**SUPPLEMENTARY MATERIAL**

**Unlocking the Flow of Finance for Climate Adaptation:
Estimates of "Fiscal Space" in Climate-Vulnerable Developing Countries**

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**Supplement A.** "*When output growth is greater than interest rates on government debt, the debt-to-GDP ratio can be stabilized or even decline without governments having to generate primary surpluses*".

An expression for the change in debt, derived from the standard government budget constraint, is: $d_t - d_{t-1} = (r_t - g_t) d_{t-1} - pb_t$, where $d$ is one-period debt (as a share of GDP) at the end of the period, $r$ is real interest rate on debt contracted in period $t$-1 and due in period $t$, $g$ is growth rate of real GDP, and $pb$ is the primary balance (as a percentage of GDP).

Thus, one can see that if $(r_t - g_t) < 0$ (i.e., when output growth is greater than the interest rate on government debt), then $d_t - d_{t-1}$ can be negative or zero (i.e., the debt-to-GDP ratio can decline or be stabilized), even when $pb_t < 0$ (i.e., without governments having to generate a primary surplus).

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**Supplement B.  Determination of the Debt Limit by Ostry/Ghosh** [2]

The solid line in Figure 1 is a stylized representation of a fiscal reaction function with fiscal fatigue. The fiscal reaction function is of the form:

$$pb_{t+1} = \mu + f(d_t) + \varepsilon_{t+1} \qquad (1)$$

where $pb$ is the primary balance, $\mu$ is all systematic determinants of the primary balance other than lagged debt, $f(d_t)$, and $\varepsilon$ is an independent and identically distributed shock to the primary balance. "At very low levels of debt, there is little response of the primary balance to debt. As debt increases, the balance responds more vigorously, but eventually the adjustment effort peters out as it becomes increasingly difficult and costly to raise taxes or cut primary expenditures." (Debrun et al., 2019)

Figure 1. Determination of Debt Limit
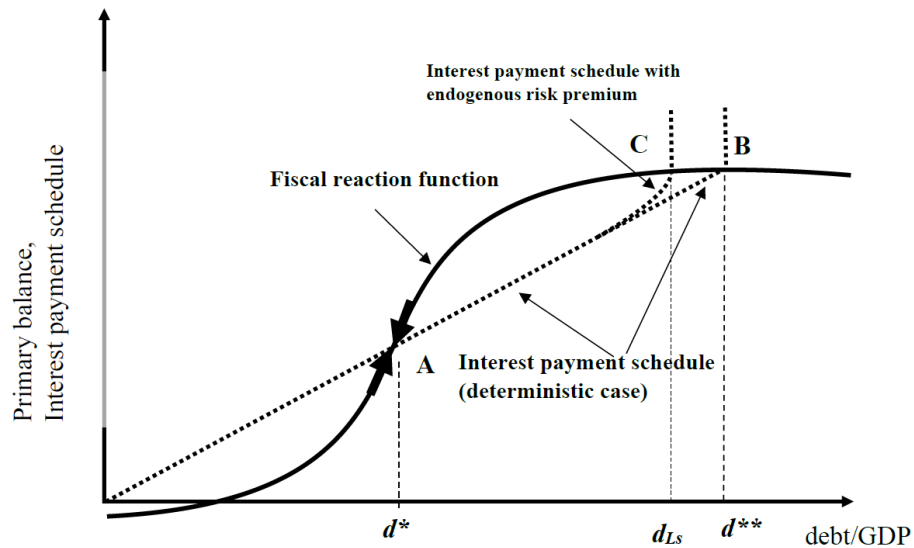


Source: Debrun et al. 2019 and Ghosh et al. 2013b

The dotted line is the effective interest bill or interest payment schedule. Three points of intersection are identified. Points A and B are the lower and upper (right most) intersections of the fiscal reaction function (given by equation 1), with the "risk-free" interest payment schedule, given by $(r^* - g)\, d$, where r* is the risk-free real interest rate and g is growth rate of real GDP. r* is assumed to be exogenously given and output growth is assumed to be independent of the level of public debt or the interest rate.

Point A yields **d***, the smallest positive root of the equation:

$$\mu + f(d) = (r^* - g)\, d \qquad (2)$$

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It is the "conditionally stable" long-run average debt ratio to which the economy normally converges. If a shock raises debt above d* (but not beyond the upper intersection), the primary balance in later periods will more than offset the higher interest payments, returning the debt ratio to **d\***.

Point B yields **d\*\*,** the largest root of equation (2), our debt limit of interest. This is the limit in what is referred to as the "deterministic" case as it assumes no shocks to the primary balance and no endogenous responses of interest rates to risk. Beyond **d\*\*,** debt would be unsustainable: debt would rise forever because, barring any extraordinary fiscal adjustment, the primary surplus would never be enough to offset a growing debt service. At **d\*\*, "**the interest rate becomes infinite" - the schedule becomes vertical - "as the government loses market access and is unable to rollover its debt." (Debrun et al., 2019)

Point C gives **$d_{ls}$,** the debt limit in a more general stochastic case, which considers stochastic shocks and increasing risk premiums as debt approaches its limit. This is depicted by an upward bending, convex interest payment schedule that becomes vertical as debt exceeds its limit at **$d_{ls}$. $d_{ls}$** is necessarily lower than **d\*\*.** Thus, the available fiscal space implied by **d\*\*** will likely be overstated.

**Supplement C. Variable definitions and data sources (data are as of 2 February 2022)**

| Variable | Description | Source |
|---|---|---|
| **Dependent variable** | | |
| *Primary balance to GDP ratio* | in percent, budgetary central government | Calculations based on IMF Government Finance Statistics |
| **Explanatory variables** | | |
| *Lagged debt to GDP ratio* | in percent; government gross debt | WEO Database |
| *Output gap* | Difference between actual and potential, calculated using Hodrick-Prescott filter, real GDP | Calculations based on WEO database |
| *Government expenditure gap* | Difference between actual and potential, calculated using Hodrick-Prescott filter, real government non-interest spending, budgetary central government | Calculations based on WEO database |
| *Trade Openness* | sum of exports and imports to GDP (in percent) | Calculations based on World Development Indicators |
| *Inflation* | logarithm of CPI inflation | Calculations based on WEO database |
| *Revenue to GDP ratio* | two-year moving average | Calculations based on IMF Government Finance Statistics |
| *IMF* | dummy variable = 1 if programme exists for given year, 0 otherwise | IMF History of Lending Arrangements |
| *oil prices* | Log of oil prices applied to oil exporters (i.e., oil accounts for at least 20% of exports) | Exporters identified from UN COMTRADE. Oil prices from IMF Primary Commodity Price System |
| *non-fuel commodity prices* | Log of non-fuel commodity price index, applied to commodity exporters (i.e. a non-fuel commodity comprises at least 20 percent of exports) only | Exporters identified from UN COMTRADE. Non-fuel price index from IMF Primary Commodity Price System |
| *GFC* | dummy variable = 1 if year > 2007, 0 otherwise | |
| ***Interest rate -Growth Differentials (IRGD)*** | | |
| *Historical 2009-2019* | Effective interest rate, computed as interest expense of budgetary central government divided by general government gross debt, less nominal GDP growth. Mean of 2009 to 2019. | IMF Staff Reports containing Debt Sustainability Analysis (e.g., Article IV, Review Under the Extended Credit Facility Arrangement, Review Under the Stand-by Arrangement, Review Under the Staff-Monitored Program, Request for Disbursement Under the Rapid Credit Facility, Request for Purchase Under the Rapid Financing Instrument, Request for Arrangement Under the Extended Credit Facility) |
| *Projected 2021-2025* | Mean IRGD for 2021 to 2025, where IRGD per year is computed (as described in the preceding row) using IMF projections for interest expense, general government debt, and GDP growth. | IMF Staff Reports containing Debt Sustainability Analysis (as enumerated above) |
| *Debt 2025* | IMF projection of debt in 2025, or latest year projection is available | IMF Staff Reports containing Debt Sustainability Analysis (as enumerated above) |

**Supplement D. Estimation results for the fiscal reaction function 1990-2019**

| | LIC | | MAC | |
|---|---|---|---|---|
| *Lagged debt* | -0.750 | *** | -0.393 | *** |
| | 0.161 | | 0.111 | |
| *Lagged debt2* | 0.013 | *** | 0.007 | *** |
| | 0.003 | | 0.002 | |
| *Lagged debt3* | -0.0001 | *** | -0.00004 | *** |
| | 0.00002 | | 0.000011 | |
| *Output gap* | 30.784 | ** | 8.629 | ** |
| | 15.130 | | 4.079 | |
| *Govt expenditure gap* | -6.534 | *** | -12.079 | *** |
| | 1.954 | | 0.935 | |
| *Revenue, 2-year average* | 0.759 | *** | 0.723 | *** |
| | 0.071 | | 0.072 | |
| *Log(inflation)* | 0.341 | | 0.181 | + |
| | 0.285 | | 0.116 | |
| *Trade openness* | -0.026 | | -0.002 | |
| | 0.025 | | 0.008 | |
| *IMF* | 0.143 | | 0.210 | |
| | 0.607 | | 0.283 | |
| *Oil prices* | | | -0.825 | |
| | | | 0.785 | |
| *Non-fuel comm prices* | - | | -0.595 | ** |
| | | | 0.302 | |
| *GFC* | -1.548 | * | -1.144 | *** |
| | 0.833 | | 0.339 | |
| *_cons* | 3.080 | * | -2.214 | * |
| | 1.858 | | 0.630 | |
| Observations | 238 | | 272 | |
| Countries | 23 | | 15 | |
| Average size | 10.3 | | 18.1 | |
| Min, Max size | 4, 25 | | 5,28 | |
| $R^2$ (within) | 0.395 | | 0.575 | |
| AR(1) coefficient | 0.402 | | 0.707 | |

Notes. The dependent variable is budgetary central government primary balance to GDP (in per cent). Country-specific fixed effects are included in all specifications and the error term is assumed to follow an AR(1) process.
***, **, *, + denote significance at 1%, 5%, 10% and 12% levels respectively.

Comment:

1. The coefficients of the cubic functional form are statistically significant,[3] and with one exception, the estimated coefficients of control variables are as expected. [4] Specifically, primary balances respond positively to the output gap and negatively to temporary increases in government outlays (government expenditure gap) stronger fiscal institutions (two-year moving average of revenue-to GDP) are associated with better surplus generating capacity, and the period after 2008 is associated with lower primary balances. Primary balances also respond positively to inflation and to international influence (IMF), but the former is only marginally significant in one panel and the latter is not significant. The sign of the coefficient on non-fuel commodity prices is unexpectedly negative. This may indicate elastic global demand for these exports.

2. Tests for slope homogeneity are reported below. We find some evidence that the null hypothesis of slope homogeneity cannot be rejected, following Pesaran and Yamagata (2008) and Bervendsen and Ditzen (2020). For our sample size, the power of these tests is quite low, however. Ghosh et al. (2013) also notes that testing for slope homogeneity is difficult. Instead, they group their data into different debt categories and run fixed effects regressions per country to establish whether countries in the same category behave similarly to rising debt. This procedure was not feasible with our unbalanced sample.

H0: slope coefficients are homogenous

|  | Delta | p-value |
|---|---|---|
| LIC, non-adj | -1.448 | 0.148 |
| adj | -8.625 | 0.000 |
| MAC, non-adj | 1.297 | 0.195 |
| adj. | 2.349 | 0.019 |

Variables partialled out: constant.

Reference: Pesaran and Yamagata (2008). Using the test for pure autoregressive models, the null hypothesis cannot be rejected using the unadjusted delta statistic but can be rejected using the adjusted delta statistic. However, the adjusted delta statistics tend to have a larger size. See Bervendsen and Ditzen (2020).

3. Fixed effects were confirmed using a test of overidentifying restrictions by Schaffer and Stillman (2010).

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[3] Robustness was confirmed using an alternative specification - feasible GLS - which corrects for within panel heteroskedasticity and panel specific autoregression, although country fixed effects are proxied using country-specific dummy variables. Panel-corrected standard errors could not be used because of our unbalanced panels.

[4] Variables draw from Ostry/Ghosh, Abiad and Ostry (2005), and Mendoza and Ostry (2008). Institutional variables such as political stability or fiscal rules were not useful.

**Supplement E.1: 23 LICs: Actual and projected debt-to-GDP ratios, GDP growth, and average IRGDs**

| | Debt/GDP | | | GDP Growth | | IRGD [c] | | |
|---|---|---|---|---|---|---|---|---|
| | 2009 | 2019 | 2025[a] | 2009-2019 | 2021-2025[b] | Historical 2009-19 [d] | Projected 2021-25 [e] | Projected, Shocked 2021-25 [f] |
| Bangladesh | 39.5 | 35.7 | 40.3 | 6.6 | 7.1 | -8.5 | -10.5 | -9.3 |
| Bhutan | 65.7 | 106.6 | 82.8 | 6.1 | 6.9 | -9.3 | -7.2 | -5.3 |
| Burkina Faso | 25.9 | 42.0 | 48.3 | 5.7 | 5.3 | -5.2 | -6.1 | -5.3 |
| Cambodia | 28.5 | 28.6 | 38.0 | 6.4 | 5.1 | -8.2 | -7.5 | -5.8 |
| DR Congo | 91.3 | 15.0 | 20.7 | 5.9 | 6.4 | -20.1 | -12.5 | -6.9 |
| Ethiopia | 35.2 | 57.9 | 40.0 | 9.7 | 7.3 | -23.5 | -16.9 | -10.2 |
| Ghana | 26.8 | 62.6 | 87.0 | 6.6 | 5.3 | -12.4 | -6.9 | -4.4 |
| Honduras | 23.4 | 43.3 | 39.9 | 3.1 | 4.0 | -2.1 | -3.7 | -3.3 |
| Kenya | 35.9 | 59.0 | 64.4 | 4.9 | 5.6 | -4.9 | -8.8 | -8.4 |
| Kiribati | 9.3 | 18.1 | 86.5 | 3.1 | 1.9 | 4.1 | -1.9 | -1.4 |
| Madagascar | 34.9 | 38.5 | 49.3 | 2.3 | 4.8 | -8.0 | -9.6 | -8.4 |
| Maldives | 48.4 | 78.3 | 78.1 | 5.2 | 7.3 | -6.9 | -7.1 | -3.6 |
| Marshall Islands | 41.6 | 24.8 | 54.2 | 2.3 | 1.7 | -2.7 | -1.7 | 0.5 |
| Nepal | 39.4 | 33.1 | 41.1 | 5.0 | 5.4 | -12.0 | -10.3 | -9.9 |
| Rwanda | 18.5 | 50.2 | 73.1 | 7.1 | 8.1 | -9.2 | -10.0 | -7.0 |
| Samoa | 34.1 | 47.4 | 67.7 | 1.5 | 0.6 | -1.1 | -0.8 | 5.8 |
| Senegal | 29.9 | 63.8 | 61.5 | 4.6 | 7.1 | -2.1 | -6.0 | -3.0 |
| State of Palestine | 24.0 | 34.5 | . | 4.7 | 0.0 | -8.0 | . | . |
| Timor-Leste | . | 9.6 | 23.4 | 3.7 | 2.6 | -5.6 | -4.2 | -2.4 |
| UR Tanzania | 24.0 | 39.0 | 38.8 | 6.5 | 5.2 | -11.3 | -6.9 | -5.6 |
| Vanuatu | 21.1 | 45.3 | 55.5 | 2.7 | 2.9 | -2.5 | -4.3 | -2.4 |
| Lao PDR | 51.8 | 61.1 | 53.9 | 7.2 | 6.8 | -9.1 | -7.1 | -6.0 |
| Myanmar | 54.4 | 38.8 | 46.7 | 6.4 | 5.4 | -8.8 | -9.7 | -6.4 |
| **Median** | **34.5** | **42.0** | **51.6** | **5.2** | **5.3** | **-8.0** | **-7.1** | **-5.5** |
| **Mean** | **36.5** | **44.9** | **54.1** | **5.1** | **4.9** | **-7.7** | **-7.3** | **-4.9** |

Source: IMF WEO Database. Notes: [a] Debt projections are from IMF reports and are for 2025 except for Honduras (2024) and Bhutan, Kiribati, and Lao PDR (2023); [b] Projections are from IMF Reports and are for 2021-2025, except for Honduras (2020-2024) and Bhutan, Kiribati and Lao PDR (2021-2023); [c] Effective interest rate, computed as interest expense of budgetary central government divided by general government gross debt, less nominal GDP growth, from IMF Reports; [d] Average IRGD for 2009 to 2019; [e] Average for 2021 to 2025 – except for Honduras (2020-2024) and Bhutan, Kiribati and Lao PDR (2021-2023) - where IRGD per year is computed using IMF projections for interest expense, general government debt, and GDP growth; [f] "Shocked" is the difference between country-specific mean of real interest rate plus one country-specific standard deviation, and country-specific mean of GDP growth minus one country-specific standard deviation.

**Supplement E.2 15 MACs: Actual and projected debt-to-GDP ratios, GDP growth, and average IRGDs**

| | Debt/GDP | | | GDP growth | | IRGDs [c] | | |
|---|---|---|---|---|---|---|---|---|
| | 2009 | 2019 | 2025[a] | 2009-2019 | 2021-2025 [b] | Historical, 2009-19 [d] | Projected, 2021-25 [e] | Projected-shocked [f] |
| *Colombia* | 35.4 | 52.3 | 59.3 | 3.5 | 4.1 | -0.8 | -1.4 | -0.6 |
| *Costa Rica* | 26.0 | 56.7 | 74.2 | 3.3 | 3.1 | -0.7 | 2.8 | 4.1 |
| *Dominican Republic* | 36.7 | 53.5 | 63.1 | 5.2 | 5.1 | -4.1 | -1.5 | -1.0 |
| *Fiji* | 51.5 | 48.9 | 79.3 | 2.9 | 4.3 | -0.6 | -1.7 | 4.0 |
| *Guatemala* | 22.8 | 26.5 | 34.2 | 3.3 | 3.8 | -0.2 | -0.5 | 0.4 |
| *Mongolia* | 48.5 | 68.4 | 77.3 | 6.9 | 5.9 | -14.9 | -10.5 | -9.2 |
| *Morocco* | 46.1 | 65.1 | 76.6 | 3.6 | 3.9 | -0.1 | -1.4 | -0.7 |
| *Philippines* | 49.8 | 37.0 | 61.1 | 6.0 | 6.4 | -2.7 | -4.0 | -3.3 |
| *Sri Lanka* | 75.2 | 86.8 | 79.2 | 5.1 | 4.6 | -3.6 | -1.3 | -1.0 |
| *Tunisia* | 46.6 | 74.2 | 99.7 | 2.0 | 2.4 | -2.3 | -4.0 | -3.1 |
| *Viet Nam* | 36.3 | 43.6 | 49.3 | 6.4 | 6.8 | -13.6 | -7.0 | -5.9 |
| *Indonesia* | 26.5 | 30.6 | 41.3 | 5.4 | 5.4 | -11.0 | -2.8 | -1.5 |
| *Malaysia* | 50.4 | 57.1 | 62.2 | 4.7 | 5.7 | -2.2 | -2.4 | -0.8 |
| *Singapore* | 101.7 | 129.0 | 142.6 | 4.5 | 3.4 | -5.9 | -2.2 | -0.7 |
| *Thailand* | 42.4 | 41.0 | 52.7 | 3.3 | 3.4 | -2.7 | -2.1 | 0.2 |
| ***Median*** | 46.1 | 53.5 | 63.1 | 4.5 | 4.3 | -2.7 | -2.1 | -0.8 |
| ***Mean*** | 46.4 | 58.0 | 70.1 | 4.4 | 4.5 | -4.3 | -2.7 | -1.3 |

Source: IMF WEO Database. Notes: [a] Debt Projections are from IMF Reports and are for 2025, except for Sri Lanka (2024); [b] Projections are from IMF Reports and are for 2021-2025, except for Sri Lanka which covers 2021-2024; [c] Effective interest rate, computed as interest expense of budgetary central government divided by general government gross debt, less nominal GDP growth, from IMF reports; [d] Average IRGD for 2009 to 2019, except for Indonesia which covers 2002 to 2007; [e] Average for 2021 to 2025 – Sri Lanka which covers 2021-2024 - where IRGD per year is computed using IMF projections for interest expense, general government debt, and GDP growth; [f] "Shocked" the difference between country-specific mean of real interest rate plus one country-specific standard deviation, and country-specific mean of GDP growth minus one country-specific standard deviation.

## Supplement F.1. 23 LICs: Estimated debt limits (d**) and associated point estimates of fiscal space under various IRGDs assumptions

| | Debt | IRGD [b] | | | Historical | | Projected | | Projected, shocked | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2025[a] | Historical 2009-19[c] | Projected 2021-25[d] | Projected, Shocked [e] | d** | *Fiscal space* | d** | *Fiscal space* | d** | *Fiscal space* |
| Bangladesh | 40.3 | -8.50 | -10.48 | -9.32 | 141.2 | 100.9 | 144.3 | 104.0 | 142.5 | 102.2 |
| Bhutan | 82.8 | -9.33 | -7.23 | -5.34 | 152.6 | 69.8 | 149.9 | 67.1 | 147.4 | 64.6 |
| Burkina Faso | 48.3 | -5.20 | -6.08 | -5.33 | 138.3 | 90.0 | 139.8 | 91.5 | 138.5 | 90.2 |
| Cambodia | 38.0 | -8.17 | -7.54 | -5.76 | 149.2 | 111.2 | 148.4 | 110.4 | 145.9 | 107.9 |
| DR Congo | 20.7 | -20.10 | -12.50 | -6.91 | 156.4 | 135.7 | 145.6 | 124.9 | 136.3 | 115.60 |
| Ethiopia | 40.0 | -23.52 | -16.94 | -10.15 | 160.3 | 120.3 | 151.9 | 111.9 | 141.8 | 101.8 |
| Ghana | 87.0 | -12.36 | -6.94 | -4.35 | 145.5 | 58.5 | 136.4 | 49.4 | 131.4 | 44.4 |
| Honduras | 39.9 | -2.08 | -3.66 | -3.25 | 123.7 | 83.8 | 127.5 | 87.6 | 126.6 | 86.7 |
| Kenya | 64.4 | -4.93 | -8.78 | -8.43 | 131.2 | 66.8 | 138.5 | 74.1 | 137.9 | 73.5 |
| Kiribati | 86.5 | 4.13 | -1.90 | -1.39 | 141.1 | 54.6 | 149.2 | 62.7 | 148.5 | 62.0 |
| Madagascar | 49.3 | -8.01 | -9.58 | -8.39 | 141.7 | 92.4 | 144.2 | 94.9 | 142.3 | 93.0 |
| Maldives | 78.1 | -6.88 | -7.14 | -3.60 | 138.8 | 60.7 | 139.2 | 61.1 | 132.8 | 54.7 |
| Marshall Is | 54.2 | -2.74 | -1.70 | 0.47 | 131.7 | 77.5 | 129.6 | 75.4 | 124.7 | 70.5 |
| Nepal | 41.1 | -12.03 | -10.30 | -9.85 | 145.9 | 104.8 | 143.2 | 102.1 | 142.5 | 101.4 |
| Rwanda | 73.1 | -9.17 | -10.00 | -7.01 | 145.7 | 72.6 | 146.9 | 73.8 | 142.5 | 69.4 |
| Samoa | 67.7 | -1.07 | -0.76 | 5.78 | 130.7 | 63.0 | 130.1 | 62.4 | 113.9 | 46.2 |
| Senegal | 61.5 | -2.06 | -6.02 | -3.00 | 134.5 | 73.0 | 141.2 | 79.7 | 136.1 | 74.6 |
| State Palestine | . | -8.00 | . | . | 135.9 | . | . | | . | |
| Timor-Leste | 23.4 | -5.63 | -4.16 | -2.43 | 152.0 | 128.6 | 150.1 | 126.7 | 147.9 | 124.51 |
| UR of Tanzania | 38.8 | -11.26 | -6.94 | -5.60 | 143.4 | 104.6 | 136.0 | 97.2 | 133.5 | 94.7 |
| Vanuatu | 55.5 | -2.51 | -4.32 | -2.41 | 134.0 | 78.5 | 137.3 | 81.8 | 133.9 | 78.4 |
| Lao PDR | 53.9 | -9.07 | -7.07 | -5.97 | 144.3 | 90.4 | 141.2 | 87.3 | 139.4 | 85.5 |
| Myanmar | 46.7 | -8.82 | -9.66 | -6.39 | 141.0 | 94.3 | 142.4 | 95.7 | 136.9 | 90.2 |
| **Median** | 51.6 | -8.0 | -7.1 | -5.5 | **141.2** | **86.9** | **141.8** | **87.4** | **138.2** | **86.1** |
| **Mean** | *54.1* | -7.7 | -7.3 | -4.9 | **141.7** | **87.8** | **141.5** | **87.4** | **137.4** | **83.3** |

Notes: [a] Debt projections are from IMF reports and are for 2025 except for Honduras (2024) and Bhutan, Kiribati, and Lao PDR (2023); [b] Effective interest rate, computed as interest expense of budgetary central government divided by general government gross debt, less nominal GDP growth, from IMF Reports; [c] Average IRGD for 2009 to 2019; [d] Average for 2021 to 2025 – except for Honduras (2020-2024) and Bhutan, Kiribati and Lao PDR (2021-2023) - where IRGD per year is computed using IMF projections for interest expense, general government debt, and GDP growth; [e] "Shocked" is the difference between country-specific mean of real interest rate plus one country-specific standard deviation, and country-specific mean of GDP growth minus one country-specific standard deviation.

**Supplement F.2. 15 MACs: Estimated debt limits (d\*\*) and associated point estimates of fiscal space under various IRGDs assumptions**

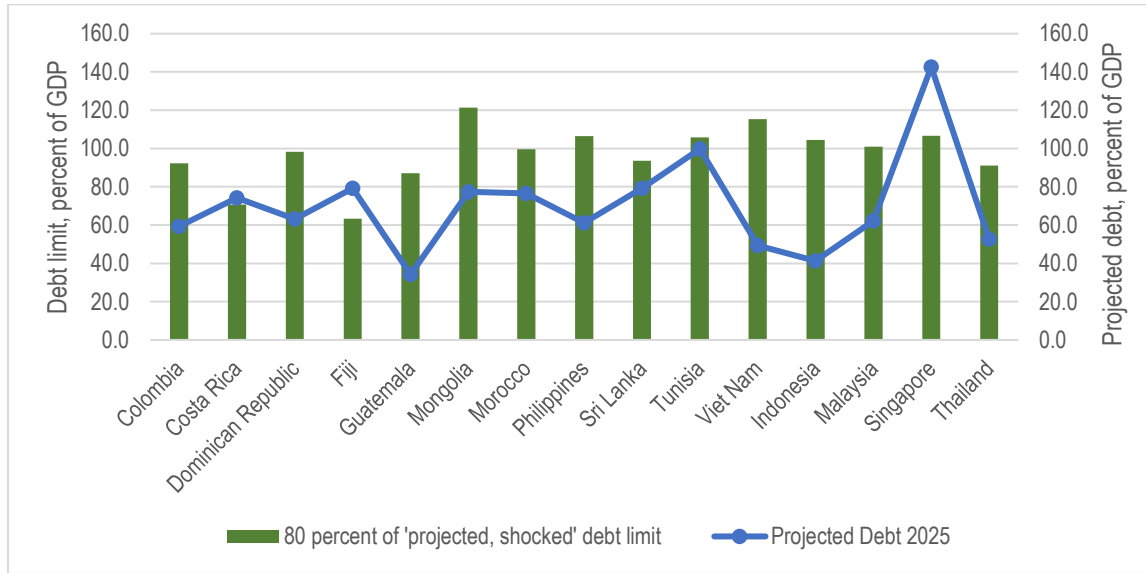| | Debt | IRGD [b] | | | Historical | | Projected | | Projected, shocked | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2025[a] | Historical 2009-19[c] | Projected, 2021-25 [d] | Projected, shocked [e] | d\*\* | Fiscal space | d\*\* | Fiscal space | d\*\* | Fiscal space |
| Colombia | 59.3 | -0.80 | -1.38 | -0.56 | 116.5 | 57.2 | 119.0 | 59.7 | 115.3 | 56.0 |
| Costa Rica | 74.2 | -0.65 | 2.78 | 4.12 | 113.4 | 39.2 | 84.9 [f] | 10.7 | 88.4 [f] | 14.2 |
| Dominican Rep. | 63.1 | -4.11 | -1.54 | -0.99 | 133.1 | 70.0 | 124.9 | 61.8 | 122.9 | 59.8 |
| Fiji | 79.3 | -0.60 | -1.72 | 4.00 | 118.8 | 39.5 | 123.2 | 43.9 | 79.2 [f] | -0.1 |
| Guatemala | 34.2 | -0.15 | -0.48 | 0.36 | 111.8 | 77.6 | 113.6 | 79.4 | 108.9 | 74.7 |
| Mongolia | 77.3 | -14.92 | -10.54 | -9.23 | 162.4 | 85.1 | 154.3 | 77.0 | 151.7 | 74.4 |
| Morocco | 76.6 | -0.05 | -1.40 | -0.73 | 122.1 | 45.5 | 126.8 | 50.2 | 124.5 | 47.9 |
| Philippines | 61.1 | -2.70 | -4.02 | -3.27 | 131.5 | 70.4 | 135.3 | 74.2 | 133.2 | 72.1 |
| Sri Lanka | 79.2 | -3.60 | -1.30 | -0.96 | 127.3 | 48.1 | 118.5 | 39.3 | 117.0 | 37.8 |
| Tunisia | 99.7 | -2.27 | -4.02 | -3.12 | 129.7 | 30.0 | 134.8 | 35.1 | 132.3 | 32.6 |
| Viet Nam | 49.3 | -13.63 | -6.98 | -5.92 | 159.8 | 110.5 | 146.5 | 97.2 | 144.1 | 94.8 |
| Indonesia | 41.3 | -11.03 | -2.80 | -1.47 | 153.4 | 112.1 | 134.3 | 93.0 | 130.6 | 89.3 |
| Malaysia | 62.2 | -2.16 | -2.42 | -0.80 | 130.5 | 68.3 | 131.3 | 69.1 | 126.2 | 64.0 |
| Singapore | 142.6 | -5.89 | -2.18 | -0.65 | 146.0 | 3.4 | 137.3 | -5.3 | 133.3 | -9.3 |
| Thailand | 52.7 | -2.68 | -2.08 | 0.23 | 125.7 | 73.0 | 123.6 | 70.9 | 113.8 | 61.1 |
| Median | 63.1 | -2.7 | -2.1 | -0.8 | 129.7 | 68.3 | 126.8 | 61.8 | 124.5 | 59.8 |
| Mean | 70.1 | -4.3 | -2.7 | -1.3 | 132.1 | 62.0 | 127.2 | 57.1 | 121.4 | 51.3 |

Note: [a] Debt Projections are from IMF Reports and are for 2025, except for Sri Lanka (2024); [b] Effective interest rate, computed as interest expense of budgetary central government divided by general government gross debt, less nominal GDP growth, from IMF reports; [c] Average IRGD for 2009 to 2019, except for Indonesia which covers 2002 to 2007; [d] Average for 2021 to 2025 – Sri Lanka which covers 2021-2024 - where IRGD per year is computed using IMF projections for interest expense, general government debt, and GDP growth; [e] "Shocked" the difference between country-specific mean of real interest rate plus one country-specific standard deviation, and country-specific mean of GDP growth minus one country-specific standard deviation; [f] modulus of a complex number

**Supplement G.1 23 LICs: Fiscal space assuming a 20 percent reduction in projected-shocked d** (found in column 9 of Supplement F.1)**
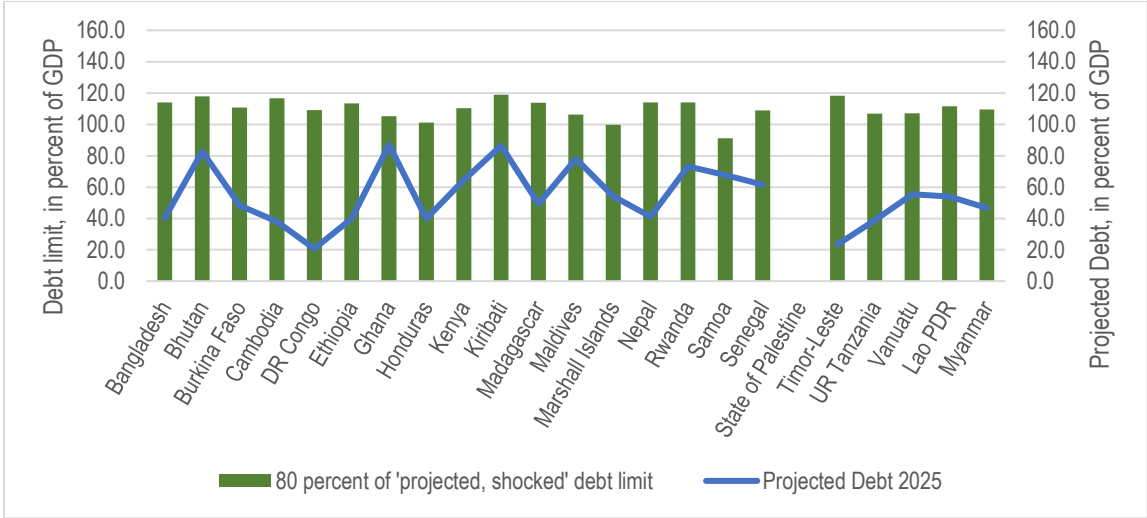


Base data: Columns 1 and 9 of Supplement F.1.

**Supplement G.2 15 MACs: Fiscal space assuming a 20 percent reduction in projected-shocked d\*\* (found in column 9 of Supplement F.2)**



Base data: Columns 1 and 9 of Supplement F.2