

Sicat, Charlotte Justine Diokno; Palomar, Robert Hector G.; Ruiz, Mark Gerald C.

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## Analysis of the 2023 President's Budget

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# Analysis of the 2023 President's Budget

*Charlotte Justine Diokno-Sicat, Robert Hector G. Palomar,  
and Mark Gerald C. Ruiz*



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## CONTACT US:

RESEARCH INFORMATION DEPARTMENT  
Philippine Institute for Development Studies

18th Floor, Three Cyberpod Centris - North Tower  
EDSA corner Quezon Avenue, Quezon City, Philippines

publications@pids.gov.ph  
(+632) 8877-4000

<https://www.pids.gov.ph>

# Analysis of the 2023 President's Budget

Charlotte Justine Diokno-Sicat  
Robert Hector G. Palomar  
Mark Gerald C. Ruiz

PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

November 2022

## **Abstract**

The 2023 Philippine national budget was drafted on the eve of the election of a new president. While aiming to sustain the recovery from the effects of the COVID-19 pandemic and address economic scarring, the new administration needs to manage the implementation of the Mandanas-Garcia Supreme Court Ruling (or Mandanas ruling, which broadens the base for intergovernmental fiscal transfers and fully devolves functions to local governments). Compounding this were the geopolitical tensions in Europe that shook the world in February 2022, disrupting global value chains and triggering the rise in oil and food prices. With the backdrop of these continuing challenges, the new administration has identified its key priorities that aim to address these short-term concerns while also aiming to lead the improvement of the country as it enters the medium- to long-term.

This paper examines the 2023 National Expenditure Program (NEP), which is also known as the President's Budget, to see how it budgets for (a) the identified priorities of the new administration, and (b) the effects of the pandemic and the Mandanas Ruling. Concerns regarding the pandemic are expected to be reflected not only with the prioritization of health and social protection programs, but also efforts on improving the economy—especially given the projected 61.3 percent debt-to-GDP ratio in 2023.

With respect to the Mandanas Ruling, the phased absorption of devolved functions has been met by reduced support to richer local government units (LGUs) from national government programs. For poorer LGUs, policymakers introduced in 2022 the fiscal equalization program known as the Growth Equity Fund (GEF) to be a source of funds for LGUs that are unable to immediately absorb devolved functions. The GEF is continued as a policy in 2023 but must be closely monitored.

The last section presents trends in Philippine fiscal deficits as well as discusses fiscal risks to debt sustainability. An exercise, estimating tax buoyancy, was also conducted to examine the current tax system. The results seem to suggest that debt is sustainable and the current tax system is buoyant though could still be improved to ensure a stable stream of revenues.

**Keywords:** COVID-19 pandemic, Expansionary fiscal policy, Mandanas ruling

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# **Analysis of the 2023 President's Budget**

***Charlotte Justine Diokno-Sicat, Robert Hector G. Palomar,  
and Mark Gerald C. Ruiz<sup>1</sup>***

## **1. Introduction**

The year 2022 marks two major shifts in Philippine governance, namely, the election of a new President and the installation of a new administration and the implementation of the Mandanas-Garcia Supreme Court (SC) ruling (Mandanas ruling). For the latter Mandanas ruling, it broadens the base for the computation of intergovernmental fiscal transfers which increases the source of income of local government units (LGUs) reducing fiscal space of the national government (NG). For the former, with the new administration comes new policy directions, priorities, and vision for the Philippines while keeping the responsibility of continuing the country's recovery from the COVID-19 pandemic. How will the President's proposed 2023 budget be able to cover its priority areas while at the same time continuing the country's recovery from the pandemic?

This analysis will help in the review of the 2023 National Expenditure Program (NEP or President's Budget). The study will help give an overall perspective of the budget to all policymakers and implementing agencies. There are many pressing needs but understanding how these will be prioritized in the President's version and ensuring such in the final version of the General Appropriations Act is critical.

## **2. Objectives**

### ***2.1. General Objective***

Premised on the need for the continued management of the health and economic impacts of the COVID-19 pandemic, along with the required policy for growth trajectory and the major shift in governance with strengthened devolution, the overall objective is to examine how the 2023 NEP proposes to address these concerns and embody government priorities with the need for fiscal consolidation.

### ***2.2. Specific Objectives***

1. The distribution of the President's 2023 proposed budget will be examined against areas identified in the 2023 National Budget Call and in consideration of the Development Budget Coordination Committee's Fiscal Risk statement.
2. The analysis will investigate the contents of the budget as it relates to the priorities of the new administration. The immediate priorities of the administration are expected to be reflected in the 2023 proposed budget.
3. The analysis will also examine the allocations for local governments as the national government continues to facilitate the devolution of its resources and responsibilities.

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<sup>1</sup> Research Fellow, Senior Research Specialist, and Research Analyst II respectively, Philippine Institute for Development Studies.

The Growth Equity Fund (GEF) is of particular interest to the study given its main purpose of covering funding requirements of local government units (LGUs) to gradually enable LGUs to handle the responsibilities devolved to them.

### 3. A New Administration: Changing Socio-Economic Agenda and Expenditure Trends

The need to continuously manage and recover the Philippine economy combined with the reduction in fiscal space because of the broadened based on which to compute intergovernmental fiscal transfers (with the implementation of the Mandanas ruling) is primary to policymakers and should be evident in the proposed national budget.

#### 3.1. National Budget Call for FY 2023 and the New Socio-Economic Agenda

The National Budget Call (NBC) for FY 2023 was issued by the outgoing Duterte administration on January 12, 2022. The NBC indicates the framework on which agency proposals for inclusion to the FY 2023 National Budget must be based on (Department of Budget Management [DBM] 2022e). Budget proposals that are for consideration are only those that include implementation-ready programs consistent with the principles and policies of the Duterte Administration. These are embodied in the:

- 1) Duterte 0-10 Point Socioeconomic Agenda
- 2) Philippine Development Plan (PDP)
- 3) Priority programs and projects in the Public Investment Program (PIP); and
- 4) Approved FY 2023-2025 Three-Year Rolling Infrastructure Program (TRIP)

In the middle of 2023 budget preparations, and upon assumption of the new administration, a new socio-economic (8-point) agenda was introduced. The general priority areas between the Duterte and the Marcos Socioeconomic Agenda were similar as can be seen below (Table 1).

**Table 1. Duterte and Marcos Socioeconomic Agenda**

Duterte 10-Point Socioeconomic Agenda	Marcos 8-Point Socioeconomic Agenda
1. Macroeconomic policies	1. Food Security
2. Tax reform	2. Improved Transportation
3. Ease of doing business	3. Affordable and Clean Energy
4. Infrastructure spending	4. Health Care
5. Rural development	5. Social Services
6. Land management	6. Education
7. Human capital development	7. Bureaucratic Efficiency
8. Science and the arts	8. Sound Fiscal Management
9. Social protection programs	
10. Reproductive Health Law	

Source: Chua (2021); DBM (2022g)

The similarities revolve around the focus on infrastructure (especially for improved transportation) human capital development, and social protection/services. However, there are also differences between the two in terms of immediate priorities. The Duterte administration prioritized and reformed personal and corporate income taxes from which the Marcos administration can benefit from. The Marcos administration will focus more on improved tax



administration but will push for the remaining proposed tax reforms of the previous administration. Finally, the Marcos administration places added emphasis on quality job creation (resulting from the promotion of investments, improving infrastructure, etc.) and bureaucratic efficiency.

### 3.2. *The Philippine Medium-Term Fiscal Framework*

For the first time in Philippine history, the Marcos administration introduced a Medium-Term Fiscal Framework (MTFF) for 2022-2028. The MTFF identifies the strategy of the current administration in attaining short-term economic stability and promoting medium-term fiscal sustainability. The primary objective of the MTFF is to consolidate the resources of the national government to be better mobilized and utilized to gain maximum benefits and high multiplier effects for the economy (Senate Concurrent Resolution [SCR] 2022).<sup>2</sup>

The MTFF targets are the attainment of:

- 6.5-7.5 percent real GDP growth in 2022; 6.5-8 percent real GDP growth annually between 2023 to 2028
- 9 percent (i.e., single-digit) poverty rate by 2028
- 3 percent NG deficit to GDP ratio by 2028
- Less than 60 percent NG debt-to-GDP ratio by 2025
- At least USD 4,256 income (GNI) per capita (attainment of upper middle-income status)

To attain these objectives, policymakers project revenue effort to reach pre-pandemic levels in 2025 (at 16%) and increase to 17.6 percent by 2028 (SCR 3 2022). This expected improvement may be attributed to existing tax measures (e.g., Sin Tax Laws and Tax Reform for Acceleration and Inclusion [TRAIN] Law), proposed priority measures (e.g., Value Added Tax [VAT] on digital service providers and improved taxation of online content creators) and tax administrative efficiency (e.g., through digitalization efforts for ease of paying taxes) (SCR 3 2022).

On the expenditure side, the administration in the near-term intends to continue to implement interventions that will ensure that the economy is reopened and that there is timely and sufficient delivery of social services to address the vulnerability and scarring issues due to the pandemic. The near-term 8-point agenda is to: (1) Ensure food security, (2) Reduce transport and logistics cost, (3) Reduce energy cost to families, (4) Tackle health, (5) Strengthen social protection, (6) Safely reopen face-to-face education, (7) Enhance bureaucratic efficiency, and (8) Pursue sound fiscal management (DBM 2022g).

Over the medium-term, the government intends to focus on the central theme related to the creation of more, quality, and green jobs. This is to be achieved through productivity-enhancing investments, continued focus on infrastructure (including internet infrastructure), increased employability of jobseekers, and the development of sustainable technologies. In particular, the medium-term 8 point socioeconomic agenda—which is the agenda until the end of the current administration’s term—is to: (1) Promote investments, (2) Improve infrastructure, (3) Ensure energy security, (4) Increase employability, (5) Expand and improve the digital infrastructure, (6) Encourage research and development and innovation, (7) Adopt a green (and

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<sup>2</sup> MTFF Concurrent Resolution No. 3, third para.

blue) economy roadmap, and (8) Establish livable and sustainable communities (SCR 3 2022). In effect, budget preparations (e.g., the President’s budget) until the end of the administration must be aligned with the MTFF.

The administration received the support it sought from Congress for the MTFF. This signified the commitment of both the administration and Congress with respect to the use of funds to achieve the socioeconomic goals for both the short- and the mid-term. The MTFF is seen as a “forward-looking document that extends beyond the traditional three-year horizon to reach six (6) years” (SCR 3 2022, p. 2), which coincides with the coverage of the 2023-2028 PDP.

### *3.3. Priorities of the 2023 President’s Budget and related expenditure trends*

The 2023 President’s PHP 5.268 trillion budget, drafted based on the guidelines of the NBC and the MTFF, identified the following top five priority areas: (1) education, (2) public works/infrastructure, (3) health, (4) social welfare, and (5) agriculture which are critical for continued recovery from the COVID-19 pandemic (DBM 2022g).

The education sector gets the largest share of the proposed NEP at 16.2 percent of total expenditures.<sup>3</sup> This is consistent with the Philippines’ constitutional mandate<sup>4</sup> of the largest share of the budget goes to education and is indicative of the importance placed on human capital and the youth. Investment in public works is necessary given its impact on economic transformation and the generation of more jobs and this is reflected in its 13.6 percent share of the overall budget. The administration intends to focus on infrastructure through its Build, Better, More program—a continuation of the previous administration’s Build, Build, Build program. Health<sup>5</sup> and social welfare program (with a 5.6% and 3.7% share, respectively) are essential given the need to address the scarring effects of the pandemic especially for the poor and marginalized. The agriculture sector (with 3.5% share) is prioritized and envisioned by the administration to become one of the country’s main drivers for growth and employment. The increased allocation of the budget for transportation also shows it to be another priority area of the administration. Investment on transportation (3.2% of total budget) is intended to benefit public commuters which can also have an impact on economic transportation.

An important directive to national government agencies (NGAs) was ensuring that programs, projects and activities (PPAs) in budget proposals were implementation-ready and anchored on concrete programs and designs also considering the impact of the pandemic and the Mandanas Ruling (DBM 2022e).<sup>6</sup> This ensures improved budget utilization and trigger for economic activities.

The Mandanas ruling, which increases available resources to LGUs, will be implemented by enforcing the devolution of functions already devolved in 1991 but for which LGUs have received continuous assistance from national government programs. Policymakers proposed a phased implementation of the Mandanas ruling to help smoothen this transition and is targeted to be accomplished not later than fiscal year (FY) 2024. In relation, DBM and the Department of Interior and Local Government (DILG) issued Joint Memorandum Circular No. 2021-2, which states that national government agencies (NGAs) should “1) refrain from including

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<sup>3</sup> Composed of the combined budget totals of the Department of Education, State Universities and Colleges, Commission on Higher Education, and Technical Education and Skills Development Authority.

<sup>4</sup> From Article XIV, Sec. 5 of the 1987 Constitution

<sup>5</sup> Composed of the combined budget totals of the Department of Health and the Philippine Health Insurance Corporation

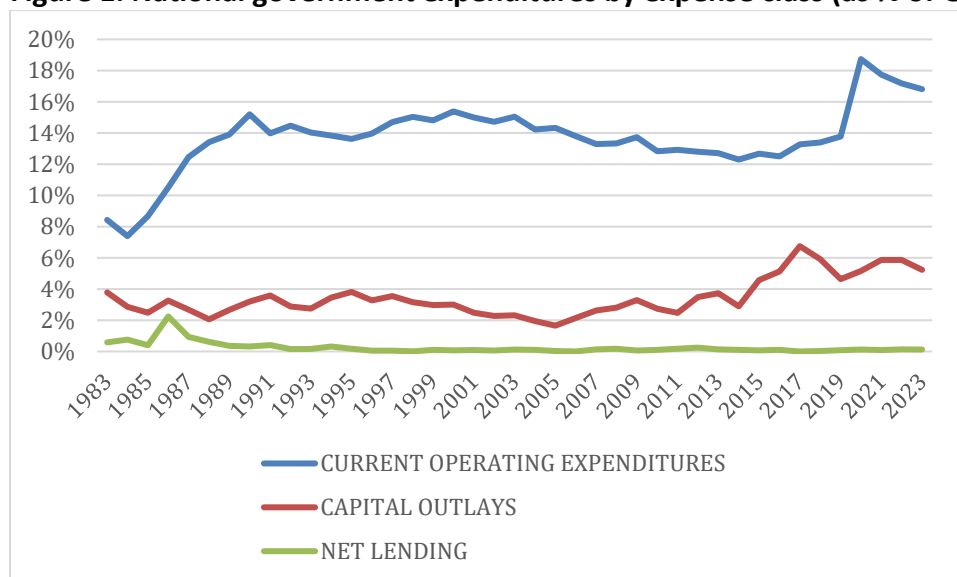
<sup>6</sup> From Sec. 1.2 of National Budget Memorandum No. 142

funding for devolved local projects for the LGUs belonging to the 1st to 4<sup>th</sup> income classifications in their budget proposals, 2) include funding requirement for capacity building of the LGUs to enable them to assume these devolved functions, and 3) limit subsidies for local projects to the LGUs belonging to the 5th and 6th income classes, the geographically isolated and depressed areas (GIDAs), and those with the highest poverty incidences, ranked in top third highest” (Department of Budget and Management and Department of the Interior and Local Government 2021, p. 2, sec. 1.4).

This re-devolution process is understandably different across LGUs because of varied fiscal capacities and levels of development. Some LGUs are prepared to absorb functions from the national government with less intervention from national agencies and the Committee on Devolution while others are unable to do so and need further assistance such as financial support for poorer disadvantaged LGUs or improved capacity. The GEF introduced in 2022 is intended to cover funding requirements intended for the poor, disadvantaged, and lagging LGUs for the gradual and full devolution of relevant functions and services (see section 7).

How has the 2023 NEP prioritized spending compared to previous budgetary priorities? Current operating expenditures—which are allocations for goods and services for the government’s normal operations and are for consumption within the fiscal year—is given the largest allocation of the budget at 16.8 percent of gross domestic product (GDP). It has consistently been receiving the largest allocation of the budget looking at the past four decades (Figure 1). This is followed by capital outlays with 5.2 percent of GDP and net lending with only 0.12 percent. Current operating expenditures had a huge increase from 2019 to 2020 in terms of percent of GDP (with a 25.1% change), but it has been steadily decreasing yearly up until the 2023 proposed budget (Figure 1).

**Figure 1. National government expenditures by expense class (as % of GDP), 1983-2023**



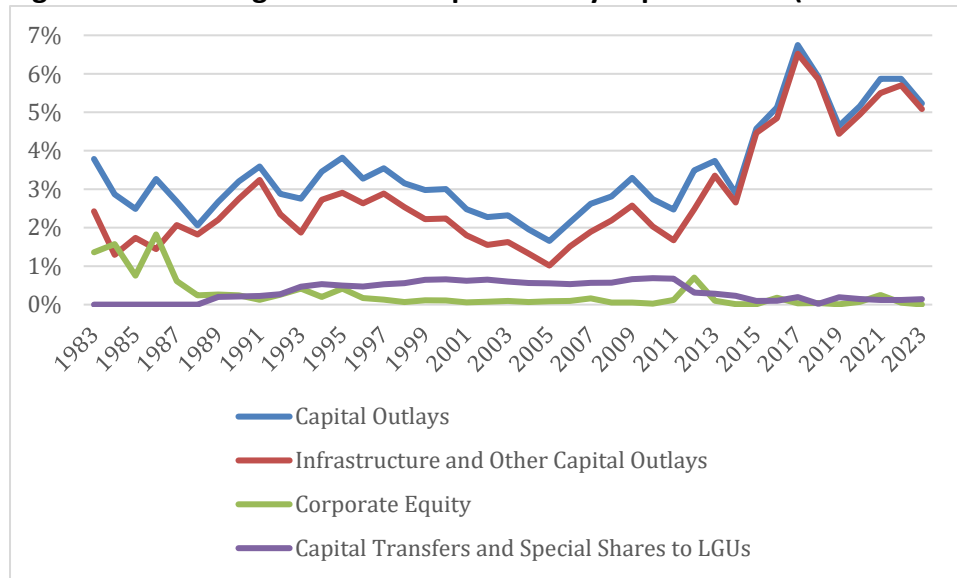
Source: DBM (various years)

As for capital outlay expenditures, it has been increasing since 2014 and peaked in 2017 with 6.8 percent of GDP (Figure 2). Capital outlay expenditures has since then decreased yearly, though it has not gone down to the level of any of the years before 2017. This push can be attributed to the previous administration’s “Build, Build, Build” program that aimed to create economic growth through public infrastructure investments. The current administration, which also has public works/infrastructure as one of its priority areas (as mentioned above), has

proposed capital outlays expenditures equal to 5.2 percent of GDP with 96.2 percent of overall capital outlays expenditures in infrastructure (Figure 2).

The continued support of infrastructure spending can create economic growth in two ways: (1) short-run; and (2) long-run impact. In the short-run, infrastructure spending and income within the sector will spill-over to other sectors with fiscal multipliers. While in the long-run, infrastructure spending will create economic activities for sustainable sources of national income (e.g., facilitate business investments, commerce and tourism creating sustainable sources of income).

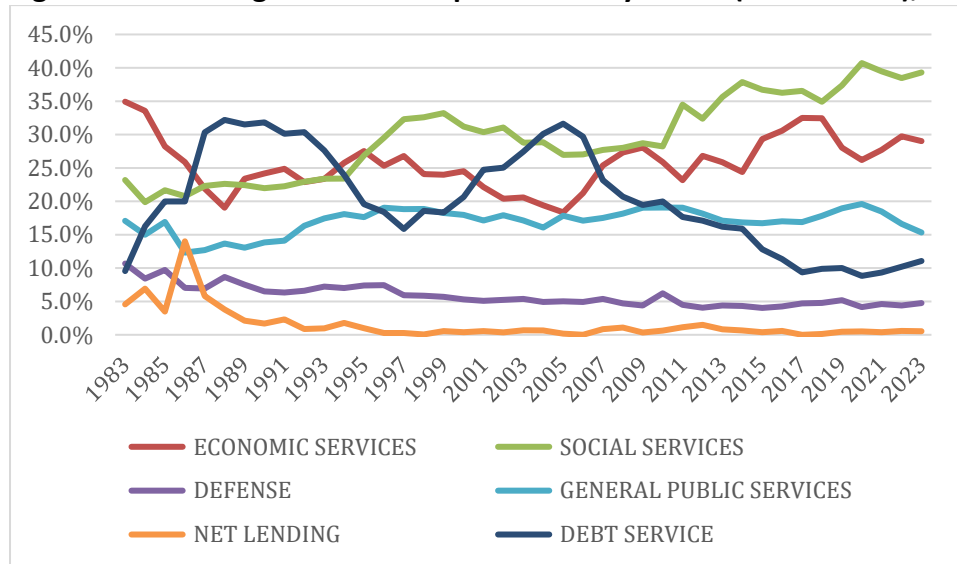
**Figure 2. National government capital outlay expenditures (as % of GDP), 1983-2023**



Source: DBM (Various Years)

Government expenditures may also be viewed according to its sectoral distribution. The social services sector (composed of education, health, social welfare, labor and employment and housing) is proposed to receive the most in 2023 equaling to 8.7 percent of the year’s GDP (Figure 3). This is followed by the economic services sector (composed of agriculture, trade and industry, tourism, water resource development, etc.) with 6.4 percent and general public services (which are for the costs needed to run the administration) which is set to receive 3.4 percent in 2023. These three have consistently been the top three sectors in terms of expenditures since 2010 (Figure 3).

**Figure 3. National government expenditures by sector (as % of GDP), 1983-2023**



Source: DBM (Various Years)

## 4. Methodology

### 4.1. Conceptual Framework

The public sector can stimulate economic growth through—as per economic (aggregate demand) theory—fiscal and monetary policies. National income (GDP) can be measured through consumption, investment, government spending, and net exports (Mankiw 2010). This could be seen in the equation below:

$$GDP = C(t) + I(r) + G + NX$$

Equation 1

Consumption,  $C$ , are household purchases of (durable and non-durable) goods and services which depend on disposable income (i.e. household income net of taxes,  $t$ ). Investment ( $I$ ) goods and services are bought for future use (e.g. business fixed and residential investments and inventories) and is a function of interest rates,  $r$ . Government spending,  $G$ , is public sector spending primarily through the national budget. And, net exports or exports less imports,  $NX$ , is a function of the exchange rate. As the Philippine peso weakens (depreciates) domestic goods and services (or exports,  $X$ ) are relatively cheaper from the point of view of foreigners, while foreign goods and services (or imports,  $M$ ) are relatively more expensive from the point of view of Philippine domestic consumers. In this case, exports will increase while imports decrease improving the trade balance.

As shown by this equation (Equation 1), theory suggests the economy is impacted by fiscal and monetary policy. Fiscal policies to expand the economy include (a) lowering taxes leading to an increase in disposable household income and consumption spending, and (b) increasing government expenditures for the supply of goods and services to the government. On the other hand, monetary policy may keep interest rates low and encourage investments are also considered expansionary.

The general economic justifications for government spending are: (1) to delineate and enforce property rights, (2) correct market failures (e.g., imperfect competition, incomplete markets and information, and macroeconomic shocks such as those caused by the COVID-19 pandemic) and (3) to ensure equity or fairness in choosing and designing programs for citizens and sectors (e.g., the Pantawid Pamilya Pilipino Program [4Ps] and Social Pension for Indigent Senior Citizen [SocPen] which are social protection programs that redistribute income to the poor and vulnerable). In connection, progressive income taxation—where those with larger income face higher tax rates and tax liabilities—is one such fiscal policy that ensures equity and fairness.

These should be taken into consideration in the drafting of the national budget. It is, however, understood that the budget is a limited and common resource and increasing the budget of one agency or sector can reduce the shares of others (Rosen and Gayer 2010; Stiglitz and Rosengard 2015). It is thus essential that the amount to be given from the national budget to the different agencies or sectors is in line with the declared priorities of the administration.

This will be analyzed by this research through a mixed methods approach with data coming from the DBM, Bangko Sentral ng Pilipinas (BSP), and the Philippine Statistics Authority (PSA). The 2023 NEP will be examined using historical expenditure data divided by both expense class and sector.

Given the implementation of the Mandanas ruling, along with the prioritization of the transition to full devolution, this paper will also examine the historical data regarding the budgetary allocations of national government programs and its support to local governments. The expectations are that, given the devolution, national government programs should be discontinued resulting in increased transfers to LGUs. Also, previous and current data on debt is also essential since the study aims to see if the budget is aligned with the current status of Philippine debt and the need for further borrowings as the country continues to recover from the effects of the COVID-19 pandemic. Finally, this paper presents tax buoyancy in the Philippines an important aspect of the MTFE growth targets.

## **5. Budget Trends**

### *5.1. Overall budget trends*

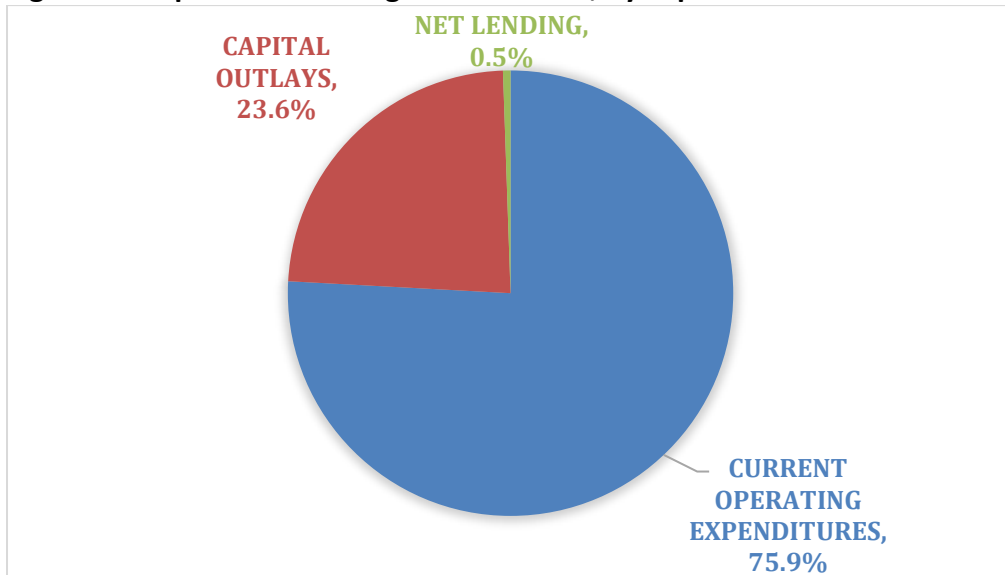
As mentioned above, the largest share allocated by the 2023 budget when viewed per expense class is for current operating expenditures. Current operating expenditures is worth 75.9 percent (or PHP 3.996 trillion) of the total budget of PHP 5.268 trillion (Figure 4)<sup>7</sup>. This is consistent with the historical trends for shares of the national government expenditures with Current Operating Expenditures averaging a 78.8 percent share from 1983 to 2022 (Figure 5).

Meanwhile, the proposed 2023 budget indicates that Capital Outlays will receive 23.6 percent of the total (worth PHP 1.24 trillion) and Net Lending will receive 0.6 percent (PHP 28.7 billion) (Figure 4). Capital Outlays, which has an average of 19.6 percent shares from 1983 to 2022, has been receiving increased shares due to the previous administration's infrastructure programs peaking in 2017 when it had 33.7 percent share of the total budget (Figure 5).

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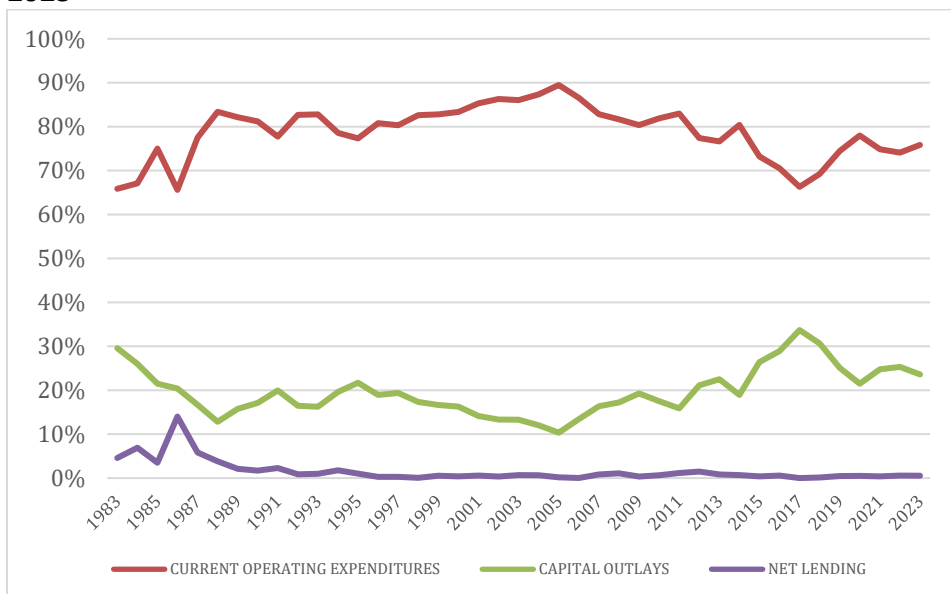
<sup>7</sup> This includes debt servicing

**Figure 4. Proposed 2023 budget distribution, by expense class**



Source: DBM (2022a)

**Figure 5. National Government Expenditures, by expense class, percent distribution, 1983-2023**



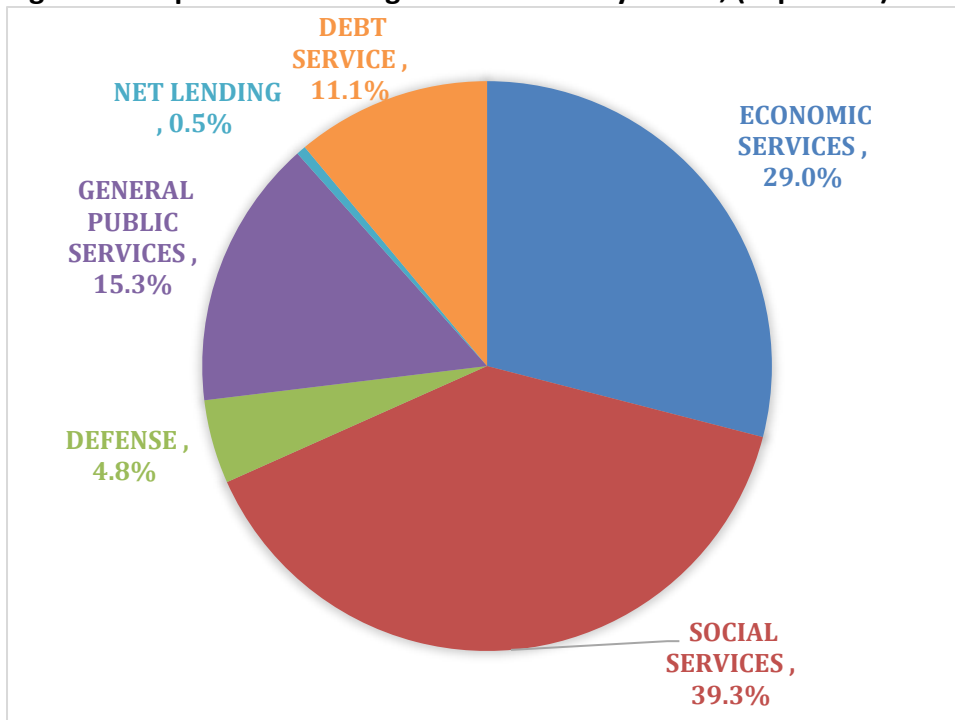
Source: DBM (Various Years)

In terms of sectoral distribution, Social Services is set to receive 39.3 percent of the proposed budget (or PHP 2,070.7 billion) (Figure 6). This is a 7.2 percent increase from the previous year's budget. Historically, this sector has been receiving the largest share of the national government's annual expenditures<sup>8</sup> since 1996 (or 2007 if debt service is included) (Figure 7). Economic Services follows Social Services with 29.0 percent of the proposed budget. There is an increase of 2.3 percent in the budget from 2022 (PHP 1,494.1 billion) to the 2023 NEP (PHP 1,528.5 billion). Economic Services was at its highest since 1986 in 2018 when it received 32.5 percent of the shares (Figure 7).

<sup>8</sup> This is without factoring in debt service, although it is included in Figure 6. This is due to debt service expenditures not being considered as contributory to economic growth and development.

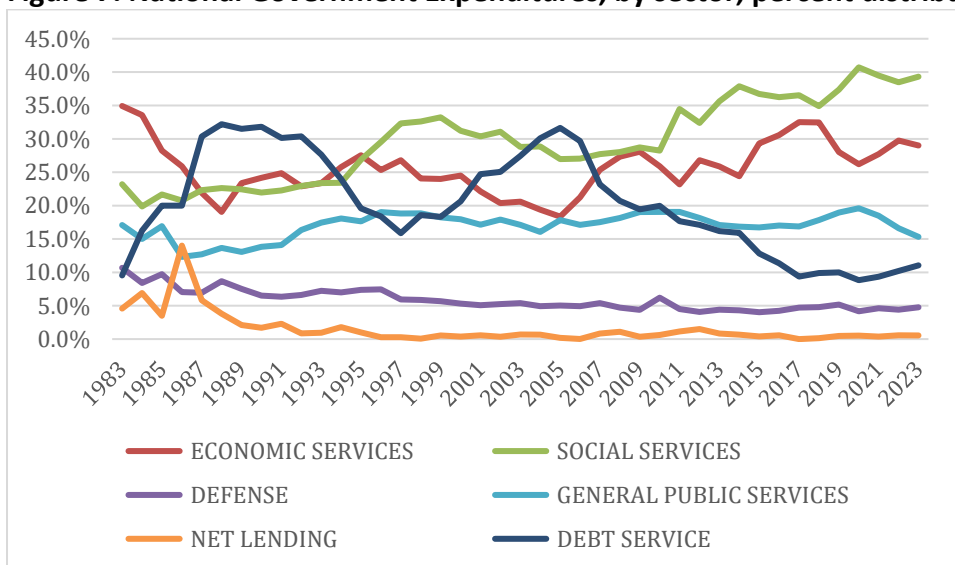
The rest of the proposed budget (at 28.3%) is distributed across: general public services (15.3% share or PHP 807.2 billion), debt service (11.1% share or PHP 582.3 billion), national defense (4.8% or PHP 250.7 billion), and net lending (0.5% or PHP 28.7 billion) (Figure 6).

**Figure 6. Proposed 2023 budget distribution by sector, (in percent)**



Source: DBM (2022a)

**Figure 7. National Government Expenditures, by sector, percent distribution, 1983-2023**



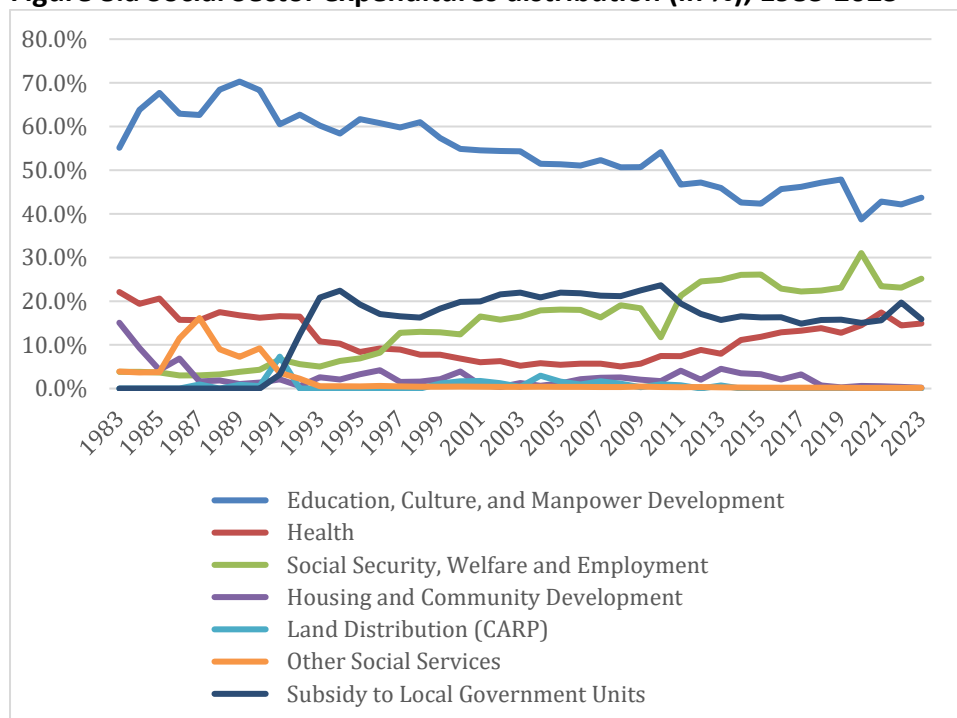
Source: DBM (various years)



When broken down into sub-sectors, the social services sector has allotted the largest share to education, culture and manpower development (ECM) with 43.7 percent of the total. Historically, ECM has been receiving the largest share of the budget for the social services sector with a 54.2 percent average from 1983 to 2022 (Figures 8a and 8b). However, ECM decreased in 2020 to make room for the bigger shares for social security and labor welfare (SSLW) and health. In the proposed 2023 budget, ECM (42.1 to 43.7%), SSLW (23.1 to 25.1%), and health (14.5 to 14.9%) are set to increase (Figures 8a and 8b). In effect, the shares for subsidies to LGUs are proposed to decrease from 19.7 percent in 2022—which had a 34.1 percent growth from 2021—to 15.9 percent in the 2023 NEP.

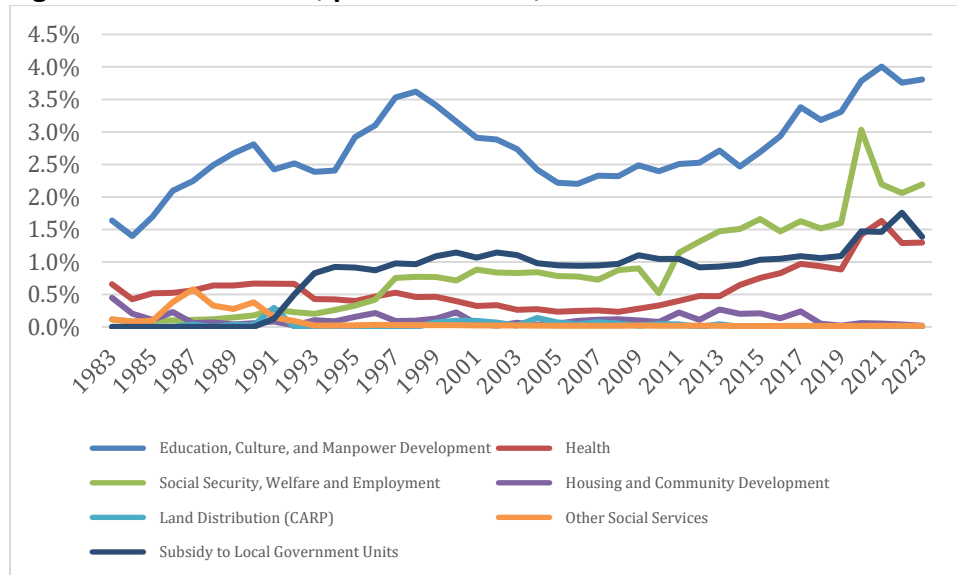
The reason being the drastic reduction in national government revenues in 2020 owing to the lockdown measures needed to control the spread of COVID-19 since, according to Section 284 of the Local Government Code of 1991 (RA 7160), the national tax allotment (the basis of LGU intergovernmental fiscal transfers) is computed based on national government revenues three years prior.

**Figure 8.a Social Sector expenditures distribution (in %), 1983-2023**



Source: DBM (various years)

**Figure 8.b Social Sector, percent of GDP, 1983-2023**

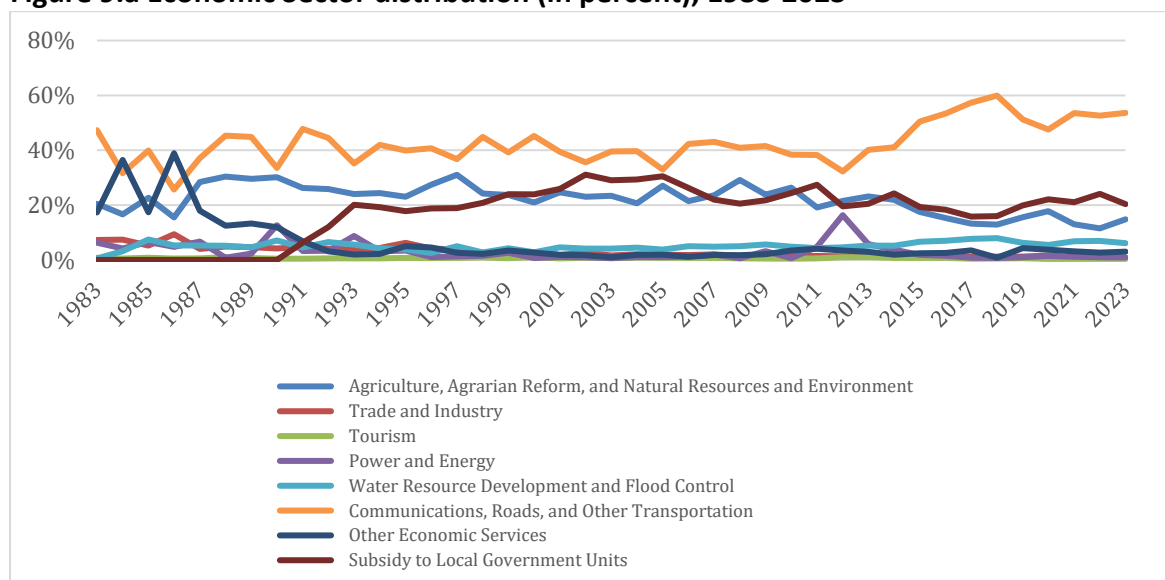


Source: DBM (various years)

For the economic service sector, communications, roads and other transportation (CRT) is allotted more than half of the shares with 53.6 percent, up from the 52.6 percent in 2022. CRT averaged 42.3 percent from 1983 to 2022 which is around 2 percent of GDP (Figures 9.a and 9.b). Meanwhile, agriculture, agrarian reform and natural resources (AAN) is allotted 14.8 percent which is more than the 11.5 percent in 2022, but less than its 1983 to 2022 average of 22.3 percent.

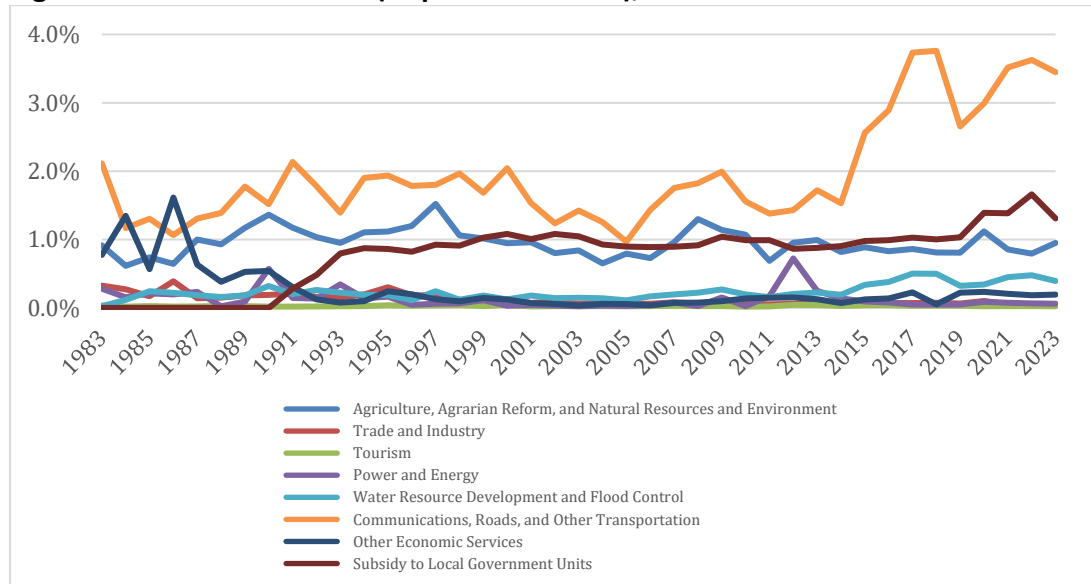
Shares for the Subsidy to LGUs under the economic service sector were also reduced from 24.1 percent in 2022 to 20.4 percent in the proposed budget for 2023. Both CRT and AAN declined in 2022 to accommodate the spike in the Subsidy to LGUs in consideration of the Mandanas-Garcia Supreme Court ruling, but the 2023 budget, as seen above, once again increased CRT and AAN and reduced the Subsidy to LGUs.

**Figure 9.a Economic Sector distribution (in percent), 1983-2023**



Source: DBM (various years)

**Figure 9.b Economic Sector (as percent of GDP), 1983-2023**



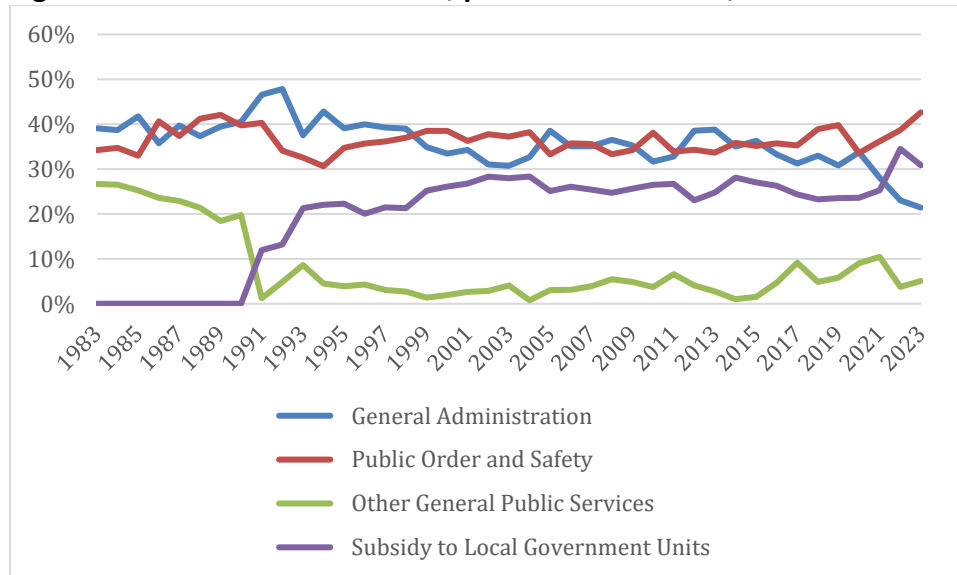
Source: DBM (various years)

The same can be seen with the shares in the general public services sub-sector (GPS) (Figures 10.a and 10.b). The Subsidy to LGUs of the GPS spiked from 25.3 percent in 2021 to 34.5 percent in 2022 before reducing to 30.9 percent. The 25.3% in 2021 was also more than the shares from the previous year which was at 23.6 percent. The increase in 2021 may be attributed to the increased need of LGUs for frontliners in able to manage the spread of the pandemic. Meanwhile, the increase in 2022 and 2023 (which is still higher than any other year despite decreasing) is possibly because of the increase in the devolved functions of the LGUs.

The increase in the Subsidy to LGUs in 2022 led to a decrease in the shares of general administration (from 28.1 to 23%) and other general public services<sup>9</sup> (10.4 to 3.7%). Shares for general administration further decrease in 2023 to 21.4 percent, although other general public services gained slightly from 3.7 to 5.1 percent. Public order and safety expenditures had a slump in 2020, but it has since then grown yearly including the proposed 2023 budget.

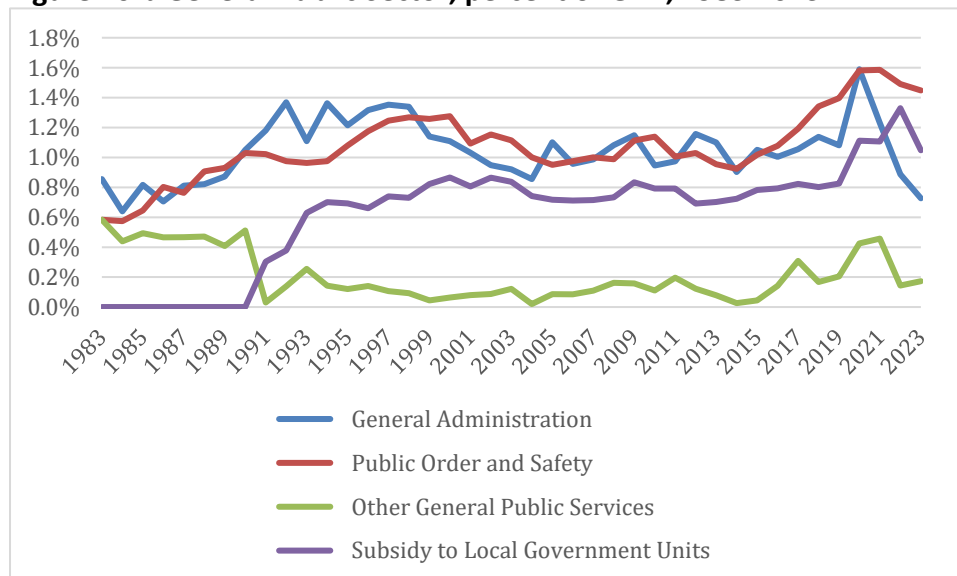
<sup>9</sup> Refers to all general public services expenditures other than General Administration, Public Order and Safety, and Subsidy to LGUs

**Figure 10.a General Public Sector, percent distribution, 1983-2023**



Source: DBM (various years)

**Figure 10.b General Public Sector, percent of GDP, 1983-2023**



Source: DBM (various years)

### 5.1.1 By Department

In terms of new budgetary allocations (and shares of the budget) per department, the top 10 departments are: Department of Public Works and Highways (DPWH), Department of Education (DepEd), DILG, Department of National Defense (DND), Department of Social Welfare and Development (DSWD), Department of Health (DOH), Department of Transportation (DOTr), Department of Agriculture (DA), State Universities and Colleges (SUCs), Department of Agriculture (DA), and the Department of Justice (DOJ) (DBM 2022f).

DPWH has a proposed budget amounting to 16.8 percent of all new appropriations (including special purpose funds). DPWH has been given the largest share since 2018 despite a dip by 8.7 percent from 2022 GAA to the 2023 NEP (Table 2; Figure 11). This is due to the reduced

budget for DPWH’s asset preservation programs (PHP 117.48 to 88.54 billion) and convergence and special support programs (PHP 352.80 to 213.95 billion).<sup>10</sup>

DepEd had the second largest share with 15.7 percent. Before being overtaken by DPWH in 2018, DepEd was given the largest share among all departments. However, the entire education sector—comprised of DepEd, Commission on Higher Education, SUCs, and the Technical Education and Skills Development Authority—still has the largest share reaching PHP 852.8 billion or 20.0 percent of the total. This is up from 2022’s PHP 788.5 billion budget, though the shares of the sector (21.9%) are slightly larger in 2022.

The education sector still has the largest share despite the decrease in the budget for SUCs. SUCs had the largest decrease among the top 10 departments with PHP 10.85 billion less than the previous year (-10.4% change). As for the departments with increased budgets, DOTr had the largest increase among the top 10 departments with an increase of PHP 91.5 billion (121.5% change). Also receiving a huge increase is the DA with a 45.5 percent change.

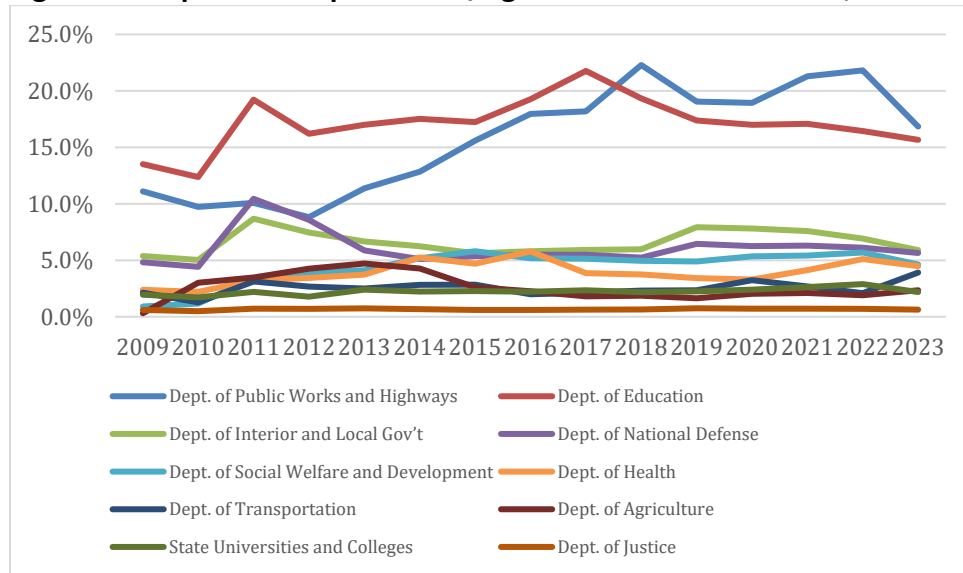
**Table 2. Top ten NG Departments/Agencies in terms of the proposed budget**

Department/Agency	2023 proposed budget (in billion pesos)	Top 10 2023 NEP shares (percent)	Percentage change, 2022 GAA to 2023 NEP
DPWH	717.31	16.8	-8.7
DepEd	667.18	15.7	12.6
DILG	251.18	5.9	0.7
DND	240.29	5.6	9.0
DSWD	196.78	4.6	-3.9
DOH	191.2	4.5	4
DOTr	166.70	3.9	121.5
DA	99.81	2.3	45.5
SUCs	93.33	2.2	-10.4
DOJ	26.69	0.6	5.7

Source: DBM (2022b; 2022f)

<sup>10</sup> This includes the Basic Infrastructure Programs which was reduced from PHP 85.4 billion to PHP 52.45 billion

**Figure 11. Top 10 NG Departments/Agencies in terms of shares, 2009 to 2023**



Source: DBM (Various years)

In terms of Special Purpose Funds,<sup>11</sup> the top five with the largest shares are for the Unprogrammed Appropriations (UA), Pension and Gratuity Fund (PGF), Budgetary Support to Government Corporations (BSGC), Miscellaneous Personnel Benefits Fund (MPBF), and Allocations to Local Government Units (ALGU) (DBM 2022f).

The PGF is for the payment of (1) pension of the Armed Forces of the Philippines, uniformed personnel, and other retirees; (2) benefits of optional retirees of the national government and the retired personnel of Government Owned and Controlled Corporations (GOCCs); and (3) personnel devolved to LGUs. The BSGC refers to the assistance of the national government—in the form of equity, subsidy, loan proceeds, net lending advances for servicing of guaranteed debts—to GOCCs. The MPBF pays for the deficiencies in the funds for personnel (e.g., deficiencies in salaries, bonuses, allowances, etc.). The MPBF may also be for the filling and creation of personnel positions as authorized by law.

Of the SPFs, the UA is proposed to get the largest share of all new appropriations (including the appropriations for departments) with 13.8 percent (Figure 12). This is an increase of 133.7 percent change from the previous year and is for the anticipated passing of the Rightsizing Bill which is a priority legislative measure.<sup>12</sup> The rest of the top five also have increased shares with PGF getting 6.4 percent (up by 48.4%), BSGC getting 4.4 percent (16.1% change), MPBF with 2.1 percent (221.2% change), and ALGU with 1.8 percent (32.3% change) (Table 3). For the PGF, it should be noted that 58 percent of the proposed PhP 272.9 billion is for the retirement benefits and pension of military and uniformed personnel, and item identified to be a fiscal risk especially in terms of debt sustainability (Debuque-Gonzales et.al. 2022).

<sup>11</sup> Special Purpose Funds are appropriations that cover expenditures for specific purposes that departments and agencies have not previously specified during budget preparations (DBM 2022a). These are usually lump sum in nature.

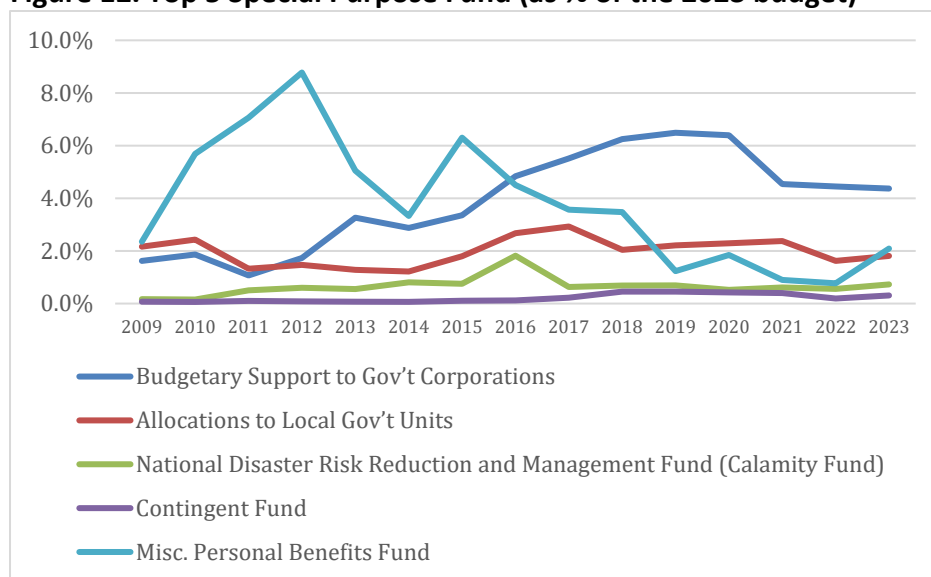
<sup>12</sup> The Rightsizing Bill aims to enhance efficiency and improve the delivery of public goods and services by clearly defining the delineation of responsibilities and simplifying operations so departments and agencies can focus on core functions and mandates (Senate Bill No. 244, sec. 4)

**Table 3. Top 5 Special Purpose Funds, 2023**

SPF	in PHP billion	as % of the proposed 2023 budget	Percentage change, 2022 to 2023
UA	588.2	13.8	133.7
PGF	272.9	6.4	48.4
BSGC	186.0	4.4	16.1
MPBF	89.0	2.1	221.2
ALGU	77.2	1.8	32.3

Source: DBM (2022b; 2022f)

**Figure 12. Top 5 Special Purpose Fund (as % of the 2023 budget)**

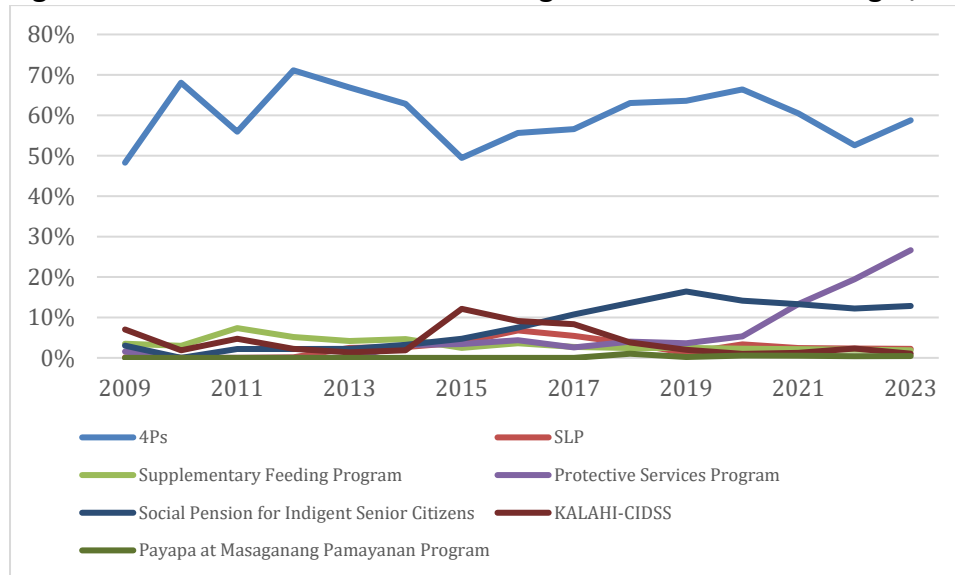


Source: DBM (Various Years)

## 5.2. Social protection programs

Social protection/welfare is a priority area identified in both the President’s Budget Message (DBM 2022g) and MTF (DBM 2022d). Most social protection programs fall under the responsibilities of the DSWD. It was proposed for DSWD to receive PHP 196.8 billion, with the bulk of which (PHP 115.6 billion) allotted for DSWD’s 4Ps beneficiaries. The 4Ps program receives the bulk of the DSWD budget which has been increasing at an average of 10.6 percent from 2014 to 2022 (Figure 13). In connection, DSWD’s proposed budget has a decrease of 3.9 percent in the proposed 2023 budget, but the 4Ps program is set to increase by 7.4 percent.

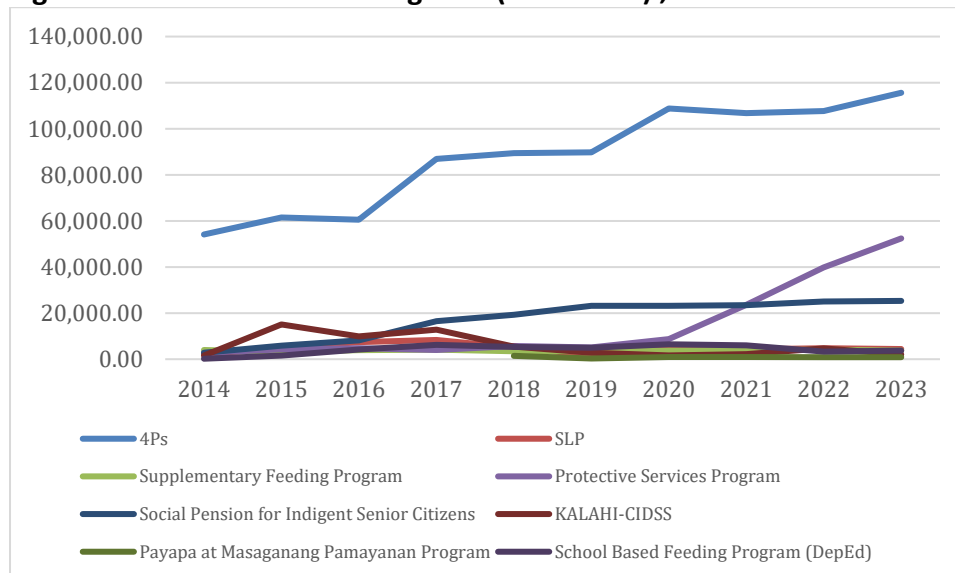
**Figure 13<sup>13</sup>. DSWD Social Protection Programs in % of DSWD budget, 2009 to 2023**



Source: DBM (Various Years)

The bulk of the allocations for social welfare are still for the 4Ps program, but the budget for other social welfare programs has also increased (Figures 14.a and 14.b). Budget for the Protective Services Program increased in 2021 due to the need to provide further assistance for the health and livelihoods of the poor and vulnerable as a result of the pandemic. The Protective Services Program received a bigger budget in 2022 and it is proposed to even increase in 2023. (Figure 14a. and 14b.).

**Figure 14.a Social Welfare Programs (in millions) , 2014 to 2023**

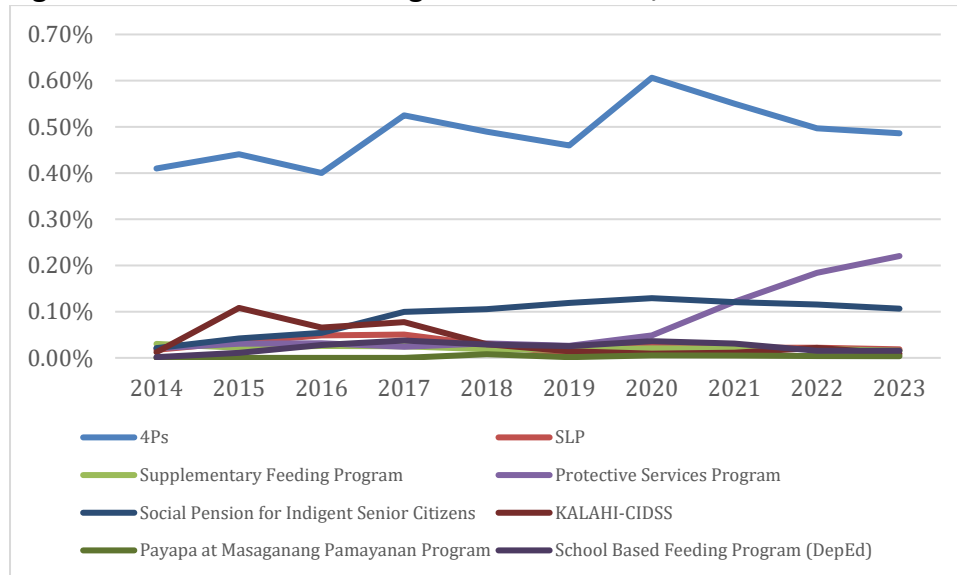


Source: DBM (various years)

<sup>13</sup> For Figures 13 to 16, data from 2014 to 2017 are based on actual expenditures and 2018 to 2023 are GAA and NEP data



**Figure 14.b Social Welfare Programs in % of GDP, 2014 to 2023**

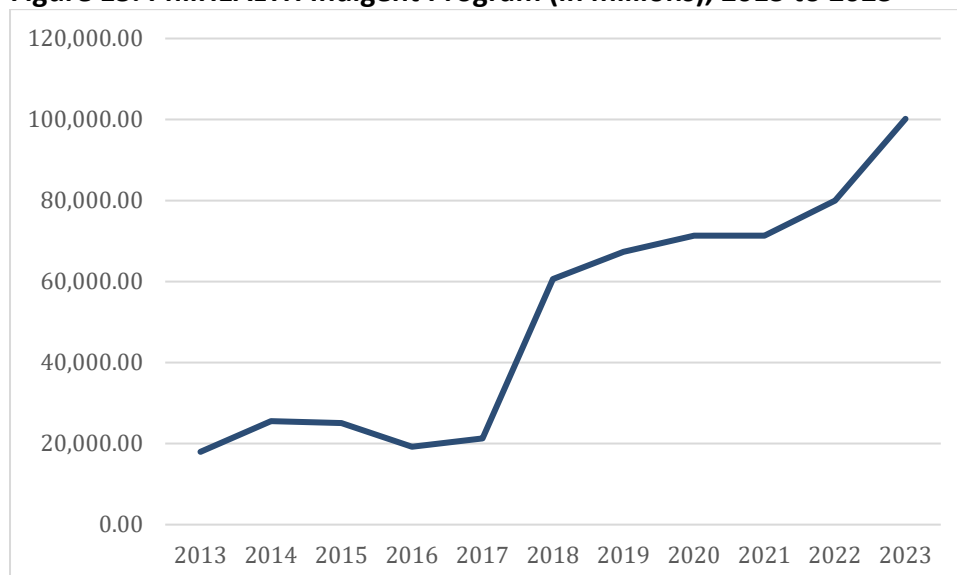


Source: DBM (various years)

In connection with social protection programs due to the COVID-19 response, the PhilHealth Indigent Program is proposed to have a larger budget in budgetary support from the national government for 2023 to ensure that there is greater health care security. As per Special Provision 1 of the Philippine Health Insurance Corporation budget (DBM 2022f, sec. E.4), the program shall be used for the health insurance premiums of indirect contributors (i.e., indigents under the National Household Targeting System for Poverty Reduction, senior citizens, unemployed persons with disability, and financially incapable Point-of-Service patients).

This program received PHP 80 billion in 2022 (which is a 12.1 increase from 2021), and it is now proposed for the budget to increase by 25.2 percent making the program's budget equal to PHP 100.2 billion (Figure 15).

**Figure 15. PhilHEALTH Indigent Program (in millions), 2013 to 2023**



Source: DBM (various years)

### 5.3. The President's budget for local public goods and services: the implementation of the Mandanas-Garcia Supreme Court ruling

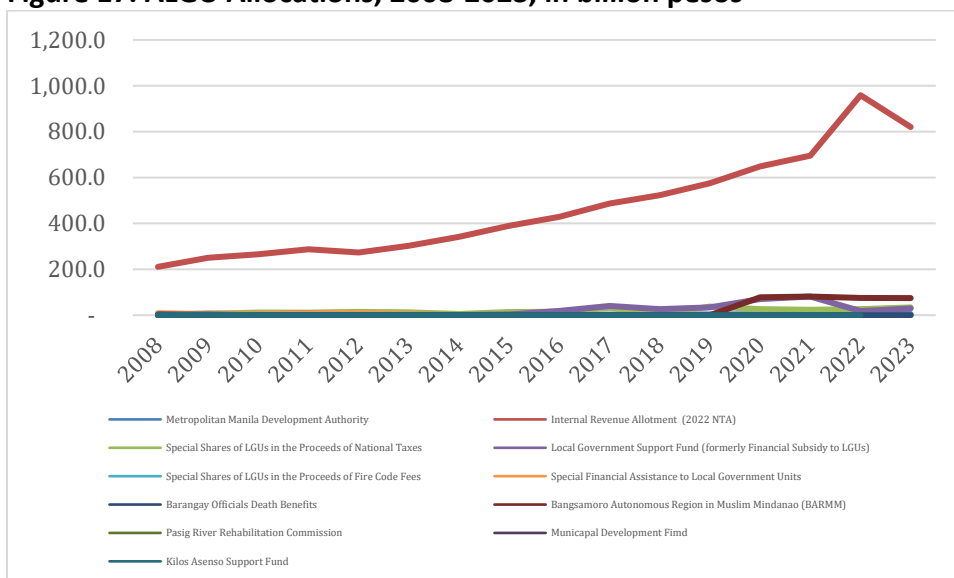
The national government's 2023 expenditure program allots PHP 962.2 billion to allocations to local government units (ALGUs), which is equal to 18.3 percent of the national budget (Figures 16 and 17). This is a 11.3 percent decrease from 2022's PHP 1,084.4 billion budget for ALGU. A significant portion of ALGUs is for the National Tax Allotment (NTA), which was previously known as the Internal Revenue Allotment (IRA). Due to the Mandanas ruling, the 2022 NTA had a 37.9 percent increase from 2021 from PHP 695.5 to 959 billion. The NTA will decrease by 14.5 percent, although the PHP 820.3 billion allotted for 2023 is still the highest since outside 2022.

**Figure 16. Allocations to Local Government Units, percent distribution, 2023**



Source: DBM (2022a)

**Figure 17. ALGU Allocations, 2008-2023, in billion pesos**



Source: DBM (Various Years)

Aside from the ALGU, LGU assistance programs are present in agency/departmental budget. However, based on NBC FY 2023 (DBM 2022e), NGAs should refrain from allotting resources for programs that would duplicate the efforts of the LGUs, especially with the delivery of the LGUs' devolved functions and services.<sup>14</sup> NGAs should instead focus on capacitating LGUs—enabling them to assume the devolved functions and services according to their Devolution Transition Plans—so that NGAs may shift their focus to addressing national program concerns. The national budget shall include the funding requirement for these capacity building programs and prioritize subsidies for local projects of LGUs in the 5<sup>th</sup> and 6<sup>th</sup> income classes, the GIDA, and the highest poverty incidences.<sup>15</sup>

With this, there is a noticeable decrease in LGU assistance programs (Table 4; Figure 18). This is most evident with the DPWH's Local/Basic Infrastructure Program with the 2021 budget (PHP116.95 billion) decreasing by 27 percent in 2022 (PHP 85.4 billion) and decreasing again by 38.6 percent in the proposed 2023 budget (PHP 52.5 billion). The largest decrease from the DPWH's Local Infrastructure Program is with flood control structures/facilities (from PHP16.7 to 2.8 billion) and national roads and bridges (from PHP 25.6 to 7.9 billion). Table 4 also shows that the Local Government Support Fund (LGSF) increased from PHP 17.97 to PHP 28.88 billion, and this is due to the huge increase in the Growth Equity Fund.

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<sup>14</sup> From Sec. 1.3 of National Budget Memorandum No. 142

<sup>15</sup> From Sec. 2.4 of National Budget Memorandum No. 142

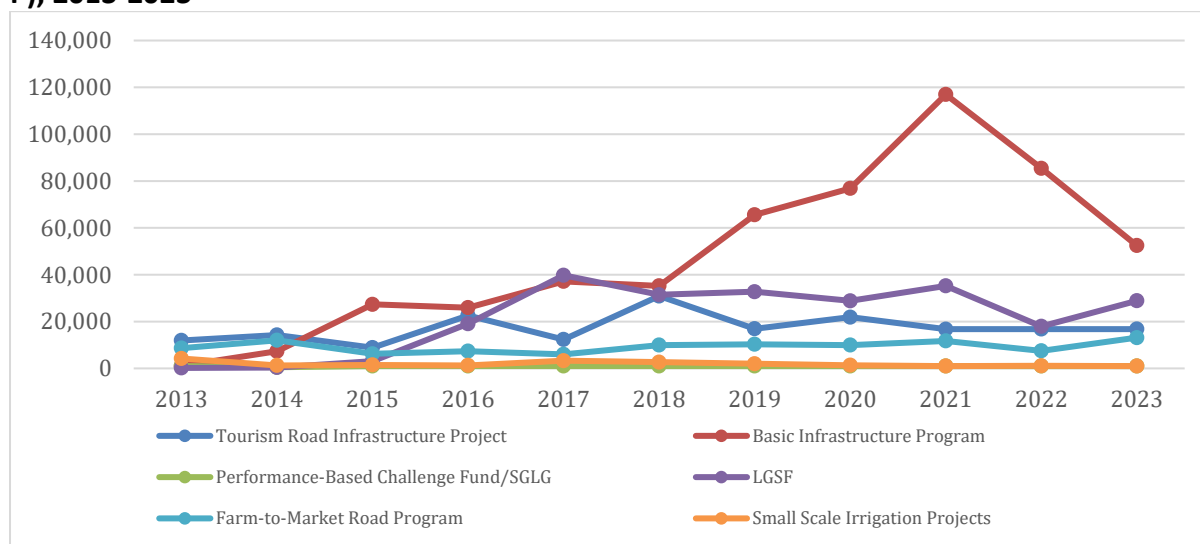
**Table 4. National Government LGU Assistance programs budget allocations, 2013-2023**

LGU Programs	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>DPWH</b>											
Tourism Road Infrastructure Project	12.0	14.3	8.9	22.6	12.364	30.96	16.96	21.9	16.76	16.80	16.80
Local Infrastructure Program/Basic Infrastructure Program	1.1	7.3	27.4	26.0	37.1	35.3	65.6	76.8	117.0	85.42	52.45
<b>DILG</b>											
Performance Challenge Fund/SGLG	1.0	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1
Local Government Support Fund (LGSF) <sup>16</sup>	0.2	0.4	3.1	19.1	39.8	31.4	32.7	28.9	35.2	17.97	28.88
<b>DA</b>											
Farm-to-Market Road Program	8.7	12.0	6.3	7.4	6.0	9.96	10.3	9.96	11.7	7.49	13.15
Small Scale Irrigation Projects	4.2	1.3	1.5	1.3	3.3	2.7	1.98	1.3	1.0	1.1	.99

Source: DBM (Various Years)

<sup>16</sup> Formerly known as the Financial Subsidy to LGUs

**Figure 18. National Government LGU Assistance programs budget allocations (in thousand P), 2013-2023**



Source: DBM (Various Years)

## 6. Growth Equity Fund and other Local Government Support Funds

To be able to further address the concern regarding the uneven level of growth and development, especially of the poorer and disadvantaged LGUs, the Growth Equity Fund (GEF) was introduced through Executive Order No. 138, s. 2021 (EO 138). The GEF is a fiscal equalization fund that aims to provide assistance to the poorer, disadvantaged, and lagging LGUs that are currently unable to implement their devolved functions and services (except for those under the Bangsamoro Autonomous Region in Muslim Mindanao [BARMM]).

The GEF may be used to fund programs, projects, and activities (PPAs) as well as basic infrastructure within the LGU. It also includes funds for capacity development so that these LGUs will be gradually enabled to solely implement the devolved functions and services. However, may not be used to cover programs and projects that are already covered by other sources such as administrative expenses including Personnel Services expenditures. Further, the GEF must be used by beneficiary LGUs exclusively to fulfill the implementation of their devolved functions and services, but it must also be in accordance with the programs and projects indicated in the LGU’s respective Devolution Transition Plans.

The criteria for identifying those belonging to the poorest, disadvantaged, and lagging provinces, cities, and municipalities that are eligible to receive the GEF are based on (1) LGU income bracket,<sup>17</sup> (2) poverty incidence, and (3) per capita FY 2022 NTA. LGUs were first ranked based on income bracket (DBM 2022c). Only the following are eligible beneficiaries of the GEF: provinces and cities belonging to the 4<sup>th</sup> income bracket,<sup>18</sup> municipalities belonging to 4<sup>th</sup> and 5<sup>th</sup> income brackets,<sup>19</sup> and—in the case of barangays—Geographically

<sup>17</sup> Based on average annual income of provinces, cities, and municipalities that are categorized to specific classes depending on the range where the average annual income falls in

<sup>18</sup> PHP 180M or more but less than PHP 270M for provinces and PHP 160M but less than PHP 240 M for municipalities (PSA 2022)

<sup>19</sup> From PHP 15M above but less than PHP 35M (PSA 2022)

Isolated and Disadvantaged Areas (GIDA) located in 4<sup>th</sup> and 5<sup>th</sup> income bracket municipalities. Municipalities that qualify based on income bracket are entitled to allocations that are determined using both poverty incidence and per capita FY 2022 NTA, while those in GIDA barangays in the said income brackets will use only FY 2022 NTA as basis (DBM 2022c).

The GEF in the 2022 GAA is equal to PHP 1.25 billion, or 7.0 percent of all Local Government Support Funds (LGSF). This amount was 700 percent smaller than the originally proposed PHP 10 billion in the President’s budget. The PHP 1.25 billion is distributed as follows: Ten percent each (PHP 125 million) to provinces, cities, and barangays and seventy percent (PHP 875 million) to municipalities (DBM 2022c). The GEF allotments should be obligated within the year (2022) but may be disbursed until the end of the following year (2023). Unreleased appropriations after the validity period shall lapse and undisbursed funds shall be reverted to the National Treasury. In the case of the GEF for FY 2022 and the success of the program, obligation is already at 100 percent, but impact assessments are not possible given that there are programs related to the GEF are still being implemented.<sup>20</sup>

In 2023, the President proposed PHP 13.9 billion allocation for the GEF, about 48.1 percent of LGSF allocations. Other LGSF allocations include the Support to the Barangay Development Program of the National Task Force to End Local Communist Armed Conflict (NTF-ELCAC) (34.6%) and Financial Assistance to LGUs (17.3%). The NTF-ELCAC—which is for the provision of assistance to barangays that were cleared of CPP/NPA insurgents and used to build infrastructure—increased by 77.8 percent (from PHP 5.6 to PHP 10 billion) while Financial Assistance to LGUs decreased by 52.8 percent (from PHP 10.6 to PHP 5.0 billion). The LGSF also had a Conditional Matching Grant to Provinces (for road and bridge repair, rehab, and improvement) in 2022 which costs PHP 500 million but is no longer given a budget in the 2023 NEP.

## **7. Digitalization and the bureaucratic processes**

As mentioned above, bureaucratic efficiency is included in the administration’s 8-point socio-economic agenda. In line with this, the administration has proposed a budget that intends to cover the digitalization of processes, records, and databases. This is expected to improve the “ease of doing business, limit human discretion, and enhance transparency in government transactions.”<sup>21</sup> The efforts on digitalization—together with the government’s rightsizing program and the cash-based budgeting system—are expected to enhance the efficiency in ensuring quick and responsive public service delivery.

To improve digitalization, the NEP 2023 reflects the intended investment of the administration on ICT skills development and infrastructure (Table 5). PHP 12.47 billion (equal to 0.24% of the total budget) is allotted to fund ICT and digitalization projects across the national government agencies, with DICT having the highest proposed budget of PHP 4.24 billion or 34.0 percent of the total. The Department of Finance (DOF) follows with PHP 3.56 billion (28.6%), which is for the digitalization and improvement of revenue collection and tax administration. Table 5 below shows the rest of the top ten departments/agencies in terms of the proposed allocations for ICT and digitalization.

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<sup>20</sup> Based on DBM interview

<sup>21</sup> From President’s Budget Message 2023, p. 36

**Table 5. Top ten NG departments/agencies in terms of budget for ICT and digitalization, in billion pesos**

Department	2023 Proposed	% share
DICT	4.24	34.0
DOF	3.56	28.6
DENR	0.57	4.6
DSWD	0.47	3.8
OEOs	0.44	3.5
DOLE	0.37	3.0
The Judiciary	0.35	2.8
DOST	0.30	2.4
DND	0.28	2.3
DOJ	0.23	1.9

DBCC<sup>22</sup>

Investing on the effective rollout of the Philippine Identification System (PhilSys)—which establishes a single national identification system—is also intended to increase bureaucratic efficiency. The PhilSys aims to simplify public and private transactions including the delivery of social welfare benefits. The COVID-19 pandemic further highlighted the need for easily accessible and accurate information for public service delivery. Having adequate data and information as institutions are necessary for finding solutions for the relevant and timely delivery of goods and services, and this can be achieved through the use of information and communications technologies and digital platforms (Tabuga, A. et.al. 2020).

## **8. How will the Philippine government finance the 2023 budget deficit?**

### *8.1. Fiscal Balance*

The Philippines has had fiscal deficits for the past 40 years, aside from 1995 to 1997 (before the Asian Financial Crisis) (Figure 19). In 2020, fiscal deficit (revenues less disbursements) as percent of GDP was at 7.6 percent, which is a larger deficit than the 3.4 percent in 2019.<sup>23</sup> This deficit increased further in 2021 to 8.6 percent—the largest in the past 40 years. Despite this there will be continued need for fiscal stimulus to sustainably grow after the pandemic and in 2023 the net financing requirement in 2023 is equal to 8.8 percent of GDP (Table 6). The deficit, however, is projected to decrease annually with projections showing that the deficit as percent of GDP will be at 3.0 percent by 2028.<sup>24</sup>

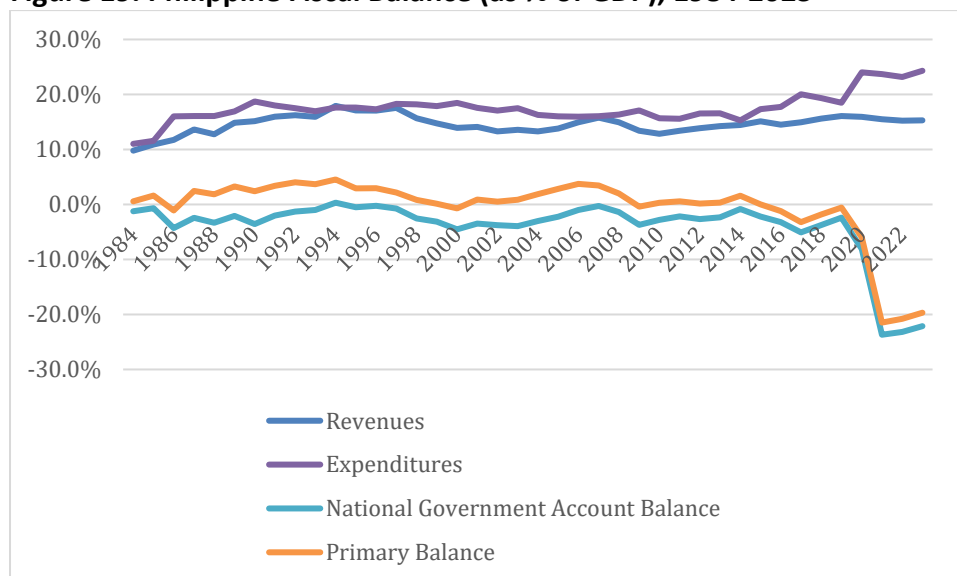
The reduction in fiscal deficits will be due to projected increases in revenues starting in 2023 reaching PHP 3,632.9 billion or a revenue effort of 15.28% slightly less than in 2021 (15.48%) but more than 2022 (15.25%) (Figure 20). Revenues are projected to increase up until 2025 with an expected PHP 4,576.8 billion (DBM 2022a).

<sup>22</sup> From the DBCC briefing to the Senate Committee on Finance on the highlights of the 2023 NEP on September 15, 2022

<sup>23</sup> From the DBCC's FY 2020 Annual Fiscal Report

<sup>24</sup> From DBCC Macroeconomic Assumptions and Fiscal Targets

**Figure 19. Philippine Fiscal Balance (as % of GDP), 1984-2023**



Source: DBM (Various Years)

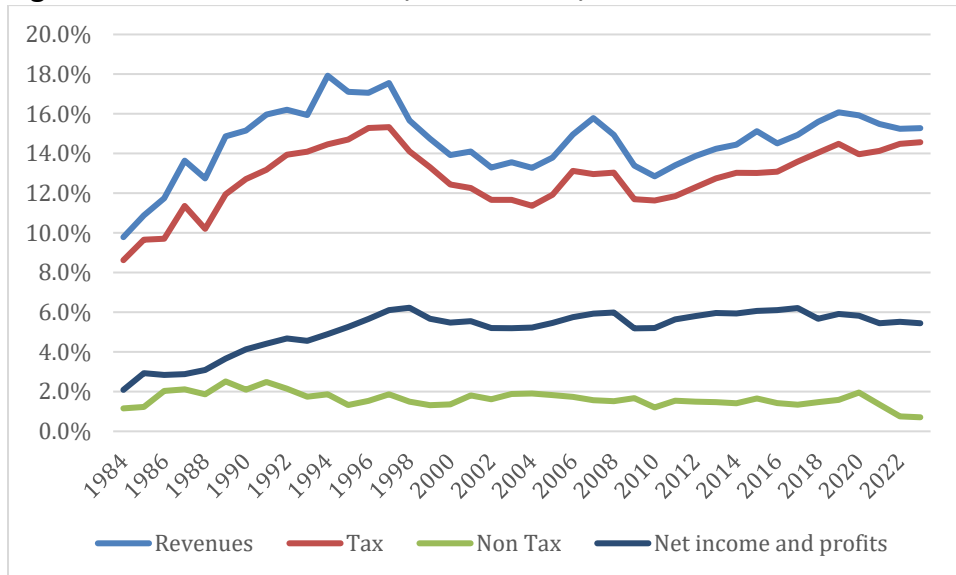
**Table 6. National Government Financing, 2021 to 2023**

<i>(in Million PhP)</i>	<b>2021</b>	<b>2022</b>	<b>2023</b>
<b>Net Foreign Borrowing</b>	331,481	428,263	431,037
<b>Net Domestic Borrowing</b>	1,920,699	1,646,908	1,651,483
<b>Total Net Financing Requirement/Deficit</b>	2,252,180	2,075,171	2,082,520
<b><i>(as % of GDP)</i></b>			
<b>Net Foreign Borrowing</b>	1.7%	2.0%	1.8%
<b>Net Domestic Borrowing</b>	9.9%	7.6%	6.9%
<b>Total Net Financing Requirement/Deficit</b>	11.6%	9.6%	8.8%
<b><i>Memo item:</i></b>			
<b>Nominal GDP</b>	19,410,568	21,672,800	23,775,200

Source: DBM (2022a)



**Figure 20. Revenue collection, as % of GDP, 1984-2023**

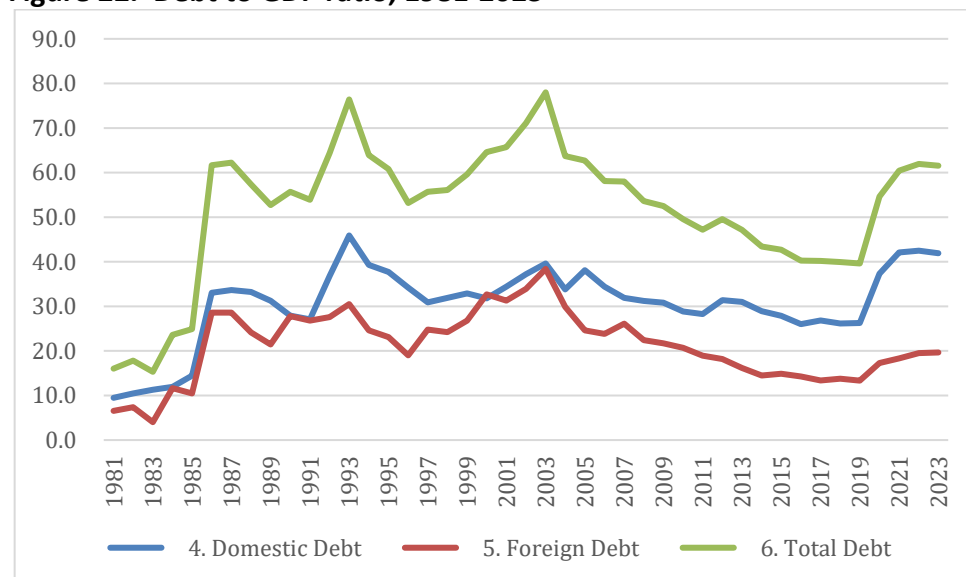


Source: DBM (Various Years)

## 8.2. Outstanding Debt

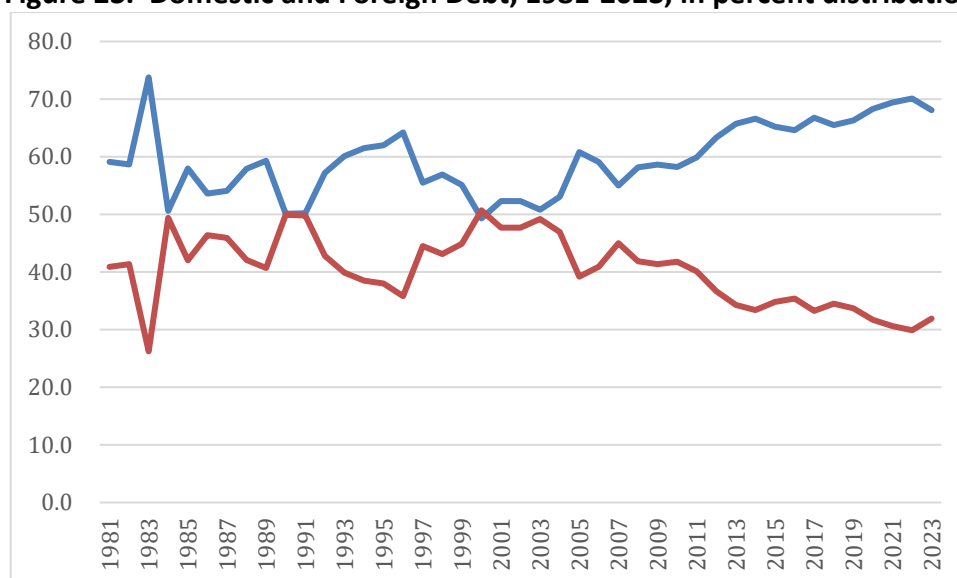
The debt-to-GDP ratio projected for 2023 is at 61.5 percent at PHP 14.6 trillion based on the new projections indicated in the Budget of Expenditures Sources of Funding (BESF) for FY 2023 (DBM 2022a). This represents a nine percent increase from the PHP 13.4 trillion debt in 2022, though the debt-to-GDP ratio is slightly less in 2023 than the 62 percent of 2022 (Figure 22). Though debt will mainly be domestic equaling to 68.1 percent of the debt, it is projected to be slightly lower since 2020 (Figure 23).

**Figure 22. Debt to GDP ratio, 1981-2023**



Source: DBM (Various Years)

**Figure 23. Domestic and Foreign Debt, 1981-2023, in percent distribution**



Source: DBM (Various Years)

As for projections beyond 2023, a BSP-PIDS Debt Sustainability Study (Debuque-Gonzales et al. 2022) estimates that debt is sustainable—with debt peaking in 2024 at 66.8 percent before gradually decreasing—provided that no fiscal policy reversals that would compromise the previous improvement of Philippine debt will be introduced. These projections were updated with recent data from 2023 BESF and FocusEconomics (2022) showing debt ratio projected to peak in 2024 at 66.9 percent and decreasing afterwards.<sup>25</sup> (Annex A, Figure 1).<sup>26</sup>

An example of a historical policy reversal that had adverse effects on revenue collection was when the VAT base narrowed under RA 8241 amended RA 7716 (otherwise known as the E-VAT Law) (Diokno 2011). Some identified risks to debt sustainability are fiscal policy reversals including rice tariffication and oil deregulation, and the introduction of new entitlement programs. The same study (Debuque-Gonzales et al. 2022) also identified risks that may change the sustainability of debt such as: risks that lead to real GDP growth shocks like the COVID-19 pandemic, natural disasters that may affect the government’s primary balance (because of the possible need for more borrowings), changes in exchange rates, higher market yields, and aggregate demand risks.

Also considered as risks are the possible effects of programs that are relevant to this paper such as the Mandanas Ruling and social protection programs like the military and uniformed personnel pensions and the net losses of Philhealth. Based on a report from the Government Service Insurance System (GSIS) (2021), the funding requirement for existing pensioners in 2019 was PHP 1.47 trillion in 2019, of which the allocated amount in 2023 is only a fraction at 0.11 percent. This poses a fiscal risk in that the national government will continue to spend on this item if a MUP pension plan/system is not introduced. In connection, Senate Bill No. 284 (SB 284), which is also known as the “Military and Uniformed Personnel Services Separation, Retirement, and Pension Act of 2022,” aims to address the need to ensure and maintain a viable pension system by ensuring that the scheme for the retirement benefits and

<sup>25</sup> Without budgetary exchange in cash, debt will peak in 2023 with 64.0 percent and decline to 59.3 percent by 2027

<sup>26</sup> Data for exchange rate is from Focus Economics (2022)

pension of MUP is secure, reliable, and sustainable. It also proposes for the creation of the MUP Fund Authority to carry out the aims and purposes of the Act (SB 284, sec. 17). The status of SB 284 as of this paper’s writing is that it was read on first reading and referred to the concerned Committees.

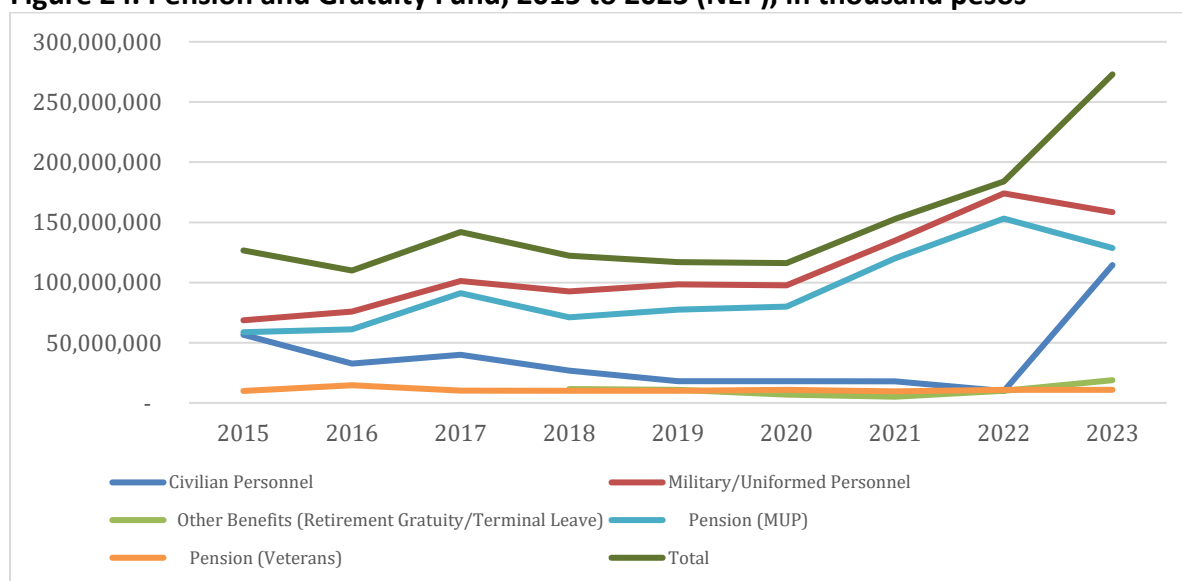
Coming from the PGF, MUP retirement gratuity/terminal leaves and personnel pensions are worth a combined PHP 158.4 billion in the proposed 2023 NEP, which is a nine percent decrease from the previous year’s GAA. Out of this PHP 158.4 billion allotted for the MUP retirements, terminal leaves, and personnel pensions, PHP 128.7 billion is for the pension of MUPs and 10.9 billion for veterans (Table 7). The budget that is specific for MUP pensions decreased by 16.0 percent (Table 7). The overall budget for MUP benefits, was lessened due to the budget allotted for Civilian Personnel (which grew from PHP 9.9 billion to PHP 114.5 billion) (Table 7; Figure 24). The overall share of MUP benefits out of the PGF budget (58.0%) was also at its lowest since 2015 (54.2%) (Figure 25).

**Table 7. Pension and Gratuity Fund, 2022 GAA to 2023 NEP, in billion pesos**

	2022 GAA	2023 NEP	Percent change
Civilian Personnel	9.85	114.52	1,062.2%
Military Uniformed Personnel	174.05	156.39	-9.0%
<i>Retirement Gratuity/Terminal Leave</i>	10.06	18.87	87.6%
<i>Pension (MUP)</i>	153.13	128.66	-16.0%
<i>Pension (Veterans)</i>	10.86	10.86	0%

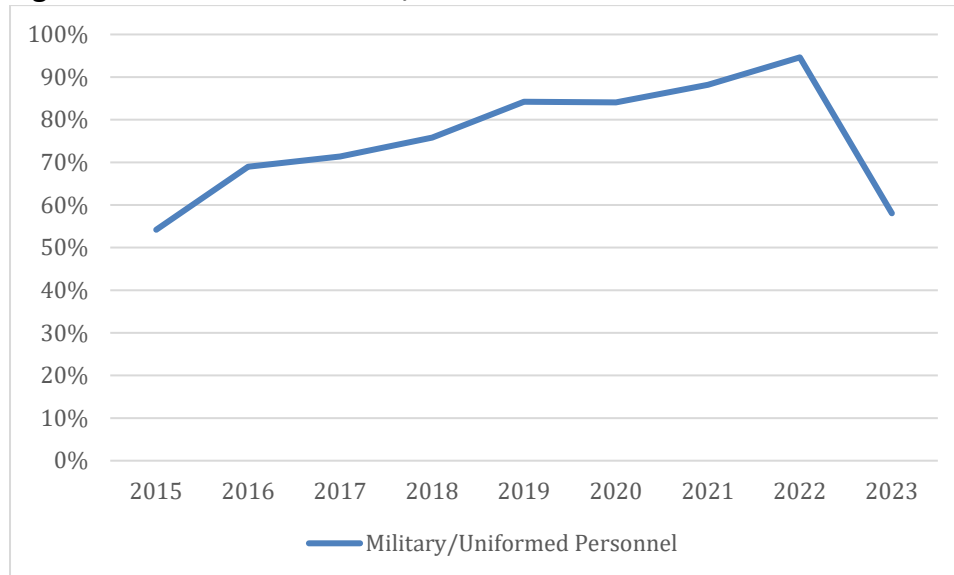
Source: DBM (2022b; 2022f)

**Figure 24. Pension and Gratuity Fund, 2015 to 2023 (NEP), in thousand pesos**



Source: DBM (various sources)

**Figure 25. MUP Shares of PGF, 2015 to 2023**



Source: DBM (various sources)

### **8.3. Tax buoyancy**

The ability of the Philippine government to raise revenues will also contribute to the aim of reducing the deficit to GDP ratio and propel the Philippine economy. The strategy of the DBCC to manage public debt is to outgrow it and this depends on the flexibility of the tax system. Tax buoyancy is one such indicator of its flexibility and is significant in formulating fiscal policies and more importantly, in achieving fiscal sustainability. Tax buoyancy measures the impact of changes in national income to the changes in tax revenue. Long run buoyancy is relevant when looking at fiscal sustainability. It indicates cointegration between taxes and GDP which may also provide an indication of how economic growth affects fiscal stability. Short run buoyancy is the instantaneous change in tax revenue to change in GDP and is associated to the function of fiscal policy to act as automatic stabilizers in the economy. When buoyancy is above one, tax revenue is moving faster than GDP which aids in reducing fiscal deficit and supports government spending. However, Hill et al (2022) notes that “taxes cannot continue to grow faster than the tax base indefinitely”. A buoyancy below one though, may be risk to fiscal sustainability and policies for a more progressive tax system are important to address this especially if reduction in spending is not viable.

## Model specification

To estimate the buoyancy of taxes, a time series autoregressive distributed lag model (p,q) in an error correction specification can be used, following the procedure done by Lagravinese et al (2020), Jalles (2021), Gupta et al (2021), and Hill et al (2022). Assuming a long run cointegrating relationship between taxes and GDP, the estimating equation is expressed as:

$$\Delta \ln y_t = c_0 - \varphi(\ln y_{t-1} - \theta \ln GDP_{t-1}) + \sum \gamma_{\ln y, j} \Delta \ln y_{t-j} + \sum \gamma'_{\ln GDP, j} \Delta \ln GDP_{t-j} + \sum \delta_j D_j + \xi_t \quad (2)$$

where,

$y$  = total tax revenue

$\delta$  = impact of a discretionary change

The effects brought by tax reforms in the Philippines over the years are represented by  $\delta$ . Dummy variables are added in the model for the years when a notable tax reform occurred.

Another possible method is the process done by Dudine et al (2017), running the long run and the short run model separately. The long run equation is estimated using fully modified ordinary least squares (Phillips and Hansen, 1990) specified as:

$$\ln y_t = \theta' \ln GDP_t + \mu_t \quad (3)$$

where,

$\mu_t$  is stationary with possible non-zero mean

The lagged residual from the long run equation is then added as the error correction term in the short run equation, which is estimated using OLS specified as:

$$\Delta \ln y_t = \varphi \mu_{t-1} + \sum \gamma_{\ln y, j} \Delta \ln y_{t-j} + \sum \gamma'_{\ln GDP, j} \Delta \ln GDP_{t-j} + \sum \delta_j D_j + \xi_t \quad (4)$$

The long run and short run tax buoyancy coefficients  $\theta$  and  $\gamma$  respectively are expected to be positive, with estimates above one indicating a buoyant tax system. The error correction coefficient  $\varphi$  representing the speed of adjustment towards the long run equilibrium is expected to be a negative number. Furthermore, the variables are in real terms (constant 2018) to control for inflation.

## Data

Annual GDP from 1984 to 2021 are taken from PSA. Total tax revenue on the other hand, is gathered from the DBCC Fiscal Statistics Handbook for 1984-1985, and the Bureau of Treasury Cash Operations Report for 1986 to 2021. Total tax revenue consists of taxes on net income and profits, taxes on property, and taxes on domestic goods and services collected by the Bureau of Internal Revenue and taxes on international trade and transactions collected by the Bureau of Customs.

## Results

Table 8 below shows the regression<sup>27</sup> estimates. Short run tax buoyancy coefficients are 1.023 and 1.183, while long run estimates are 0.921 and 1.093. In general, both methods produce a higher tax buoyancy in the short run than in the long run, but ARDL-ECM generated relatively lower estimates compared to FMOLS. This indicates that SR revenues are more buoyant than smoothens over the long-run.

**Table 8. Regression results**

VARIABLES	ARDL EC			FMOLS	OLS
	(1) ADJ	(2) LR	(3) SR	(4) ln( <i>tax revenue</i> )	(5) $\Delta$ ln( <i>tax revenue</i> )
$\Delta$ ln( <i>real GDP</i> )			1.023*** (0.245)		1.183*** (0.241)
Two-year lagged 1986 TRP			-0.171*** (0.0508)		-0.147*** (0.0521)
Two-year lagged 1997 CTRP			-0.0570 (0.0498)		-0.0476 (0.0522)
Two-year lagged 2005 VAT reform			-0.0213 (0.0494)		-0.0256 (0.0520)
Two-year lagged 2012 sin tax reform			0.0127 (0.0501)		-0.00717 (0.0518)
Two-year lagged 2017 TRAIN law			0.0518 (0.0517)		0.0198 (0.0519)
Two-year lagged 2019 Tax Amnesty Act			0.0323 (0.0514)		0.00169 (0.0518)
Lagged ln( <i>tax revenue</i> )	-0.236*** (0.0710)				
ln( <i>real GDP</i> )		0.921*** (0.104)		1.093*** (0.0631)	

<sup>27</sup> The Augmented Dickey-Fuller test shows both taxes and GDP are stationary at first differences. Also, Bayesian Information Criterion (BIC) sets the lag order at one for both p and q.

Lagged residual from LR FMOLS					-0.250*** (0.0744)
Constant			-0.187 (0.424)	-3.551*** (1.007)	0.0101 (0.0125)
Observations	37	37	37	37	37
R-squared	0.650	0.650	0.650	0.963	0.597

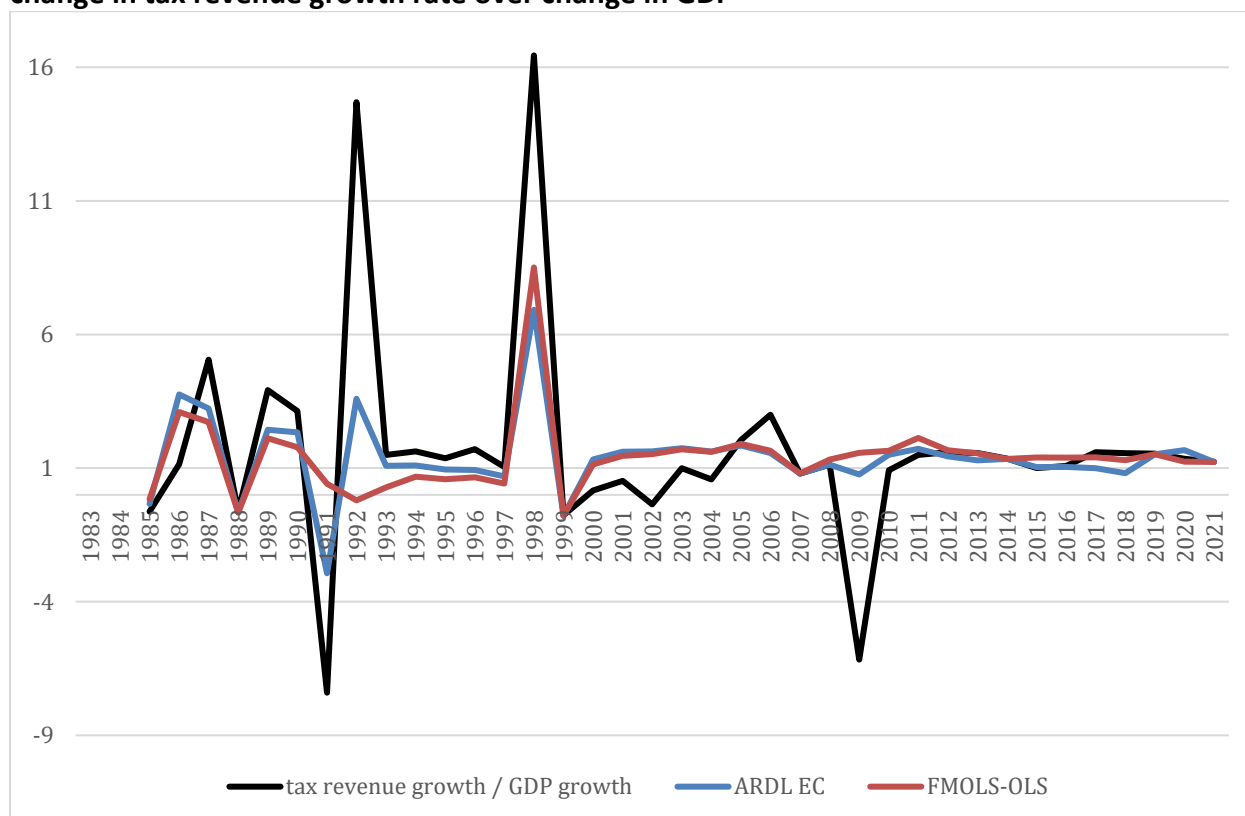
Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Also, the LR estimates suggest that taxes are moving almost proportionately to changes in GDP when looking at the FMOLS results, but is moving slower in the ARDL model. This does not guarantee stability as possible economic shocks may reduce the buoyancy of taxes and put the fiscal sustainability of the country at risk. Adjustment coefficients can be interpreted as about 23.6 percent and 25 percent of the discrepancy between the short run and long run coefficients are corrected within a year. Lastly, it is possible that the impact of tax reforms is not immediate (Blanchard et al, 2010). More comprehensive tax reforms may have warranted a longer time to be fully implemented, and enforcing the changes may have occurred later than the effectivity date of the policy. Tax reform dummy variables are then lagged two years as seen in the table.

Figure 26 below shows a comparison of the short run tax buoyancy estimates from the two regression runs and from a computation based on the DBCC FSH buoyancy tables which is tax revenue growth divided by GDP growth (in nominal terms). The ARDL and OLS estimates seem to be close to each other especially from the mid-1990s onwards. The dip in 1991 is due to tax revenue (in real terms) growing at about 3.2 percent, but real GDP growth was at -0.4 percent. Also, the high buoyancy computation in 1998 was due to total taxes revenue growth of -8.5 percent and GDP at -0.5 percent. However, total tax revenue buoyancy is at about 0.1 nominally (DBCC Fiscal Statistics Handbook 1994-2003). Finally, it can be observed that in all three estimates, total tax revenue buoyancy is more stable in the past decade relative to the years prior.

**Figure 26. Short run tax buoyancy estimates (two-year lagged tax reforms) vs. computed change in tax revenue growth rate over change in GDP**



Source: Authors' calculations.

## 9. General Findings and Ways Forward

- Priority areas remain to be in the social sector, infrastructure as indicated in the NBM

Similar to the trends of expenditures of the past decade, the proposed 2023 budget prioritizes social services among all others in terms of sectoral distributions. The social services sector is composed of education, health, social welfare, and labor and employment and housing. All these sub-sectors increase in percent shares which was due to the decrease of the Subsidy to LGUs. It also follows that this sector continues to remain the highest given that it covers education (which is supposed to have the largest share) and social protection which remains to be essential due to the pandemic. Economic services follow given that there remains to be a focus on its sub-sectors especially communications, roads, and transportation and agriculture, agrarian reform, and natural resources and environment. The decrease in the subsidy to LGUs under this sector also led to higher shares for the other sub-sectors.

- A new socio-economic agenda and fiscal tool (Medium-term Fiscal Framework (MTFF)) were introduced in 2022

The new administration introduced an 8-pt socioeconomic agenda in the middle of the 2023 budget preparations with similar priorities to the previous administration, though more focused on job creation and building on reforms implemented by the previous administration. In addition, a Medium-Term Fiscal Framework (MTFF) was introduced for the first time with both a near- and medium-term socioeconomic agenda. The near-term focuses on interventions



that ensures the reopening of the economy while simultaneously addressing the scarring issues of the pandemic through social services. The medium-term intends to build on the results of the short-term agenda and focus on productivity-enhancing investments through infrastructure, increased employability, and sustainable technologies. This MTFE was adopted by the Congress of the Philippines to align priorities in sustaining Philippine growth but its success is yet to be seen.

- Increased spending on social protection and health

As mentioned, social protection and health are proposed to receive higher shares due to the reduced Subsidy to LGUs (DBM 2022a) but also because the administration's priorities include these as the country continues to recover from the COVID-19 pandemic. The sub-sectors where these two fall under had a huge increase in 2020 before having a slight decrease in the succeeding years. It will, however, increase again slightly in 2023 with social security and labor welfare rising from 23.1 to 25.1 percent and health increasing from 14.5 to 14.9 percent (DBM 2022a).

- Reduced intergovernmental fiscal transfers in 2023 (as a result of the collapse of 2020 revenues) pose a challenge to LGUs that will be absorbing more devolved functions. Though there are programs that provide additional funds for the poorer more disadvantaged LGUs, the effectiveness of these programs have yet to be assessed. There is still need to build capacities.
- Though debt to GDP ratio is expected to peak in 2024, debt is sustainable. However, there should be no policy reversals particularly in agriculture and oil sectors. In addition, the fiscal risk of the lack of a military and uniformed personnel pension plan should be addressed.
- The current tax system seems to be buoyant but may need more improvements in the regime to attain goals set out in MTFE.

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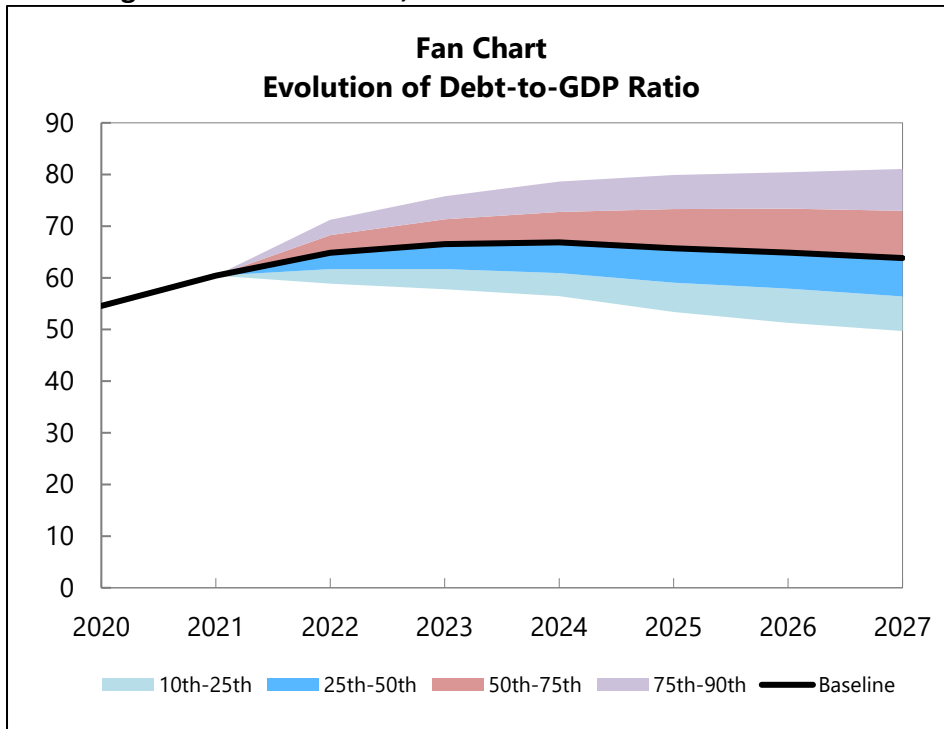
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**Annex A. Debt sustainability analysis**

**Annex Figure 1. DSA fan chart, 2020-2027**



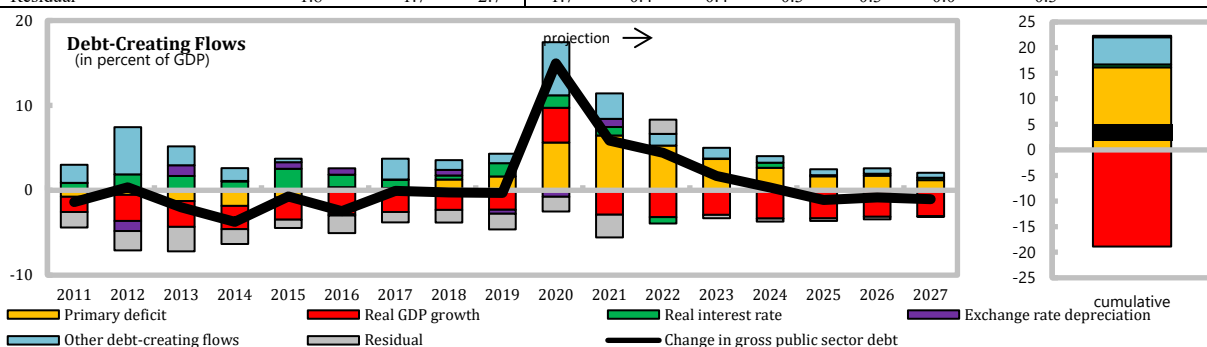
	2020	2021	2022	2023	2024	2025	2026	2027
NG debt/GDP	54.6	60.4	64.8	66.5	66.9	65.7	64.9	63.8

## Annex Table 1. DSA economic indicators and contribution to changes in public debt

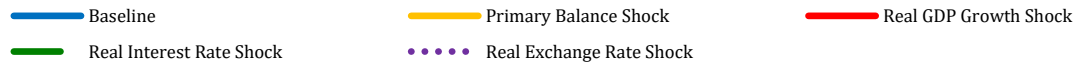
In percent of GDP

Debt, Economic and Market Indicators										As of January 01, 2022		
Actual				Projections						Sovereign Spreads		
	2011-2019	2020	2021	2022	2023	2024	2025	2026	2027			
Nominal gross public debt	43.5	54.6	60.4	64.8	66.5	66.9	65.7	64.9	63.8	Bond Spread (bp) 276		
Public gross financing needs	5.3	10.9	12.6	11.1	13.2	10.7	8.8	8.0	9.8	5Y CDS (bp) 258		
Public debt (in percent of potential GDP)										Ratings Foreign Local		
Real GDP growth (in percent)	6.3	-9.5	5.7	5.8	4.9	5.5	5.4	5.2	5.2	Moody's Baa2 Baa2		
Inflation (GDP deflator, in percent)	2.0	1.7	2.3	5.5	4.5	4.0	4.0	4.0	4.0	S&Ps BBB+ BBB+		
Nominal GDP growth (in percent)	8.5	-8.0	8.1	11.7	9.6	9.7	9.6	9.4	9.4	Fitch BBB BBB		
Effective interest rate (in percent)	5.5	4.9	4.4	4.4	4.8	5.2	4.4	4.6	4.7			

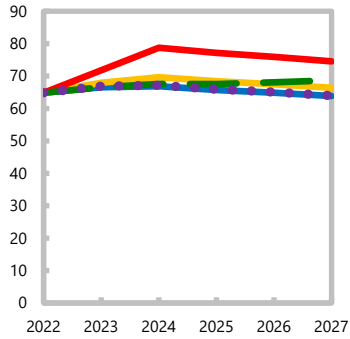
Contribution to Changes in Public Debt											Debt-stabilizing primary balance
Actual			Projections							cumulative	
	2011-2019	2020	2021	2022	2023	2024	2025	2026	2027		
Change in gross public sector debt	-1.2	15.0	5.9	4.4	1.7	0.3	-1.1	-0.8	-1.0	3.4	
Identified debt-creating flows	0.6	16.7	8.5	2.7	2.1	0.7	-0.8	-0.5	-1.0	3.1	
Primary deficit	-0.2	5.6	6.5	5.3	3.7	2.7	1.6	1.7	1.2	16.1	-2.2
Primary (noninterest) revenue and grants	14.6	15.8	15.4	15.2	15.3	15.6	16.0	16.5	17.0	95.6	
Primary (noninterest) expenditure	14.4	21.4	21.9	20.5	19.0	18.2	17.7	18.2	18.2	111.7	
Automatic debt dynamics	-1.0	4.8	-0.9	-3.9	-2.8	-2.7	-3.2	-2.9	-2.8	-18.3	
Interest rate/growth differential	-1.2	5.6	-1.9	-3.9	-2.8	-2.7	-3.2	-2.9	-2.8	-18.3	
Of which: real interest rate	1.4	1.5	1.0	-0.8	0.1	0.6	0.1	0.2	0.3	0.6	
Of which: real GDP growth	-2.6	4.1	-2.9	-3.2	-2.9	-3.3	-3.3	-3.1	-3.1	-18.9	
Exchange rate depreciation	0.2	-0.8	1.0	...	...	...	...	...	...	...	
Other identified debt-creating flows	1.8	6.3	3.0	1.4	1.3	0.8	0.7	0.6	0.6	5.3	
privatization receipts	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Budgetary change in cash	1.9	6.3	3.0	1.4	1.3	0.8	0.7	0.6	0.6	5.3	
Residual	-1.8	-1.7	-2.7	1.7	-0.4	-0.4	-0.3	-0.3	0.0	0.3	



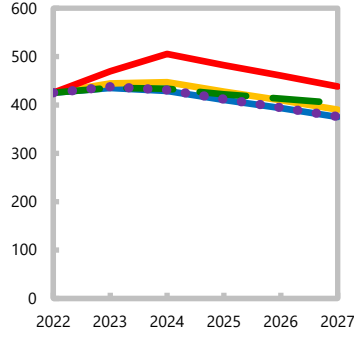
## Annex Figure 2. DSA Stress tests



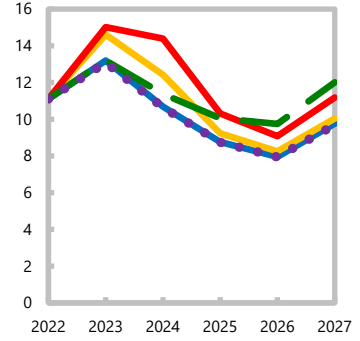
**Gross Nominal Public Debt**  
(in percent of GDP)



**Gross Nominal Public Debt**  
(in percent of Revenue)



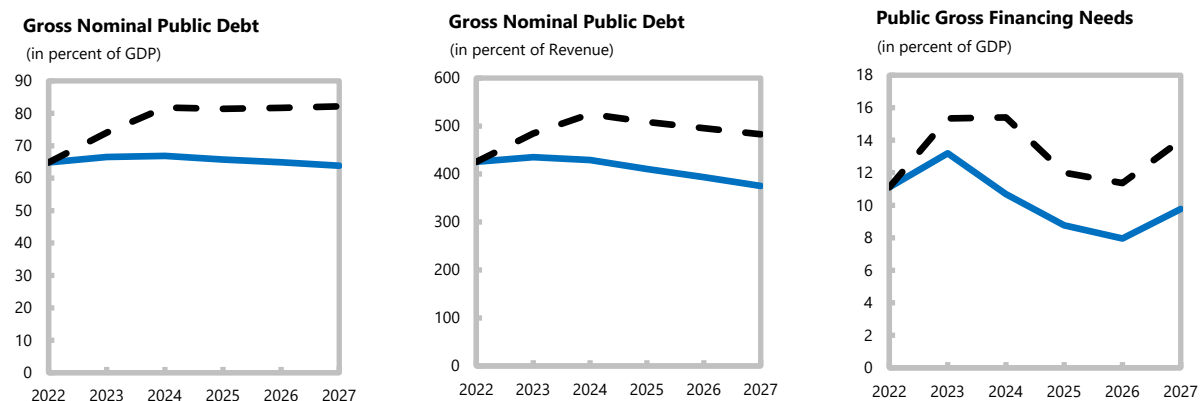
**Public Gross Financing Needs**  
(in percent of GDP)





### Annex Figure 3. Additional stress tests

— Baseline      - - - Combined Shock



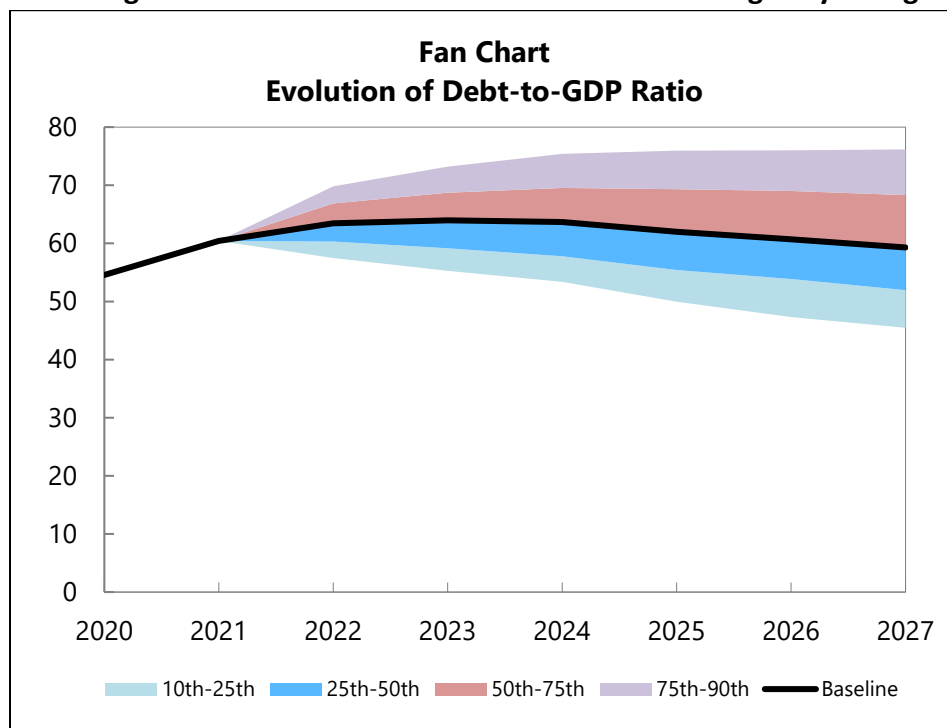
Annex Table 2. Underlying Assumptions (in percent)

	2022	2023	2024	2025	2026	2027
<b>Primary Balance Shock</b>						
Real GDP growth	5.8	4.9	5.5	5.4	5.2	5.2
Inflation	5.5	4.5	4.0	4.0	4.0	4.0
Primary balance	-5.3	-5.1	-4.1	-1.6	-1.7	-1.2
Effective interest rate	4.4	4.8	5.3	4.5	4.7	4.8
<b>Real Interest Rate Shock</b>						
Real GDP growth	5.8	4.9	5.5	5.4	5.2	5.2
Inflation	5.5	4.5	4.0	4.0	4.0	4.0
Primary balance	-5.3	-3.7	-2.7	-1.6	-1.7	-1.2
Effective interest rate	4.4	4.8	6.4	6.4	7.0	7.5
<b>Combined Shock</b>						
Real GDP growth	5.8	-0.2	0.4	5.4	5.2	5.2
Inflation	5.5	3.2	2.7	4.0	4.0	4.0
Primary balance	-5.3	-5.1	-5.0	-1.6	-1.7	-1.2
Effective interest rate	4.4	4.9	6.3	6.4	7.1	7.6

	2022	2023	2024	2025	2026	2027
<b>Real GDP Growth Shock</b>						
Real GDP growth	5.8	-0.2	0.4	5.4	5.2	5.2
Inflation	5.5	3.2	2.7	4.0	4.0	4.0
Primary balance	-5.3	-4.9	-5.0	-1.6	-1.7	-1.2
Effective interest rate	4.4	4.8	5.3	4.6	4.7	4.8
<b>Real Exchange Rate Shock</b>						
Real GDP growth	5.8	4.9	5.5	5.4	5.2	5.2
Inflation	5.5	7.1	4.0	4.0	4.0	4.0
Primary balance	-5.3	-3.7	-2.7	-1.6	-1.7	-1.2
Effective interest rate	4.4	4.9	5.2	4.4	4.6	4.7

Annex Figure 4. DSA fan chart with the exclusion of budgetary change in cash, 2020-2027



	2020	2021	2022	2023	2024	2025	2026	2027
NG debt/GDP	54.6	60.4	63.4	64.0	63.7	62.0	60.7	59.3

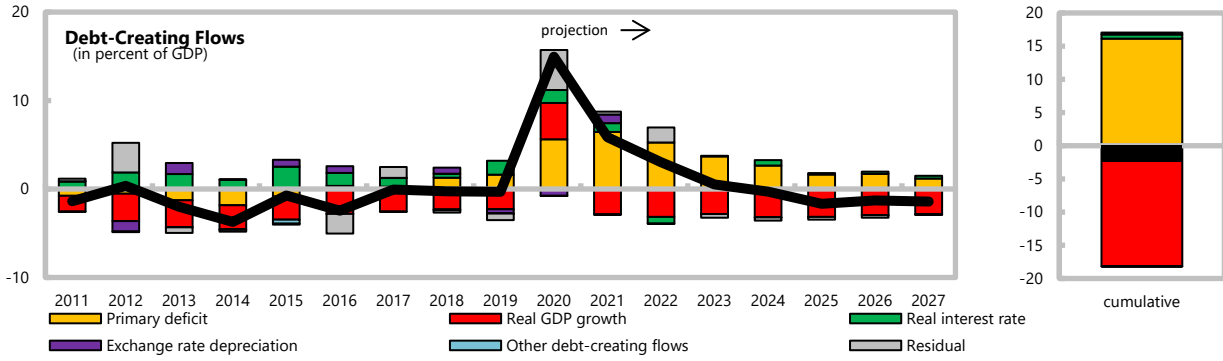
Annex Table 3. DSA economic indicators and contribution to changes in public debt (no budgetary change in cash)

In percent of GDP

	Actual			Debt, Economic and Market Indicators							As of January 01, 2022		
	2011-2019	2020	2021	2022	2023	2024	2025	2026	2027				
Nominal gross public debt	43.5	54.6	60.4	63.4	64.0	63.7	62.0	60.7	59.3	Sovereign Spreads			
Public gross financing needs	5.3	10.9	12.6	11.1	12.7	10.6	8.5	7.6	9.1	Bond Spread (bp) 276			
Public debt (in percent of potential GDP)										5Y CDS (bp) 258			
Real GDP growth (in percent)	6.3	-9.5	5.7	5.8	4.9	5.5	5.4	5.2	5.2	Ratings	Foreign	Local	
Inflation (GDP deflator, in percent)	2.0	1.7	2.3	5.5	4.5	4.0	4.0	4.0	4.0	Moody's	Baa2	Baa2	
Nominal GDP growth (in percent)	8.5	-8.0	8.1	11.7	9.6	9.7	9.6	9.4	9.4	S&Ps	BBB+	BBB+	
Effective interest rate (in percent)	5.5	4.9	4.4	4.4	4.9	5.3	4.5	4.6	4.7	Fitch	BBB	BBB	

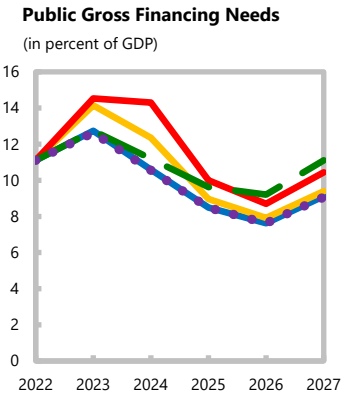
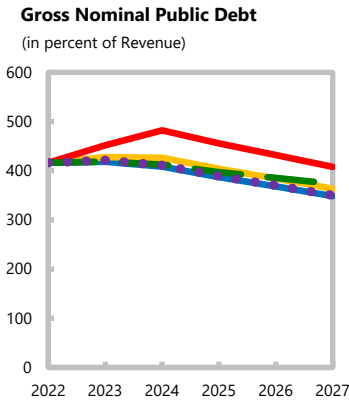
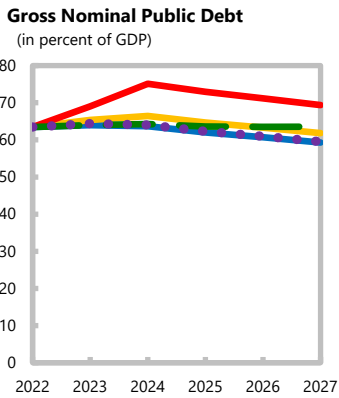
	Actual			Contribution to Changes in Public Debt							cumulative	Debt-stabilizing primary balance
	2011-2019	2020	2021	2022	2023	2024	2025	2026	2027			
Change in gross public sector debt	-1.2	15.0	5.9	3.0	0.5	-0.3	-1.7	-1.3	-1.4	-1.1		
Identified debt-creating flows	-1.2	10.4	5.5	1.3	0.9	0.0	-1.4	-1.0	-1.4	-1.4		
Primary deficit	-0.2	5.6	6.5	5.3	3.7	2.7	1.6	1.7	1.2	16.1	-2.6	
Primary (noninterest) revenue and grants	14.6	15.8	15.4	15.2	15.3	15.6	16.0	16.5	17.0	95.6		
Primary (noninterest) expenditure	14.4	21.4	21.9	20.5	19.0	18.2	17.7	18.2	18.2	111.7		
Automatic debt dynamics	-1.0	4.8	-0.9	-3.9	-2.7	-2.6	-3.0	-2.7	-2.6	-17.6		
Interest rate/growth differential	-1.2	5.6	-1.9	-3.9	-2.7	-2.6	-3.0	-2.7	-2.6	-17.6		
Of which: real interest rate	1.4	1.5	1.0	-0.8	0.1	0.6	0.1	0.2	0.3	0.6		
Of which: real GDP growth	-2.6	4.1	-2.9	-3.2	-2.8	-3.2	-3.1	-2.9	-2.9	-18.2		
Exchange rate depreciation	0.2	-0.8	1.0	...	...	...	...	...	...	...		

Other identified debt-creating flows	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
privatization receipts	-0.1	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Contingent liabilities	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Budgetary change in cash	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residual	0.1	4.5	0.3	1.7	-0.4	-0.4	-0.3	-0.3	-0.3	0.0	0.3

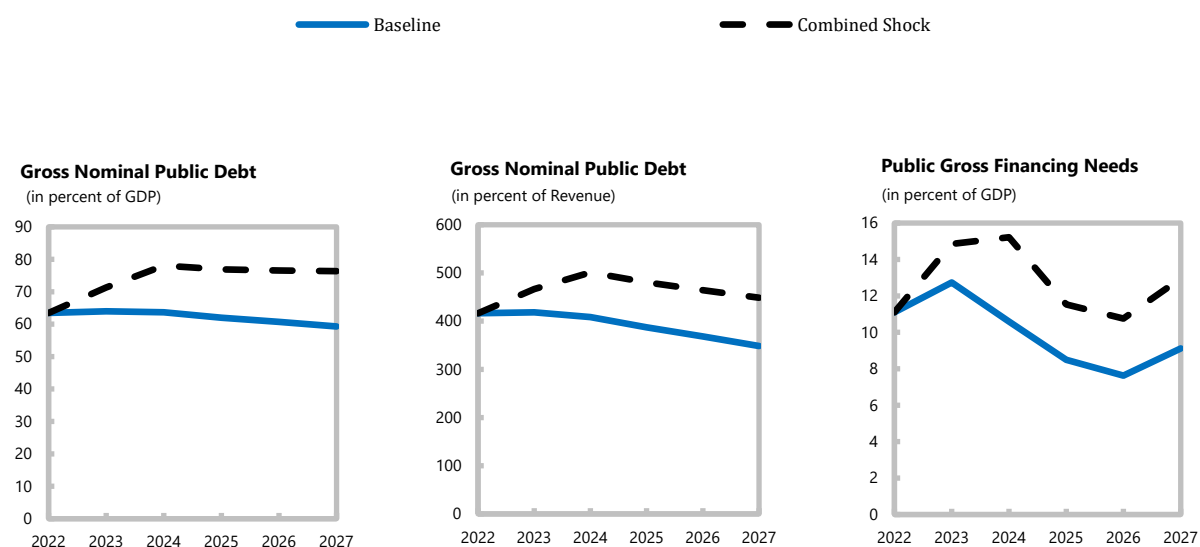


### Annex Figure 5. DSA Stress tests (no budgetary change in cash)

- Baseline
- Real Interest Rate Shock
- Primary Balance Shock
- Real Exchange Rate Shock
- Real GDP Growth Shock



## Annex Figure 6. Additional stress tests (no budgetary change in cash)



## Annex Table 4. Underlying Assumptions

	2022	2023	2024	2025	2026	2027
<b>Primary Balance Shock</b>						
Real GDP growth	5.8	4.9	5.5	5.4	5.2	5.2
Inflation	5.5	4.5	4.0	4.0	4.0	4.0
Primary balance	-5.3	-5.1	-4.1	-1.6	-1.7	-1.2
Effective interest rate	4.4	4.9	5.3	4.6	4.7	4.8
<b>Real Interest Rate Shock</b>						
Real GDP growth	5.8	4.9	5.5	5.4	5.2	5.2
Inflation	5.5	4.5	4.0	4.0	4.0	4.0
Primary balance	-5.3	-3.7	-2.7	-1.6	-1.7	-1.2
Effective interest rate	4.4	4.9	6.3	6.2	6.9	7.4
<b>Combined Shock</b>						
Real GDP growth	5.8	-0.2	0.4	5.4	5.2	5.2
Inflation	5.5	3.2	2.7	4.0	4.0	4.0
Primary balance	-5.3	-5.1	-5.0	-1.6	-1.7	-1.2
Effective interest rate	4.4	5.0	6.3	6.3	7.0	7.5

	2022	2023	2024	2025	2026	2027
<b>Real GDP Growth Shock</b>						
Real GDP growth	5.8	-0.2	0.4	5.4	5.2	5.2
Inflation	5.5	3.2	2.7	4.0	4.0	4.0
Primary balance	-5.3	-4.9	-5.0	-1.6	-1.7	-1.2
Effective interest rate	4.4	4.9	5.3	4.6	4.8	4.8
<b>Real Exchange Rate Shock</b>						
Real GDP growth	5.8	4.9	5.5	5.4	5.2	5.2
Inflation	5.5	7.1	4.0	4.0	4.0	4.0
Primary balance	-5.3	-3.7	-2.7	-1.6	-1.7	-1.2
Effective interest rate	4.4	5.0	5.2	4.4	4.6	4.7

## Annex B. Tax buoyancy diagnostic tests

### Lag order selection criteria

$\ln(\text{total tax revenue})$

Sample: 1988 thru 2021

Number of obs = 34

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-22.4529				0.232637	1.37958	1.39489	1.42448
1	43.3846	131.67*	1	0.000	0.005133*	-2.43439*	-2.40377*	-2.3446*
2	43.395	0.02082	1	0.885	0.005442	-2.37617	-2.33025	-2.2415
3	43.9265	1.0631	1	0.303	0.005598	-2.34862	-2.28738	-2.16905
4	44.1196	0.38607	1	0.534	0.005876	-2.30115	-2.2246	-2.07669

\*optimal lag

$\ln(\text{real GDP})$

Sample: 1987 thru 2021

Number of obs = 35

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-21.6662				0.213814	1.29521	1.31055	1.33965
1	71.3702	186.07*	1	0.000	0.001112*	-3.96401*	-3.93333*	-3.87514*
2	71.4229	0.10534	1	0.746	0.001174	-3.90988	-3.86386	-3.77656
3	71.4504	0.05499	1	0.815	0.001242	-3.85431	-3.79295	-3.67655
4	72.1282	1.3556	1	0.244	0.001266	-3.8359	-3.7592	-3.6137

\*optimal lag

### Augmented Dickey-Fuller test for unit root

Variable: $\ln(\text{total tax revenue})$					Variable: $\Delta \ln(\text{total tax revenue})$				
Number of obs = 36					Number of obs = 35				
Number of lags = 1					Number of lags = 1				
$H_0$ : Random walk without drift, $d = 0$					$H_0$ : Random walk without drift, $d = 0$				
Dickey-Fuller critical value					Dickey-Fuller critical value				
test statistic					test statistic				
1%					1%				
5%					5%				
10%					10%				
Z(t)	-0.907	-3.675	-2.969	-2.617	Z(t)	-3.285	-3.685	-2.972	-2.618
MacKinnon approximate p-value for Z(t) = 0.7858					MacKinnon approximate p-value for Z(t) = 0.0156				

Variable: $\ln(\text{real GDP})$					Variable: $\Delta \ln(\text{real GDP})$				
Number of obs = 37					Number of obs = 36				
Number of lags = 1					Number of lags = 1				
$H_0$ : Random walk without drift, $d = 0$					$H_0$ : Random walk without drift, $d = 0$				
Dickey-Fuller critical value					Dickey-Fuller critical value				
test statistic					test statistic				
1%					1%				
5%					5%				
10%					10%				
Z(t)	0.493	-3.668	-2.966	-2.616	Z(t)	-5.061	-3.675	-2.969	-2.617
MacKinnon approximate p-value for Z(t) = 0.9847					MacKinnon approximate p-value for Z(t) = 0.0000				

### Pesaran, Shin, and Smith bounds test

$H_0$ : no level relationship

F = 6.239

Case 3

t = -3.139

Finite sample (1 variables, 37 observations, 7 short-run coefficients)

Kripfganz and Schneider (2020) critical values and approximate p-values

	10%		5%		1%		p-value	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
F	4.085	5.021	5.137	6.223	7.695	9.120	0.025	0.050
t	-2.529	-2.901	-2.882	-3.274	-3.604	-4.031	0.029	0.065

do not reject  $H_0$  if

either F or t are closer to zero than critical values for I(0) variables  
(if either p-value > desired level for I(0) variables)

Reject  $H_0$  if

Both F and t are more extreme than critical values for I(1) variables  
(if both p-values < desired level for I(1) variables)

Decision: no rejection ( .a ), inconclusive ( . ), or rejection ( .r ) at levels:

	10%	5%	1%
decision	.r	.	.a

### Test for serial correlation

Durbin-Watson d-statistic (10, 37) = 1.954792

Breusch Godfrey LM test for autocorrelation

lags (p)	chi2	df	Prob > chi2
1	0.012	1	0.9122

$H_0$ : no serial correlation

### White's test for heteroskedasticity

$H_0$ : homoskedasticity

$H_a$ : Unrestricted heteroskedasticity

chi2(15) = 13.93

Prob > chi2 = 0.5309

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	13.93	15	0.5309
Skewness	4.45	9	0.8796
Kurtosis	1.15	1	0.2835
Total	19.53	25	0.7712

### Normality test

Jarque-Bera normality test: 10.76 Chi(2) 0.0046

Jarque-Bera test for  $H_0$ : normality

Test for model stability

