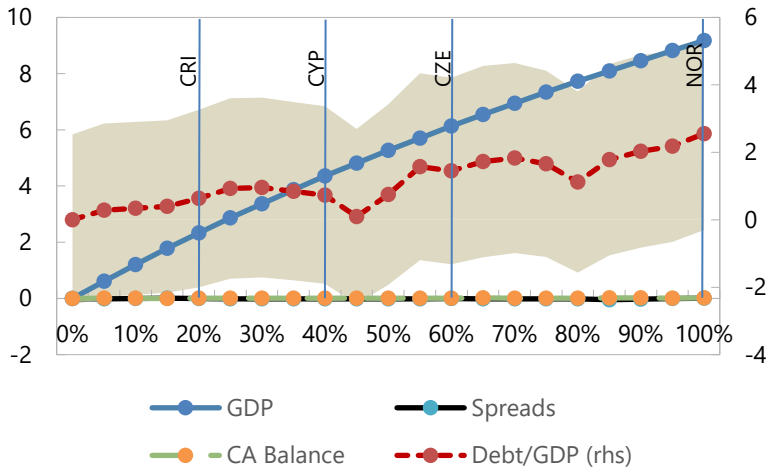


Source: IMF Staff elaboration.

9. Higher increases in PIE produce stronger GDP gains and allow to sustain higher levels of debt in the long run (Figure 5). We simulate the model for different increments of PIE – ranging from 0 to 100 percent of the baseline economy – and compute the long-run statistics associated with the permanent changes. As reference, the 40, 60, and 100 percent thresholds of comparison are represented by, respectively, Cyprus, Czech Republic and Norway. GDP gains grow with higher PIE,

reflecting the catalyzing effect of improved efficiency on public and private capital investment. In addition, the higher GDP gains allow to sustain higher levels of debt; while a 20 percent increase in PIE produces 0.6 percent higher levels of debt, a 100 percent increase could produce a 2.5 percent permanently higher level of debt. Furthermore, as in the baseline simulation, higher PIE does not affect neither sovereign default risk premia, nor the CA balance in the long-run.

Figure 5. Improved Efficiency: Long-Run Statistics
(percent deviation (GDP); percent difference)



C. Conclusions

10. Increased PIE would allow to increase public (and private) capital spending, with significant GDP gains. Improving PIE to levels comparable with Costa Rica would allow Guatemala to achieve substantial GDP gains. As discussed above, a 20 percent increase in PIE could lead to a 2.3 percent higher GDP in the long-run. Such increase would allow to permanently increase consumption, leading to a permanent welfare gain for Guatemalans.

11. Higher PIE would allow to sustain higher levels of public debt without market punishment. The increased PIE, and the increased output, would allow the government to temporarily boost consumption through increased external borrowing. The increase in borrowing would lead to permanently, yet sustainable, higher levels of public debt. The temporary CA balance deterioration is determined by increased Eurobond issuances, causing the fiscal balance to deteriorate in the short-run. Sovereign spreads do not display significant changes, owing to the higher cost of defaulting generated by permanently higher levels of GDP. The model produces, on average, consistent results for different levels of PIE gains, with sovereign spreads and external balance not affected, while public debt is optimally allowed to increase with higher PIE.

Box 1. A Small Open Economy Sovereign Default Model for Guatemala

Model structure. The model is a small open economy sovereign default model which follows Arellano et al (2008), with a single final good produced and three agents, i.e. households, sovereign, and international investors. The single final good is produced combining labor L, private capital s, and public capital g. Public capital is generated through public investment, which is assumed to be relatively inefficient compared to private capital. We denote with e the degree of PIE. The production function takes the form of:

$$y = z(eg)^{\alpha\gamma}s^{\alpha(1-\gamma)}]^{1-\alpha}$$

where z, α, γ denote, respectively, total factor productivity, capital share in the production function and public capital share's contribution. The stochastic process for the aggregate productivity follows a log-normal AR(1) process.

The types of agents are:

- *Households:* consume the single final good c, supply labor to produce the good, invest in private capital, and pay lump-sum taxes T to the sovereign. The budget constraint of households can be represented as:

$$c = y - s - T$$

  Subject to the budget constraint and the production function, households choose the optimal values c, l, s that solve the maximization problem:

$$\max_{c,l,s} E \sum_{t=0}^{\infty} \beta^t \frac{c_t^{1-\sigma}}{1-\sigma}$$

  The instantaneous utility function displays risk aversion in consumption σ; β represents the discount factor of households.

- *International Investors:* when the sovereign has access to international financial markets, international investors buy government bonds at the risk-neutral price:

$$q_t = \beta^* E_t(1 - d_{t+1})$$

  where $q_t, \beta^*, E_t, d_{t+1}$ denote, respectively, the price of the government bonds, the international discount factor, the expected value operator, and the default set in the following period.

- *Sovereign:* given the optimality conditions of the households, in states of default the sovereign solves the problem:

Box 1. A Small Open Economy Sovereign Default Model for Guatemala (concluded)

$$V^D(z,e) = \max_{c,l,s,g} \frac{c^{1-\sigma}}{1-\sigma} - \phi(z) + \beta E\big(\theta V(z',e',0) + (1-\theta)V^D(z',e')\big)$$

Where $V^D, \phi(z), V, \theta$ denote, respectively, the value function in states of default, the disutility cost associated with defaults, the value function of the sovereign, and the probability of re-entering financial markets when in states of default. In states of the default the goods market clearing condition is given by:

$$c = y - s - g$$

In states of repayment, the sovereign solves the problem:

$$V^R(z,e,b) = \max_{c,l,s,g,b'} \frac{c^{1-\sigma}}{1-\sigma} + \beta \mathrm{E}\left(\mathrm{V}(z^{'}, e^{'}, b')\right)$$

Subject to the budget constraint and the price equation:

$$c = y - s - g + q(z,e,b')b' - b$$

$$q(z,e,b') = \beta^{*} E(1-d')$$

When the sovereign has access to international financial markets, the sovereign decides whether to repay or default:

$$V(z,e,b) = \max_{d\in\{0,1\}} d \cdot V^D(z,e) + (1-d)V^R(z,e,b)$$

The model is solved using non-linear solution techniques. The model is solved using value function iteration with linear interpolation over a grid of bonds and TFP realizations, while expectations are computed using Gauss-Hermite polinomials. Long-run statistics are computed for the period 2012-2024 and reported in Table 1. The parameters are calibrated from the literature and long-run moments of Guatemala's data.

Table 1. Model Statistics

	Data	Model
Targeted Moment		
Average		
(-) Debt/GDP (%)	26.7	26.6
(-) Spreads (p.p.)	2.4	2.5
Untargeted Moment		
Average		
(-) Fiscal Balance/GDP (%)	-1.9	-1.0
(-) CA Balance/GDP (%)	0.6	0.2
Standard Deviation		
(-) Debt/GDP (%)	2.2	5.1
(-) Spreads (p.p)	0.3	2.7
Correlation		
(-) Debt/GDP, Spreads	0.1	0.3
(-) Debt/GDP, GDP	-0.7	-0.1
(-) GDP, Spreads	-0.4	-0.8
(-) GDP, CA Balance/GDP	-0.6	-0.1

Note: Data statistics are computed for the period 2012-2024. Model statistics are computed by simulating the model for 5,000,000 periods and eliminating the first 50,000 periods. Model statistics are computed in repayment states only.

Source: IMF Staff elaborations.

References

Arellano, C. (2008), Default Risk and Income Fluctuations in Emerging Economies, American Economic Review, Vol. 98, No. 3, pp. 690-712.

Baum, A., Mogues, T., Verdier, G. (2020), Getting the Most from Public Investment, Well Spent: How Strong Infrastructure Governance Can End Waste in Public Investment, Chapter 3.