

An augmented long-term approach to public debt sustainability analysis



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Table of Contents

SUMMARY	4
I. INTRODUCTION	5
II. REVIEW OF CURRENT APPROACHES TO DEBT SUSTAINABILITY ANALYSIS	6
A. APPROACHES OF IMF AND WORLD BANK	6
B. APPROACHES OF CREDIT RATING AGENCIES	7
III. AN AUGMENTED APPROACH ON PUBLIC DEBT SUSTAINABILITY ANALYSIS	10
IV. BROAD POLICY IMPLICATIONS	13
V. OPERATIONAL CONSIDERATION	14
VI. CONCLUSION	16
REFERENCES	17

Summary

- > This policy brief makes a case for policymakers in Asia and the Pacific and the international development community to rethink how public debt assessment should be undertaken, especially keeping in view the 2030 Agenda for Sustainable Development. It does so by outlining an “augmented”, long-term approach to analyse public debt sustainability. This approach duly incorporates a country’s investment needs to achieve the Sustainable Development Goals (SDGs), governments’ structural development policies that go beyond financial investments, and national SDG financing strategies.
- > By supplementing the short- to medium-term approaches currently adopted by international financial institutions and credit rating agencies, this new approach is important because, without a complementary long-term analysis, there is a risk that too much emphasis will be put on reducing near-term debt distress risk at the cost of achieving inclusive and sustainable development.
- > The analysis is based on macroeconomic modelling and illustrates different trajectories of government debt level under different policy scenarios and adverse shocks. This helps policymakers make informed choices on how to strike a balance between maintaining public debt sustainability and achieving more inclusive and sustainable development in the long term.

I. Introduction

Assessments on the risk of public debt distress, typically carried out by international financial institutions (IFIs) and credit rating agencies (CRAs), have served various purposes for different stakeholders. For debtor countries, the analysis helps guide the urgency, size and pace of fiscal adjustments that may be needed to maintain public debt sustainability. For official creditors and IFIs, such assessment informs which debtor countries would benefit from liquidity support and debt relief in order to avoid debt default. For private creditors and financial markets in general, the results of public debt sustainability analysis supplement other criteria used to make investment decisions, including those on government securities. Amid rising government debt levels in Asia and the Pacific, more attention is being paid to the results of public debt sustainability analysis.

In Asia and the Pacific, limited progress towards achieving the Sustainable Development Goals (SDGs) (ESCAP, 2023a) and concomitant large investment needs (ESCAP, 2019) mean that governments of countries in the region need to mobilize more

fiscal resources to realize the 2030 Agenda. Yet, the average government debt level in Asia-Pacific economies was already at an 11-year high in 2019. Moreover, policy responses in the wake of the COVID-19 pandemic and the war in Ukraine have further weakened fiscal and debt positions in the region. As the current approach of public debt sustainability analysis is heavily focused on maintaining sustainable debt in the short term, it undermines governments' ability to access financial resources and is inconsistent with the long-term journey towards inclusive and sustainable development.

This policy brief outlines an “augmented”, long-term approach, which duly incorporates a country's SDG investment needs, governments' structural development policies that go beyond financial investments, and national SDG financing strategies. As the aim of this augmented approach is to analyse public debt sustainability in the long term, it supplements the short- to medium-term approaches currently adopted by IFIs and CRAs.¹ This is important because, without a complementary long-term analysis, there is a risk that too much emphasis will be put on reducing near-term debt distress risk at the cost of achieving inclusive and sustainable development.

1 The argument here is not that all public debt sustainability analyses should be long term in nature. On the contrary, when an assessment does not timely detect rising risk of public debt distress,

efforts to avoid default may come too late, thus causing unnecessary economic costs to both creditors and debtor countries.

II. Review of current approaches to debt sustainability analysis

A. APPROACHES OF IMF AND WORLD BANK

IMF and the World Bank have carried out assessments on public and external debt sustainability analysis through two frameworks: one is for low-income countries, which is jointly conducted by both institutions; the other is for market-access economies (typically those that have issued international government bonds) conducted by the IMF. These frameworks have undergone periodic internal reviews in the past several years. The latest updates to these frameworks for low-income countries and market-access economies were introduced in 2018 and 2022, respectively.

The 2018 framework for low-income countries incorporates several adjustments recommended by an internal review (IMF, 2017; 2018). Among others, these include: (a) country classification into three groups (weak/medium/strong debt-carrying capacity) that is based not only on the World Bank's Country Policy and Institutional Assessment but also on domestic economic

growth, foreign exchange reserve and personal remittances; (b) assessment of potential risks that go beyond domestic debt vulnerabilities, such as exposure to external market financing pressure; (c) inclusion of more country-specific variables within the debt distress model to improve productive capacity; (d) introduction of tailored stress tests for shocks relevant to some countries, such as natural disasters; and (e) allowing greater application of staff judgement, such as when projected public debt is expected to marginally or temporarily cross the pre-set thresholds that are used to determine the level of distress risk.

Similarly, the 2022 debt sustainability framework for market-access economies reflects proposals made by internal review (IMF, 2021; 2022). Some of the key changes include: (a) introducing risk assessments that are based on different time horizons; (b) considering a broader set of country-specific characteristics that help gauge a government's ability to meet its debt obligations, such as institutional quality, vulnerability to rollover risk based on information on investor base and tailored stress tests for specific group of countries; and (c) more explicit application of staff judgement in assessing fiscal risks at each time horizon as well as the overall risk.² With regard to time horizon-based assessments, the analysis would

2 For example, if the near-term fiscal risk is rated as "high" according to the logit regression model while staff suggests a "low" risk due to large liquid assets

being held by the government (which is not captured in the model), then the final near-term risk could be rated as "moderate".

indicate a specific risk level (low/moderate/high³) for near-term (1-2 years ahead), medium-term (up to 5 years) and long-term (more than 5 years) horizons. The “optional” long-term modules are aimed at analysing the impacts of such issues as population ageing, natural resource discovery and depletion, and climate change on fiscal risks.

Despite these adjustments, analysts have suggested several areas where such an analysis can be improved further.⁴ For example, Pinto (2018) noted that the assessments for low-income countries should pay closer attention to the drivers of changes in debt level as well as the composition and quality of government spending. This would help differentiate countries where a high government debt level is driven by misuse of fiscal resources from those with that have invested, through government borrowing, in productive development projects. Moreover, this study also highlights the need to (a) incorporate market signals on default risks such as interest rate spreads of government bonds; and (b) use nominal debt, rather than the present value of debt that relies on an arbitrary discount rate of 5 per cent, amid a more diverse creditor profile that results in varying government borrowing rates.

Other studies highlight the importance of incorporating SDG spending needs and climate issues into debt sustainability analysis. For example, the World Bank (2022) emphasized the need to accurately incorporate SDG costs as part of the

assumption on fiscal expenditure. Volz and others (2020) argued that the analysis should account for both physical climate risks (such as losses and damage in the aftermath of natural disasters) and transition climate risks (such as stranded assets in carbon-heavy industries) because these risks could push up fiscal risks significantly. Relatedly, it is important to consider large investment needs to support climate resilience and the transition to a green economy.

B. APPROACHES OF CREDIT RATING AGENCIES

Despite some technical differences, the sovereign rating methodologies used by major international CRAs share key similarities.⁵ In rating sovereigns, Fitch, Moody’s and S&P (or the “Big Three”) examine a mix of quantitative and qualitative factors (to a varying degree across CRAs), such as macroeconomic conditions and prospects, fiscal positions, external balances and finances, the quality of macroeconomic policies, the quality of public institutions and governance, and economic and political risks. These indicators are generally used to inform an indicative rating of each sovereign. The final ratings also take into account other factors as well as staff judgement. For example, in the case of Moody’s, the analysis also includes certain environmental, social and governance (ESG) issues and sovereign-specific characteristics, such as the presence of partial sovereign guarantees and public debt relief with private creditors.

3 Under this framework, a high risk of sovereign distress does not necessarily mean that debt is unsustainable. In the former case, the distress risk is rated as high but remains sustainable if events such as loss of market access or surging borrowing costs can be resolved through fiscal adjustments and/or financing, including from international financial institutions. In contrast, debt is considered unsustainable when the distress risk is high and debt is not expected to stabilize in the baseline scenario, as reflected in events such as defaults and debt

restructuring.
4 See also Akyüz (2007); Wyplosz (2007); Guzman and Heymann (2015); and Cassimon, Essers and Verbeke (2016). Beyond review and criticisms from the economic perspective covered here, various studies also examined approaches on debt sustainability analysis from the governance and institutional perspective. See, for example, Laskaridis (2020).
5 See Fitch Ratings (2023), Moody’s (2022), and S&P Global Ratings (2019).

Various studies have pointed out shortcomings of the rating methodologies used by the Big Three.⁶ Renewed interest in this sizeable literature is taking place amid economic crises or rising sovereign debt risk, including on the ability of CRAs to predict an economic crisis⁷ and their roles in aggravating the depth of economic crisis and the increase in government borrowing costs. In general, academic literature highlights at least four issues.

- First, limited transparency in the rating methodologies. While the methodologies (such as list of variables considered) are made public, information on certain assumptions remains obscure. Simon and Simon-András (2019) also criticize the use of subjective information, uncertainty relating to data sources used, and the lack of clear relationships among the individual factors in the analysis.
- Second, the procyclical nature of sovereign ratings, as demonstrated by unusually more rating upgrades during economic booms and downgrades during economic turmoil. In addition to further increasing capital market volatility, this also undermines recovery in crisis-hit economies, especially because downgrades have typically been larger and faster than upgrades while strong macroeconomic fundamentals did not seem to help countries regain their ratings after downgrades (Broto and Molina, 2016).
- Third, credit ratings are distorted by

various conflicts of interest. Most securities issuers, including governments in the case of sovereign bonds, pay CRAs to rate their securities. This leads to temptation by CRAs to provide generous ratings, especially for large sovereign clients. On the other hand, Klusak, Kraemer and Vu (2022) show that a CRA that was a first mover in downgrading sovereign ratings subsequently faced more withdrawals of contracts by their sovereign clients. As such, analysts may be discouraged from releasing timely downgrades considering the adverse impact this may have on their own job security.

- Fourth, the so-called “investment-grade cliff effect” when securities are downgraded by just one notch but turned from an investment-grade to a non-investment-grade status (e.g. from the rating of BBB- to BB+). In this case, governments will likely face a sharp increase in borrowing costs. Although CRAs themselves do not define this cliff, there is some evidence that these category crossings are less frequently observed relative to downgrades elsewhere on the rating scale (Griffith-Jones and Kraemer, 2021).

Literature has suggested how to address some of these methodological shortcomings. To increase rating transparency, D’Agostino and Lennkh (2016) suggest that CRAs publish two sovereign ratings for each sovereign, with one that only reflects objective fundamental factors and another that also incorporates subjective factors (such as the quality of public governance) based on staff judgement. To reduce the rating cliff effect, the rating universe could be divided into ratings with high, medium, or low grade with some

6 In addition to the studies cited in this subsection, see also Afonso, Gomes and Rother (2007), Elkhoury (2008), IMF (2010), Iyengar (2012), Pennartz and Snoeij (2012), Ryan (2012), Ioannou (2016), Paudyn (2013), Wickens and Polito (2013), Gärtner (2014), Haspolat (2015), Amstad and Packer (2015), Bartels (2015) and Naciri (2017).

7 For instance, Kulkarni and others (2020) shows that only a few variables account for the variation in sovereign ratings across the major CRAs and that the rating downgrades are weak predictors of subsequent sovereign defaults, especially for developing countries and during the economic crisis periods.

overlap in the ratings scale (Griffith-Jones and Kraemer, 2021).

There are recent calls for more long-term, development-aligned sovereign rating methodologies. Among others, Kraemer (2021) argues that there is a need for long-term sovereign ratings to reflect the long-term nature of issues that affect sovereign risks, such as climate risks and demographic shifts.⁸ To this end, CRAs can publish long-term sovereign ratings alongside the short-term ones. Relatedly, Griffith-Jones and Kraemer (2021) urge CRAs to explicitly account for climate risks, as failing to cut carbon emissions could weaken sovereign credit ratings later, such as large fiscal support needed in the aftermath of climate-induced natural disasters. In this regard, the rating methodologies should also consider how public investment in resilience and climate adaptation helps promote economic growth and sovereign creditworthiness in the long term. More broadly, Spiegel and others (2022)

call for CRAs to conduct and publish scenario analyses on public debt dynamics under different policy assumptions and step-up dialogues between CRAs and governments, especially in smaller countries, to increase understanding of government policies that could shape sovereign ratings.

Beyond these fairly technical issues, there are also broad recommendations for actions by investors and the international community.⁹

Among others, there is a need to reduce mechanical reliance on ratings by investors, such as investment rules that require many institutional investors to invest only in investment-grade securities. There are also proposals to set up publicly owned or foundation-based CRAs to encourage market competition and reduce the oligopolistic power of the Big Three. Such CRAs could focus their analysis on long-term sovereign ratings or ratings that are purely based on objective information, which will serve as a benchmark for comparison with those produced by privately-owned CRAs.

8 As sovereign ratings partly rely on forecasts of economic variables which are only available for the next few years, these ratings effectively represent estimated sovereign credit risks in the near-term

although the assessment horizon stated by CRAs could be as long as 10 years for investment-grade issuers.
9 See Griffith-Jones and Kraemer (2021) and Spiegel and others (2022) for more details.

III. An augmented approach on public debt sustainability analysis

This section outlines an augmented long-term debt sustainability analysis approach that seeks to address some of the shortcomings of the current methods used in public debt sustainability analysis (section 2). The overall aim is to provide a more holistic and long-term picture of future government debt trajectories as countries embark on their journey towards more inclusive, resilient and sustainable development.

Augmented public debt sustainability analysis comprises four main components.

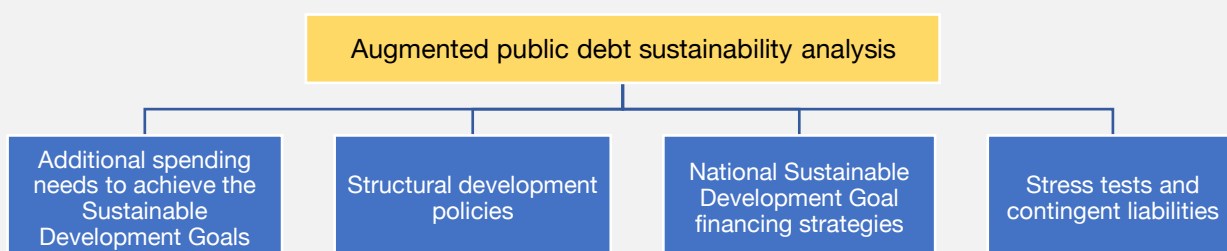
These include SDG spending needs, structural development policies, SDG financing strategies and stress tests (figure 1). These components capture the issues typically considered by most developing countries as they assess their fiscal and debt positions while pursuing the 2030 Agenda for Sustainable Development.

- The first component is additional public and private spending (current and capital expenditures) required to achieve a

country's SDGs by 2030. The augmented approach also considers associated long-term economic, social and environmental gains from increased investment in the SDGs (such as higher levels of potential output, improvements in labour productivity and energy efficiency), which influence future public debt trajectory.

- The second component is a government's structural development policies that go beyond investing in the SDGs, as typically envisioned in long-term national development planning documents. While this set of policies tends to vary notably across Asia-Pacific developing countries, examples include regulatory and institutional reforms to enhance productive capacity, broaden the economic base and promote innovation.

FIGURE 1: FOUR KEY COMPONENTS OF AUGMENTED DEBT SUSTAINABILITY ANALYSIS



Source: Author.

- The third component is national SDG financing strategies, which comprise mainly a government's resource mobilization strategies and initiatives to attract more private capital for development. In this context, the government's resource mobilization strategies include: (a) tax revenue policies, such as improving tax administration, introducing new taxes that promote social and environmental outcomes, making income tax more progressive, taxing the digital economy, and reducing illicit financial flows; (b) non-tax revenue policies, such as introducing compulsory social security contributions, leveraging government assets, privatization of state-owned enterprises, and benefiting from more grants and concessional loans; (c) government spending policies, such as removing carbon subsidies, rationalizing tax incentives and exemptions, reallocating non-developmental spending, and improving spending efficiency; and (d) public debt management policies, such as exploring debt relief measures (e.g. debt service suspension and debt swaps for development) and adopting good practices on public debt management (e.g. accountable debt management offices and timely collection, monitoring and reporting of public debt).
- Finally, the fourth component is stress tests and realization of fiscal contingent liabilities. Stress tests may reflect sudden changes in economic conditions that result in higher interest rates, weaker exchange rates, higher sovereign risk premia, and higher/lower global commodity prices than those assumed

under the baseline assumptions. Fiscal contingent liabilities reflect country-specific risks, such as government bailouts for major commercial banks, loss-making State-owned enterprises, or large-scale investment projects under a public-private partnership modality. Such liabilities may also include support to meet financial obligations of subnational governments and fiscal cost arising from damage and losses in the event of natural disasters.

Based on these components, the augmented long-term debt sustainability analysis also integrates climate risks and action through at least three channels. The first channel is public and private investments in climate adaptation and mitigation, as informed by estimated SDG spending needs. Examples include government investment to make public infrastructure more resilient to disaster shocks, increase the share of renewable energy in energy mix, and enhance energy efficiency. The second channel is fiscal cost to provide financial assistance to affected households and businesses and rebuild public infrastructure in the aftermath of catastrophes as well as a likely decrease in government revenue collection due to output losses. Finally, the third channel is realization of fiscal contingent liabilities, such as stranded asset values in traditional mining and power generation industries as countries pursue net-zero emission goals, which may require government financial support for commercial banks and State-owned enterprises. Financial bailouts for private banks and insurance companies may also be needed in the event of natural disasters if bank loan defaults and climate insurance payments surge to the extent that domestic financial stability could be compromised.

An application of the augmented approach is based on the ESCAP Macroeconomic Model (ESCAP, 2021). This is a global model comprising 46 individual Asia-Pacific country models and other blocs that represent other major global economies. In the short run, GDP in country models is driven by aggregate demand. In the long term, each country's potential output level is driven by its labour force, capital stock, energy use, energy

efficiency, trend productivity growth related to labour productivity and damage incurred as a result of climate shocks. In addition to economic relationships, the model also captures interactions with key social and environmental variables, such as poverty and carbon emissions. The individual country models are linked together via trade, remittances, financial markets and global energy markets.

BOX: APPLICATION IN THE CASE OF MONGOLIA

The augmented long-term public debt sustainability approach was first applied in the case of Mongolia (ESCAP, 2023b). Mongolia is selected as a pilot country because it is one of a few Asia-Pacific countries where both detailed estimates on SDG spending needs and information on national SDG financing strategies are available. As Mongolia is currently rated as having a high risk of public debt distress in the short term, it is worthwhile to examine whether its government debt path would trend down in the long term once the socioeconomic and environmental gains on SDG spending and a wide range of SDG financing options are properly considered.

The analysis shows that investing in the SDGs would likely result in an initial surge in government debt level in Mongolia. The analysis assumes that the Government also introduces a wide range of structural development policies to foster a green and diversified economy as well as SDG financing strategies to mobilize fiscal resources and attract private finance for development. After considering all these policy initiatives, the analysis shows that the government debt level is expected to fall notably in the long run. Indeed, the estimated debt level by 2040 is comparable to that under the baseline scenario that assumes fiscal consolidation but the socioeconomic and environmental gains of the policy scenarios assumed in this analysis are much larger.

IV. Broad policy implications

Governments should aim to strike a balance between achieving the SDGs and maintaining public debt sustainability. Resource mobilization strategies should be designed in a way that also generates social and/or environmental benefits. For example, instead of raising consumption taxes, which disproportionately affect poorer households, governments can make taxation of personal income more progressive. Similarly, any attempt to meet the statutory fiscal rules should be mindful of the broader economic situation and development context. An example would be the relaxation of fiscal rules by several Asia-Pacific economies during the COVID-19 pandemic, which unexpectedly increased fiscal burdens. Indeed, a prevailing government debt level that satisfies the fiscal rules or stays below the common threshold suggested by IFIs but comes at a significant human or environmental cost should not be regarded as sustainable debt. At the same time, while governments should not feel deterred from borrowing in order to finance essential, high-impact development projects, they need to ensure that the funds are spent efficiently and effectively.

International financial institutions and credit rating agencies can play an important role in supporting debtor countries to navigate such a balancing act. As entities that conduct assessments on short- to medium-term public debt sustainability, IFIs and CRAs should avoid penalizing governments for bold fiscal plans that support people and the environment. For instance, when a government announces an ambitious plan to realize national climate

ambitions or introduce universal health coverage, this should not mechanically trigger a sovereign credit downgrade even if this plan would lead to larger fiscal shortfalls in the near term. Instead, an assessment should go beyond gauging government's near-term debt repayment ability by evaluating whether such a fiscal plan would help boost an economy's potential output and bring down government debt in the future. Likewise, CRAs should view a government's effort to engage in debt relief as a way to help ease its debt burden and improve the fiscal outlook, rather than as a sign of a forthcoming debt default that may trigger a rating downgrade.

All current creditors and potential lenders should consider public debt sustainability analysis from both short- and long-run perspectives while making lending/investment decisions. When the risk of public debt distress is judged solely by a debt assessment that has a short-time horizon and does not adequately consider available SDG financing options and socioeconomic and environmental gains of SDG investments, the risk may be rated as higher than it actually is. This is harmful to debtor countries because they would be unnecessarily subject to higher borrowing rates and reduced access to international financial markets. As prospects of debt refinancing become expensive and limited, there are fears of debt default, which in turn increase the risk of an actual default. While the need to view debt sustainability from a longer-term perspective should be applied to all lenders, official creditors and private institutional investors could lead by example.

V. Operational consideration

Data requirements and macroeconomic modelling. Detailed information on country-specific SDG spending needs, the most binding development challenges that countries face along with their policy priorities, and national SDG financing strategies are needed to undertake and enrich the analysis. In addition to studies prepared by national think-tanks and academic institutions, the discussion on development challenges and policy priorities is often part of periodic strategy reports that developing countries have with international development partners.¹⁰ Availability of information on SDG spending needs and national financing strategies is, however, much more limited.¹¹ Beyond data issues, the analysis is carried out through the EViews-based ESCAP Macroeconomic Model. Compared with spreadsheet-based templates for public debt sustainability analysis, such as IMF/World Bank's Debt Sustainability Framework for low-income countries, the analysis under this new approach offers more flexibility in tailoring policy scenarios, although it requires knowledge of the EViews statistical software and macroeconomic modelling.

A realistic set of policy scenarios. "Realistic" can be subjective in this context, depending on whether one defines it as a package of policy actions that a government is already planning to implement, should actively explore, or is technically and politically capable of

implementing although that is not yet part of the current plan. The analysis could take a mixed approach. For example, while policy scenarios included in the analysis could reflect approved laws and announced policy directions, the analysis may exclude policy measures that government has announced that it will not pursue even if those policies are commonly recommended in various studies. In general, the combined scenario may be viewed as modest because governments tend to introduce or formulate many more policy initiatives to achieve inclusive and green development than those that can be included in the analysis.

The accuracy of simulation results. As with most other economic modelling works, the results for the augmented public debt sustainability analysis are as accurate as the technical assumptions made. In this context, there are two important aspects. The first is how different economic, social and environmental variables are linked together within the model. An example is a feedback mechanism on how carbon tax affects poverty. While carbon tax can reduce poverty through higher labour productivity amid better air quality and health conditions, it can also increase poverty through lower household consumption as inflation rises. The second aspect of assumptions is the magnitude of relationships among the variables in the model, such as between carbon price and carbon emission levels and between household

10 Examples include the Asian Development Bank's Country Partnership Strategy; the United Nations Sustainable Development Cooperation Framework; and the World Bank Country Partnership Framework. IMF Article IV Staff Reports also contain analysis on macroeconomic and fiscal issues and policies.

11 According to "Development plan costings repository"

on the Integrated National Financing Frameworks (INFF) Knowledge Platform (<https://inff.org/resource/development-plan-costings-repository>), country-level estimates on development spending needs in Asia and the Pacific are available for Bangladesh, Bhutan, Fiji, Indonesia, Lao People's Democratic Republic, Mongolia, Nepal, Tajikistan, and Timor-Leste.

consumption and poverty. Depending on these assumptions, which are based mainly on existing international and national studies, carbon tax may increase or reduce poverty. While arriving at accurate estimates is clearly important, the goal of this analysis is to provide solid, convincing evidence that encourages financial markets to rethink how to assess fiscal risks and debt sustainability.

Possible financing policy scenarios. The case of Mongolia in ESCAP (2023b) sheds lights on scenarios that could be designed for landlocked, resource-based economies, such as many countries in North and Central Asia. For least developed countries where official development assistance (ODA) is often sizeable, scenarios could explore the fiscal impacts of larger ODA amounts received, including that

especially provided for climate purposes, and different degrees of concessionality of ODA (such as grant-loan compositions and lending rates). For countries with large diaspora communities, one could assume that governments are able to leverage more personal remittances, such as by issuing diaspora bonds that offer slightly below-market interest rates. More broadly, scenarios could compare the fiscal impacts of different deficit financing options, such as tax rate hike, conventional government bonds and thematic (e.g. social and green) government bonds. On private finance, the impacts of more developed domestic capital markets, which could result in lower government borrowing costs and adopting sustainable foreign direct investment policies, may be explored.

VI. Conclusion

This policy brief makes a case for policymakers in Asia and the Pacific and the international development community to rethink how public debt assessment should be undertaken, especially keeping in view the 2030 Agenda. It does so by proposing an augmented approach to analyse public debt sustainability in the long term. By considering a country's SDG investment needs, structural development policies and SDG financing strategies, the aim of this more holistic approach is to supplement current approaches adopted by IFIs and CRAs, which are heavily focused on short- to medium-term debt sustainability.

The goal of the augmented approach is not to assign a specific level of public debt distress risk. Rather, the analysis is based on macroeconomic modelling and illustrates different trajectories of government debt level under different policy scenarios and adverse shocks. This helps policymakers make informed choices on how to strike a balance between maintaining public debt sustainability and achieving more inclusive, resilient and sustainable development in the long term.

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