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**Back to the Future: Fiscal Rules for Regaining  
Sustainability in Belize**

by Serhan Cevik

I N T E R N A T I O N A L M O N E T A R Y F U N D

## IMF Working Paper

Western Hemisphere Department

### Back to the Future: Fiscal Rules for Regaining Sustainability in Belize

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#### Abstract

This paper assesses the cyclicity and sustainability of fiscal policy in Belize and applies a stochastic simulation model to determine the optimal set of fiscal rules. The empirical analysis shows that fiscal policy in Belize has been significantly procyclical and unsustainable much of the period since 1976. While the government's recent commitment to maintain a primary surplus of at least 2 percent of GDP until 2021 is supporting debt reduction, stochastic simulations indicate that further improvement in the primary balance is necessary to reliably bring the debt-to-GDP ratio to a sustainable path. Given Belize's history of large economic shocks, this paper proposes explicit fiscal rules designed for countercyclical policy and debt sustainability. It recommends integrating such rules into a well-designed fiscal responsibility law and establishing an independent fiscal council to improve accountability and transparency.

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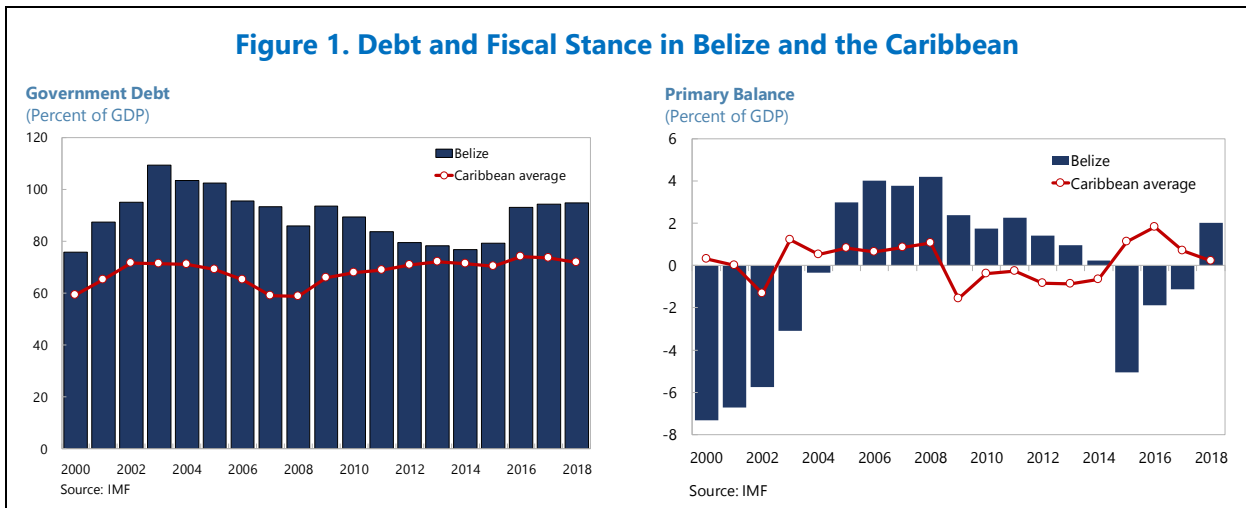
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## I. INTRODUCTION

**Belize has successfully pursued fiscal consolidation in recent years, after restructuring external debt obligations three times in a decade.** The legacy of misaligned economic policies, including fiscal largesse and losses in state-owned enterprises (SOEs), pushed Belize's public debt from 52 percent in 1999 to the peak of 109 percent in 2003. Citing serious economic and financial challenges, the government opted for external debt restructuring in 2007, which helped improve debt dynamics in the short term but did not address the underlying fragilities. Consequently, further debt restructurings followed in 2013 and 2017 when the debt-to-GDP ratio still stood at 94 percent. The latest restructuring agreement includes a commitment by the Belizean authorities to tighten the fiscal stance by 3 percentage points of GDP in FY2017/18, and to maintain a primary surplus of 2 percent of GDP for the subsequent three years until 2021.<sup>2</sup> While this prudent approach has helped deliver a significant fiscal adjustment amounting to 4 percent of GDP over the past two years, the debt ratio remains high at about 94 percent of GDP, especially for a country vulnerable to natural disasters and risks of climate change (Figure 1).



**International experience suggests that achieving sustainable debt reduction could be better facilitated by adopting explicit fiscal rules.** Building on steady progress so far, Belize aims to maintain fiscal consolidation and reduce public debt to 80 percent of GDP within the next five years, and to 60 percent over the longer term. This commitment could be further strengthened by adopting explicit fiscal rules designed to avoid procyclical behavior, build sufficient fiscal buffers, make the conduct of fiscal policy accountable, transparent and predictable, keep the cost of borrowing low, and thereby ensure debt sustainability. There is ample evidence indicating that countries with well-designed and binding fiscal rules tend to have stronger fiscal performance and better access to sources of funding than those without fiscal rules (Debrun and others, 2008; Schaechter and others, 2012; IMF, 2013). A number of Caribbean

<sup>2</sup> Asonuma and others (2018) provide a detailed overview of the causes, processes, and outcomes of Belize's 2016–17 sovereign debt restructuring.

countries, including The Bahamas, Grenada, and Jamaica, have successfully adopted such a rule-based approach to implement countercyclical fiscal policy and anchor debt to a sustainable path.

**This paper assesses the cyclicity and sustainability of fiscal policy in Belize over the period from 1976 to 2018.**<sup>3</sup> To shed light on the necessary changes in the fiscal framework, this paper starts by examining fiscal sustainability using the model-based approach proposed by Bohn (1998), which checks whether the primary balance responds robustly to fluctuations in the debt ratio. If a government reacts to higher debt by improving the primary balance (that is, lower deficit or higher surplus), fiscal policy is deemed to be sustainable over the long term as it keeps debt off an explosive path. The analysis follows the standard approach of decomposing the primary balance into cyclical and structural components and attributing changes in the structural primary balance to discretionary policy changes. This method helps trace the evolution of discretionary fiscal policy as the variation not explained by the impact of the business cycle over a long span of time, and thereby identify whether fiscal policy amplifies or counteracts business cycle fluctuations. In the case of Belize, the analysis indicates that discretionary fiscal policy was highly procyclical and failed to meet the necessary condition of fiscal sustainability, on average, during the period 1976–2018, although there has been a major fiscal adjustment since 2016. These findings are consistent with the literature focusing on developing countries in general, but contrary to the empirical evidence from the rest of the Caribbean where fiscal policy tends to be countercyclical and account for sustainability considerations over the past four decades.

**This paper investigates what fiscal rules and institutional reforms could support Belize's ongoing process of fiscal reform and debt reduction.** Having assessed the historical conduct of fiscal policy over the past four decades, this study considers how Belize could benefit from a fiscal responsibility law (FRL) that enshrines fiscal rules designed for countercyclical policy and debt sustainability. There is a large literature that has identified common threads in assessing the appropriateness of fiscal policy and how it should be optimized for debt sustainability and aggregate demand management. The government's commitment to maintain a primary surplus of at least 2 percent of GDP until 2021 is helpful, but it does not necessarily ensure that the fiscal stance meets the government's intertemporal budget constraint and provides appropriate guidance over the economic cycle. Accordingly, this paper calibrates a combination of fiscal rules for Belize to anchor debt sustainability and formulate countercyclical fiscal policy.

**The remainder of this paper is structured as follows.** Section II and III describe the estimation of cyclically adjusted fiscal balances and the model-based fiscal sustainability test, respectively. Section IV provides an overview of international experience with fiscal rules, while Section V documents the advantages of independent fiscal councils. Section VI explain the methodology for calibrating fiscal rules and presents the findings of a stochastic simulation exercise for Belize. Section VII concludes with a summary of reform recommendations.

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<sup>3</sup> The dataset used in the econometric analysis is consisted of annual observations covering the central government and obtained from various sources including the Ministry of Finance, the World Bank's World Development Indicators (WDI) database, and the IMF's World Economic Outlook (WEO) database.

## II. ESTIMATING CYCLICALLY ADJUSTED FISCAL BALANCES

**Obtaining reliable measures of potential output is the first step in extracting cyclically-adjusted indicators of the fiscal stance.** Emergence of a positive output gap (that is, growing faster than the economy's potential) tends to result in a cyclical improvement in the budget balance, while output growth below potential worsens it. Therefore, estimating the impact of cyclical economic fluctuations is necessary to separate the contribution of discretionary fiscal policy actions, which in turn requires potential output defined as the level of output consistent with stable inflation. Since potential output is an unobservable latent variable, its estimation is subject to uncertainty. There are several methodologies, such as the production function approach, univariate methods and multivariate filters, to estimate potential output and the output gap. This paper estimates potential GDP and the output gap in Belize using the Hodrick-Prescott (HP) filter, which indicates that potential growth rate is currently at 2 percent.<sup>4</sup>

**The impact of cyclical changes on revenues and expenditures is filtered out to capture the discretionary fiscal stance.** There is no one-size-fits-all approach in the literature for cyclical decomposition of fiscal balances, as the appropriate adjustment needs to take several country-specific factors into account, including data availability, the fiscal regime, and the economic structure of the country. This paper follows the methodology outlined by Hagemann (1999) and Fedelino, Ivanova, and Horton (2009) and defines the cyclically-adjusted budget balance (CAB) as a share of potential GDP as:

$$CAB = \left[ \sum_{i=1}^k T_i^{CA} - E^{CA} + X \right] / Y^*$$

where  $Y^*$  is the level of potential output,  $T_i^{CA}$  represents the cyclically-adjusted tax revenues from the  $i$ -th category (that is, corporate and personal income taxes, sales tax, excises and customs duties),  $E^{CA}$  is the cyclically-adjusted government expenditures, and  $X$  is non-tax revenues. To implement the adjustment, I use the elasticities of revenue and expenditure with respect to the output gap, which are denoted  $\varepsilon_T$  and  $\varepsilon_E$ . Accordingly,  $T_i^{CA}$  and  $E^{CA}$  are defined as  $T_i^{CA} = T_i(Y^*/Y)^{\varepsilon_T}$  and  $E^{CA} = E(Y^*/Y)^{\varepsilon_E}$ , respectively. The measurement of the underlying fiscal stance can be refined further by excluding interest payments. Since interest payments are not directly under the control of policymakers and may not be necessarily correlated with cyclical output fluctuation, it is removed to calculate the cyclically-adjusted primary balance (CAPB) as a share of potential GDP in the following form:

$$CAPB = \left[ \sum_{i=1}^4 T_i^{CA} - (E - I_p)^{CA} + (X - I_r - G) \right] / Y^*$$

where  $I_p$  and  $I_r$  denote interest payments and interest receipts, respectively, and  $G$  represents foreign grants. In this analysis, I perform cyclical adjustment on total tax revenue and expenditure

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<sup>4</sup> The HP filter separates the GDP series into trend and cyclical components, using a smoothing parameter of 6.25 on annual data.

by using the aggregate elasticities with respect to the output gap of revenue (assumed to be 1) and expenditure (assumed to be 0).

**Fiscal impulse, measured as the change in the CAPB, helps identify the extent of cyclicality in fiscal policy.** The cyclical component of the primary budget balance represents automatic stabilizers; the structural component is a measure of discretionary fiscal policy. Accordingly, fiscal impulse is measured as the change in the CAPB scaled by potential GDP, with a negative (positive) number indicating a fiscal stimulus (withdrawal of fiscal stimulus). This allows identification of whether fiscal policy amplifies or counteracts business cycle fluctuations. In other words, fiscal policy cyclical refers to the direction in which the government's revenues and expenditures move in relation to output. The fiscal stance is considered to be procyclical if it moves in tandem with the business cycle—that is, expansionary during economic booms and contractionary during economic recessions. Conversely, a countercyclical policy implies a fiscal stance moving against the business cycle—that is, contractionary during booms and expansionary during recessions.

**A countercyclical fiscal policy can be useful in building buffers during periods of economic expansion and stimulating the economy during a prolonged recession.** The fiscal stance in Belize, as measured by the change in the CAPB, appears to be highly procyclical, implying a significant fiscal impulse during periods of strong economic growth and the opposite during periods of weak economic performance. Procyclical of fiscal policy has important implications for macroeconomic stability, as it exacerbates business cycle fluctuations. Furthermore, procyclical bias in fiscal policy during upswings in economic activity may undermine public finances over time, since budget deficits and debt accumulation during economic downturns are generally not offset during periods of economic expansion.

### III. TESTING FISCAL SUSTAINABILITY

**This paper applies the model-based approach developed by Bohn (1998) to test fiscal sustainability in Belize over the period 1976-2018.** A government's debt accumulation equation can be written as  $Debt_{t+1} = Debt_t(1 + Interest_{t+1}) - Primary_{t+1}$ , in which debt at time  $t+1$  depends on the level of debt in the previous period times the interest rate on its debt minus the primary balance. Since it is more informative to focus on the debt-to-GDP ratio, all variables are scaled by GDP and a fiscal reaction function is estimated in the following form:

$$CAPB_t = \alpha Debt_{t-1} + \beta OG_t + \varepsilon_t$$

in which  $\alpha$  is the fiscal reaction parameter that captures how the CAPB responds to an increase in government debt,  $OG_t$  denotes the output gap, and  $\varepsilon_t$  is an error term. A positive coefficient on the debt variable is sufficient to establish that the fiscal policy stance takes into account the government's intertemporal budget constraint and, therefore, long-run fiscal solvency concerns. In other words, when  $\alpha > 0$ , the relationship between the CAPB and debt is mean-reverting so that the government's fiscal policy is sustainable.

**Table 1. Fiscal Reaction Function Estimates for Belize**

(Dependent variable = CABP)

Parameter	Coefficient	Standard Error	t-Statistic	P-value
Debt ( $t-1$ )	-0.06***	0.02	-3.07	0.00
Output gap	-0.88***	0.22	-4.10	0.00
Constant	-2.18	1.38	-1.57	0.12
R-Squared	0.39			
Adjusted R-Squared	0.35			

CAPB = cyclically adjusted primary budget balance

\*\*\* denotes significance at the 1 percent level.

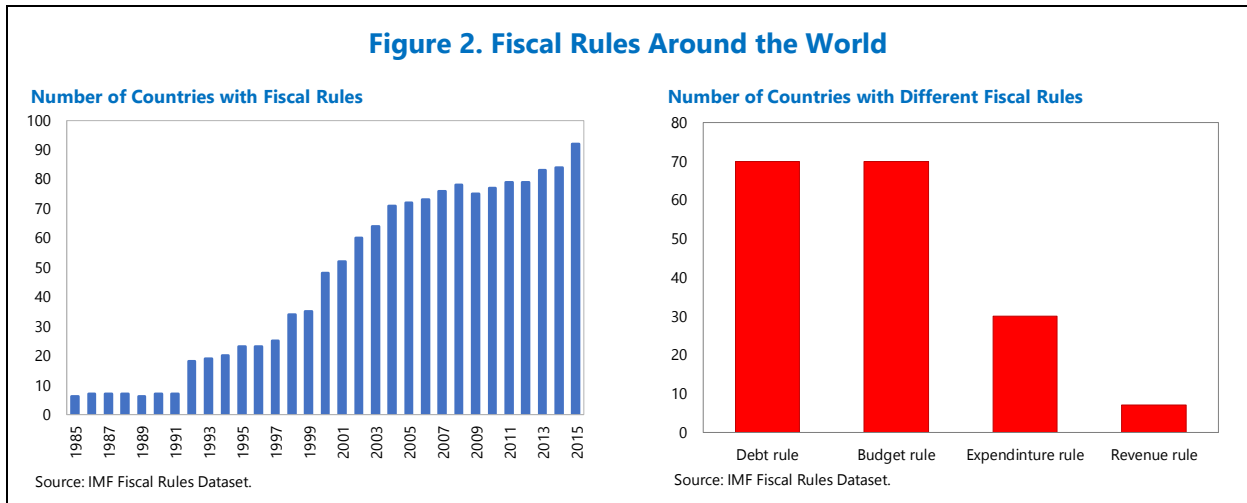
Source: Author's calculations.

**The estimations results, presented in Table 1, show that Belize maintained procyclical and unsustainable fiscal policy.** First, the coefficient on the output gap is estimated to be negative and statistically significant, indicating that discretionary fiscal policy was highly procyclical over the period 1976–2018. Second, the coefficient on (lagged) government debt is also found to have a significant negative sign, which means that there is no positive response in the CAPB to changes in the debt-to-GDP ratio and therefore the necessary condition of fiscal sustainability was not met during the sample period. These findings are in line with the literature showing that developing countries tend to exhibit procyclicality in fiscal policy (Gavin and Perotti, 1997; Talvi and Vegh, 2005; Alesina, Campante, and Tabellini, 2008; Iletzki and Vegh, 2008; Cevik and Teksoz, 2014), but contradictory with the cross-country analysis of Caribbean countries that are found to maintain a countercyclical fiscal stance and take corrective actions against an increase in the debt-to-GDP ratio (Cevik and Nanda, 2019). However, it should be noted that there has been a significant shift in Belize's fiscal effort over the past two years following the latest debt restructuring (similar to previous episodes in 2007 and 2013), as indicated by a larger coefficient (in absolute value) on the debt variable when the model is estimated for the period until 2016.

#### IV. INTERNATIONAL EXPERIENCE WITH FISCAL RULES

**More than 90 countries across the world are now conducting fiscal policy according to numerical fiscal rules, compared with only five in 1990.** Many countries have put in place permanent constraints on key fiscal aggregates through numerical limits on budget deficits, debt, expenditures, or revenue (Figure 2). These numerical fiscal rules, supported by procedural rules guiding the budgetary process, are designed to anchor policymaking, contain pressures to overspend, and ensure public debt sustainability (Koptis and Symansky, 1998). The optimal design of a rule-based fiscal framework varies from one country to another, depending on fiscal policy objectives and institutional capabilities. In this context, FRLs have become popular as permanent institutional arrangements to enhance credibility, predictability, and transparency of fiscal policy. FRLs combine numerical rules, such as ceilings on fiscal deficits and public debt, to impose fiscal discipline with procedural rules to strengthen fiscal transparency and budget management. Thereby, in contrast to stand-alone fiscal rules, FRLs aim to provide a comprehensive framework to govern fiscal policy in a single piece of legislation.





**Different fiscal rules trade off the extent of debt stabilization with the degree of countercyclical properties.** Operational fiscal rules differ according to the type of budgetary aggregate that they seek to constrain, and have different advantages and drawbacks (Table 2). Accordingly, the design of a rule-based fiscal policy framework should address the need for short-term economic stabilization and ensure fiscal sustainability over the long term.

- **Debt rules**, such as a ceiling on the debt-to-GDP ratio or a debt brake mechanism, safeguard fiscal solvency by linking the fiscal stance to debt sustainability over the medium term. However, debt rules are not typically effective as operational fiscal rules, as policy changes impact debt dynamics with a lag beyond the annual budget horizon, and do not have desirable countercyclical properties to stabilize macroeconomic fluctuations.
- **Budget balance rules**, such as a ceiling on the overall budget deficit, are relatively easy to monitor and implement and can support debt sustainability. However, if specified in nominal terms, budget balance rules do not have macroeconomic stabilization properties and tend to lead to procyclical fiscal policy. Structural budget balance rules (such as the CAPB), on the other hand, account for economic shocks and allow automatic stabilizers to operate. While these features augment the economic stabilization role of fiscal policy, inherent uncertainties in estimating the output gap make structural balance rules difficult to monitor and communicate.
- **Expenditure rules**, such as a ceiling on nominal expenditure growth, are operationally simple and provide clear guidance on how to adjust the fiscal stance over time. While expenditure rules provide macroeconomic stabilization properties, they require a reliable medium-term budget framework to avoid the built-up of large deficits and deterioration in the net asset position due to persistently lower revenue generation.
- **Revenue rules**, such as a floor or ceiling on revenues, seeks to increase revenue collection or avert an excessive tax burden. Revenue rules have no direct link to debt sustainability and would result in a procyclical fiscal policy, if there is no accompanying rule on expenditure growth or a ceiling on the general government budget deficit.

**While a single rule offers simplicity, many countries use a combination of different fiscal rules to address specific aspects for fiscal policy.** As every specific fiscal rule has advantages as well as weaknesses, it is a common practice across the world to bring together the key elements of various fiscal rules in a fiscal responsibility framework. About 80 percent of the countries implementing rule-based fiscal policy use a combination of two or more fiscal rules—aiming to provide a medium-term anchor for fiscal policy and one (or multiple) operational target(s) on key fiscal aggregates. For example, a budget balance rule combined with a debt rule would provide a link to debt sustainability, while guiding policymakers in short-term operational decisions. However, an expenditure rule, accompanied by a combination of a budget balance rule and a debt rule, would provide effective operational guidance for fiscal policymaking and anchor debt sustainability to an appropriate long-term target.

**Comprehensive institutional coverage makes fiscal rules more transparent and accountable.** In countries with a federal government (or large subnational governments), it is necessary to look beyond the central government to the fiscal positions of subnational entities. Furthermore, autonomous and semi-autonomous institutions, extra-budgetary funds, and SOEs may have extensive quasi-fiscal operations with a significant amount of contingent liabilities. Therefore, as the central government is often forced to cover the losses and obligations of subnational governments and other public-sector institutions, the coverage of fiscal rules needs to be comprehensive to avoid the possibility of undermining the FRL through off-budget transactions. Similarly, it is not advisable to exclude public sector investment from the coverage of fiscal rules, as it would create an incentive for inefficient investments and opportunistic reclassification of current into capital expenditure.

**Escape clauses provide flexibility in exceptional circumstances, without undermining the integrity of fiscal rules.** Rule-based fiscal responsibility frameworks need to balance credibility and flexibility in responding to developments outside the direct control of policymakers. To this end, robust FRLs have well-defined escape clauses allowing for temporary deviations from the fiscal rules according to: (i) a limited number of exceptional circumstances such as natural disasters and severe economic downturns; (ii) clear guidelines on the interpretation and determination of events; and (iii) an unambiguous transition path to the fiscal rules and the regime that applies in the interim period.<sup>5</sup>

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<sup>5</sup> Budina, Kinda, Schaechter, and Weber (2012) provide a detailed account of escape clauses across all countries with a rule-based fiscal policy framework.

**Table 2. Properties of Different Types of Fiscal Rules 1/**

Type of fiscal rule	Objectives		
	Debt sustainability	Economic stabilization	Government size
Overall balance	++	-	0
Primary balance	+	-	0
Cyclically adjusted balance	++	++	0
Balanced budget over the cycle	++	+++	0
Public debt-to-GDP ratio	+++	-	-
Expenditure	+	++	++
Revenue			
Revenue ceilings	-	-	++
Revenue floors	+	+	-
Limits on revenue windfalls	+	++	++

Source: IMF, 2009, "Fiscal Rules: Anchoring Expectations for Sustainable Public Finances."

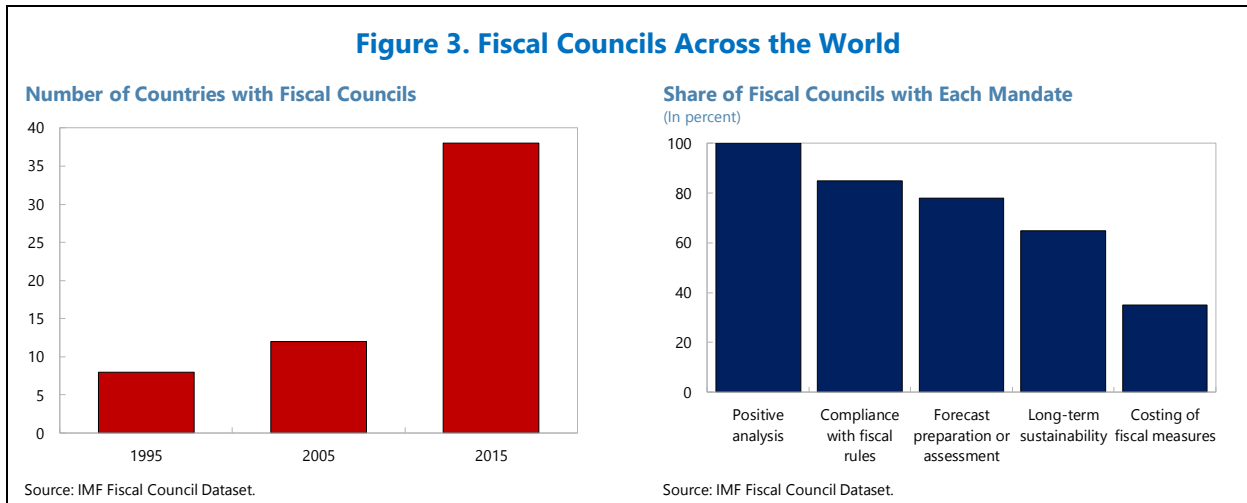
1/ Positive signs (+) indicate stronger property, negative signs (-) indicate weaker property, zeros (0) indicate neutral property with regard to objective.

**Enforcement and automatic correction mechanisms are critical to the success of rule-based fiscal governance.** The success of fiscal rules in guiding policymakers as well as shaping expectations in general depends on predetermined provisions for dealing with devaluations from the fiscal rules. Empirical evidence indicates that fiscal rules with no effective enforcement mechanism result in worse fiscal outcomes than fiscal rules with well-defined enforcement directives (Debrun and others, 2008). These enforcement sanctions in case of deviations from the fiscal rules generally involve reputational costs (i.e., public report to parliament) and commitment to take corrective action. Accordingly, FRLs should clearly specify automatic correction mechanisms to offset deviations from the fiscal rules over a certain period of time in order to maintain credibility of the fiscal rules and avoid a systematic debt accumulation.

## V. ADVANTAGES OF FISCAL COUNCILS

**Independent fiscal councils have become an important institution to promote a "culture of stability" and support the implementation of fiscal rules.** The number of countries with fiscal councils increased to 38 as of end-2015 from 12 a decade earlier (Figure 3). Although most of established fiscal councils are in advanced economies, there is growing interest in developing countries—ranging from Chile to South Africa. While governments as elected representatives maintain discretion in setting fiscal priorities and selecting appropriate instruments, fiscal councils are established as a nonpartisan agency to promote sustainable public finances through greater accountability and transparency and a more-informed public debate. With a mandate to furnish unbiased macroeconomic and budgetary projections and evaluate ex ante and ex post compliance with the fiscal rules, an independent fiscal council provides objective assessments of the appropriateness of fiscal policies and enhances the effectiveness of fiscal rules (Debrun,

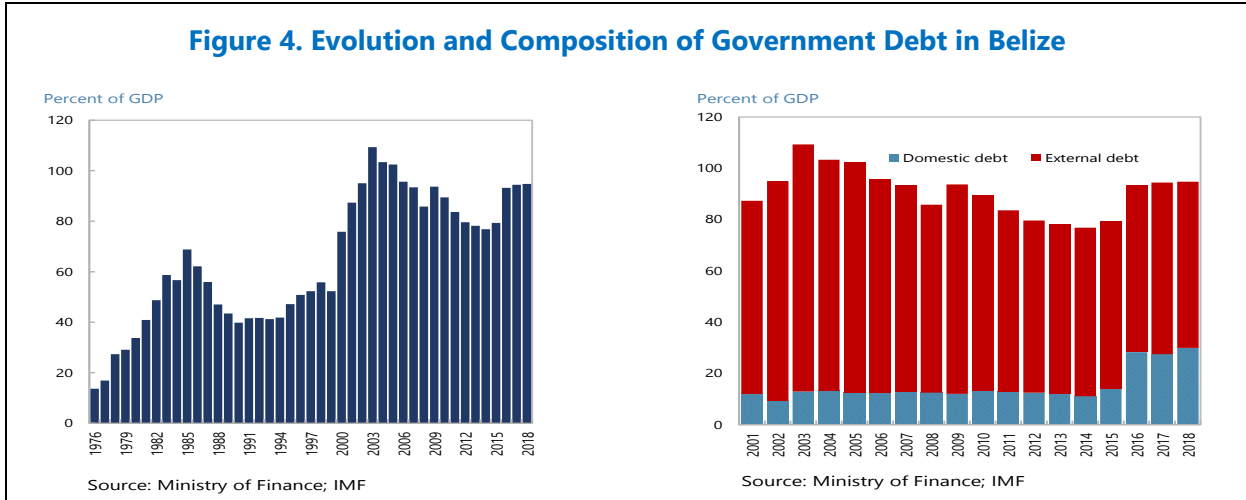
Hauner, and Kumar, 2009). Empirical evidence based on cross-country analyses and country-specific case studies suggests that independent fiscal councils are effective in improving fiscal outcomes in advanced as well as emerging market economies (Hageman, 2011; IMF, 2013).



## VI. CALIBRATING FISCAL RULES FOR BELIZE

**There is a large literature on the “safe” level of government debt, but no consensus on appropriate thresholds that vary from one country to another and over time.**<sup>6</sup> Even if a debt threshold is estimated with reasonable accuracy, it should not be treated as a long-term debt anchor, as it could result in unsustainable debt dynamics during adverse shocks. This calls for imposing a sufficient “safety margin” between the debt target and the “maximum limit” for government debt, beyond which sustainability would be questionable and the government may not be able to lower or stabilize the debt ratio through the regular conduct of fiscal policy (Ostry and others, 2010). In line with the commonly-used debt threshold range of 50 to 70 percent of GDP for emerging markets and developing countries, the appropriate “maximum debt limit” for Belize is assumed to be 60 percent of GDP, which is then used to estimate a debt anchor that would keep government debt below this “maximum debt limit” with high probability even when adverse shocks occur. This is also consistent with the country’s successive debt restructurings that appear to have occurred once the debt-to-GDP ratio breached the 60 percent threshold, the government’s indicative long-term target for debt reduction, and recent empirical studies identifying the level of government debt beyond which it has a negative effect on economic growth (Checherita-Westphal, Hallett, and Rother, 2014; Fournier, 2016).

<sup>6</sup> Eberhardt and Presbitero (2015) and IMF (2016) provide comprehensive surveys of empirical and theoretical research in this area.



**Projections of future government debt are subject to a plethora of policy uncertainties and exogenous shocks.** First, there is policy uncertainty regarding the future development of taxation and government spending. Second, even if one assumes no changes in fiscal policy, there is economic uncertainty that must be taken into account. The growth rate of the economy, demographic changes as well as the interest rate at which the government can borrow determine the macro-financial environment that directly or indirectly affects the state of public finances. Since this macroeconomic environment is subject to exogenous shocks, assessing the safe level of government debt requires an estimation of the joint probability distribution of economic fundamentals and the level of government debt.

**Using the joint distribution of macroeconomic variables, this paper performs multiple simulations to estimate the “safety margin” in debt dynamics.** The “safe” level of debt-to-GDP ratio for the central government is estimated using the stochastic simulation methodology proposed by Baum and others (2018) and applied by Cevik (2019). Annual data covering the period 1976-2018 are used to estimate the distribution of variables affecting the evolution of government debt. Each simulation generates a path for macroeconomic variables over the projection horizon, during which the variables are subject to shocks in each period.<sup>7</sup> The multivariate normal distribution of a  $k$ -dimensional vector of macroeconomic variables (including real GDP growth, primary balance, interest rates, and the real effective exchange rate) can be written as:

$$x \sim N_k(\mu, \Sigma),$$

with the  $k$ -dimensional mean vector

<sup>7</sup> Macroeconomic shocks are drawn from symmetric normal distributions, although the empirical evidence suggest that shocks can be skewed to the downside (Escolano and Gaspar, 2016). The impact of shocks on debt paths, however, depends on the initial level of debt. For example, an adverse shock to growth, real interest rates, and the real effective exchange rate will increase debt by more when the initial debt level is higher.

$$\mu = (E[X_1], E[X_2], \dots, E[X_k])$$

and  $k \times k$  covariance matrix

$$\Sigma = (\text{cov}(X_i, X_j)), \text{ for all } i=1, 2, \dots, k; j=1, 2, \dots, k$$

Subsequently, medium-term debt trajectories consistent with each simulated path of macroeconomic variables are attained from the system of simultaneous equations formed by the debt accumulation equation (that is, government budget constraint) and an FRF estimated over the period 1976–2018 in which the primary balance responds to the level of debt and realizations of macroeconomic variables. A debt anchor for Belize needs to be sufficiently low to protect the country against shocks, including weather-related disasters and contingent liabilities. Moreover, Belize could also experience a greater sensitivity of macro-financial conditions to public debt sustainability at higher levels of indebtedness.

**Stochastic simulations indicate that the optimal debt anchor for the central government in Belize should be 55 percent of GDP.** After setting the “maximum debt limit” at 60 percent of GDP, a simulation analysis is conducted using the country’s macroeconomic performance over the period 1976–2018, as well as alternative fiscal policy paths for the next six years. The analysis of future debt trajectories shows that government debt must remain below 55 percent of GDP in the long term. This “safety margin” of 5 percent of GDP—difference between the maximum debt limit of 60 percent of GDP and the debt target of 55 percent of GDP—would ensure that the “maximum debt limit” is not breached with a probability of 95 percent over the forecast horizon.<sup>8</sup> In other words, 55 percent of GDP is considered as the “safe” level of debt that the government can maintain without experiencing fiscal distress over the medium term and provide a reasonable cushion against natural disasters.<sup>9</sup> Figure 5 displays two alternative simulation results for Belize in two charts showing (1) the debt trajectory starting from the actual level of debt (as of end-2018) and (2) the debt trajectory starting from the debt anchor that would keep government debt under the “maximum debt limit” of 60 percent of GDP over the next six years.

- **Primary surplus of 2 percent of GDP.** Panel A of Figure 5 presents the debt simulation assuming that fiscal effort will remain at an annual primary surplus of 2 percent of GDP over the next six years. This would not be adequate to bring down the debt-to-GDP ratio in line with the government’s goal of 80 percent in five years. However, once it moves below the “maximum debt limit” of 60 percent, maintaining a primary budget surplus of 2 percent of

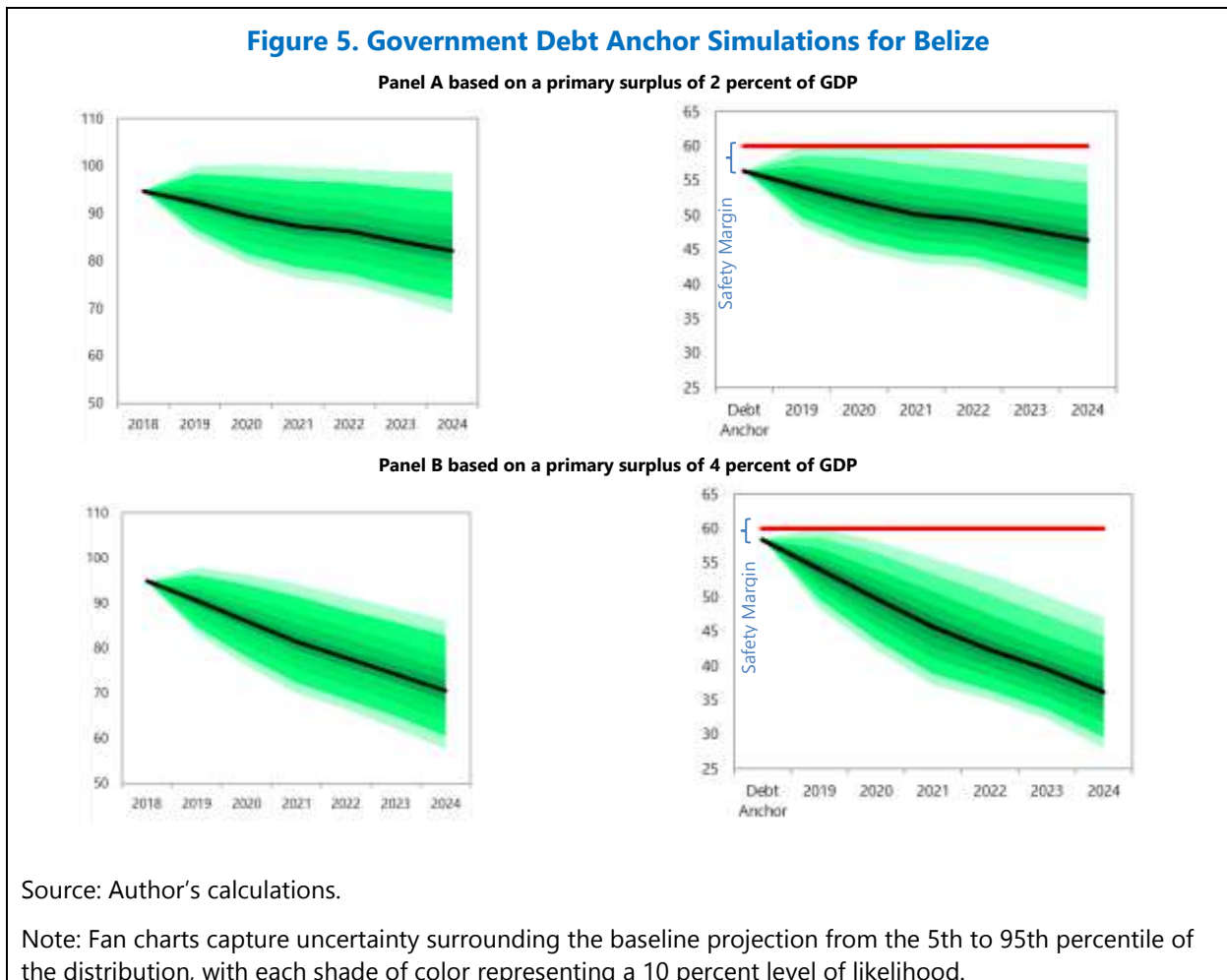
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<sup>8</sup> The algorithm generates a large number of random shocks over the 6-year forecasting period and computes for each sequence of shocks the corresponding debt paths. This allows for a probabilistic analysis of debt trajectories, but the validity of this approach is conditioned on the quality of the statistical model used to produce the forecasts. Therefore, fan charts capture uncertainty surrounding the baseline projection from the 5<sup>th</sup> to 95<sup>th</sup> percentile of the distribution, with each shade of color representing a 5 percent level of likelihood.

<sup>9</sup> The average annual cost of weather-related damage in the Caribbean region is 2.4 percent of GDP, about six times more than that of larger counties.

GDP would justify a debt anchor of 56 percent of GDP to keep government debt below the “maximum debt limit” with a high level of confidence.

- **Primary surplus of 4 percent of GDP.** Panel B of Figure 5 presents the debt simulation assuming even greater fiscal effort with an annual primary surplus of 4 percent of GDP over the next six years. Under this scenario, the debt anchor that would keep government debt below the “maximum debt limit” is estimated to be 58 percent of GDP.



**A primary balance rule is calibrated to provide operational fiscal policy guidance under the debt anchor.** The overall balance is commonly used to assess the fiscal stance, but it is a deficient indicator that includes factors beyond the control of policymakers. Even the primary budget balance excluding interest payments is still contaminated by economic fluctuations. A structural indicator would provide a better assessment of the underlying (or permanent) fiscal position by removing cyclical factors. However, implementing a structural balance rule, such as the CAPB target, is not appropriate for Belize at this stage, as it requires estimating the output gap with high precision. Data shortcomings and uncertainty associated exogenous shocks make this difficult to estimate and communicate to the public at large. Therefore, the best option—for

effective implementation and communication—is the primary balance target ( $pb^*$ ), which is derived from the debt anchor ( $d^*$ ), according to the following equation:

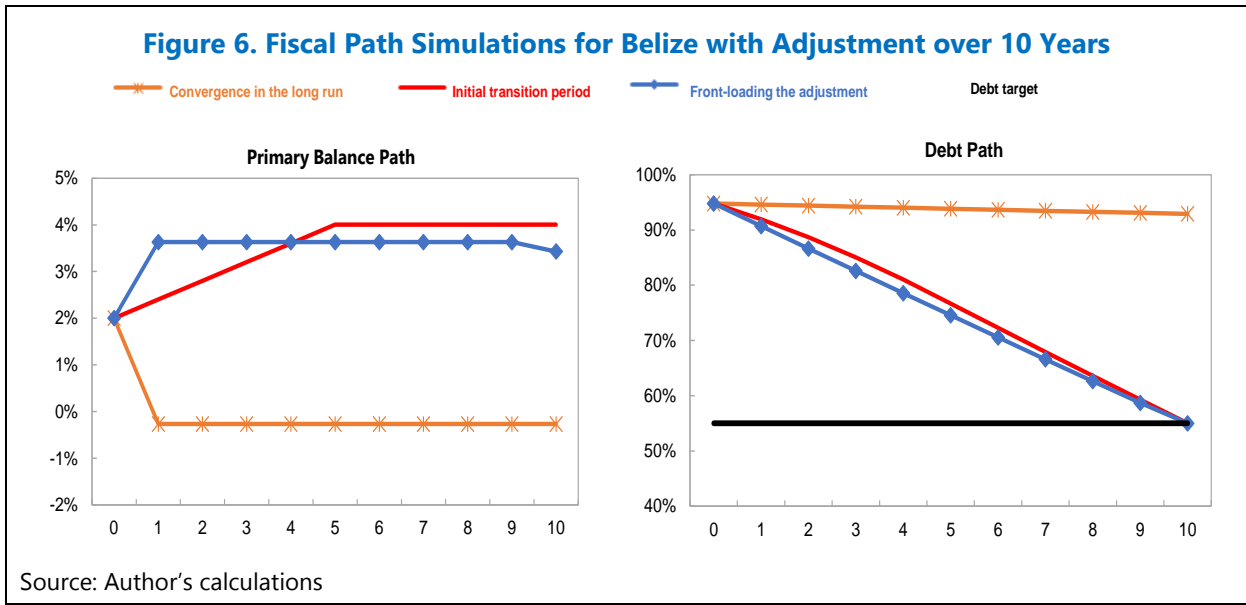
$$pb^* = \frac{\gamma}{(1 + \gamma)^{-N} - 1} [(1 + \gamma)^{-N} d^* - d_0]$$

in which  $\gamma = (i - g) / (1 + g)$ , where  $i$  is the long-run nominal effective interest rate and  $g$  is the long-run nominal GDP growth rate;  $d_0$  stands for the initial debt stock; and  $N$  denotes the convergence horizon, in number of years, after which debt is expected to reach its long-term target.

**The convergence towards the debt target of 55 percent of GDP will require significant and continuous fiscal effort over a long period.** Belize’s fiscal consolidation in recent years marks a substantial break from history, but even a primary surplus of 2 percent of GDP is not adequate to bring down the debt-to-GDP ratio to a sustainable level in the foreseeable future. In light of the country’s vulnerability to exogenous shocks, a front-loaded adjustment path would be better in building fiscal buffers and creating fiscal space for development needs in the future once debt sustainability is ensured with high probability. Figure 6 presents three alternative approaches under our preferred fiscal adjustment scenario with a primary surplus target of 4 percent of GDP to guide debt reduction over the next 10 years:

- **Convergence in the long run (orange line).** This approach estimates the constant primary balance that, if sustained, would lead to a gradual convergence toward the debt anchor in the long run. In the case of Belize, this would deliver a very slow debt reduction—by only about 2 percentage points of GDP over the next 10 years.
- **Initial transition period (red line).** This approach brings a gradual improvement in the primary balance during a 4-year transition period and maintains a constant pace of adjustment afterwards until the debt-to-GDP ratio reaches its target. In the case of Belize, it would entail keeping an average primary surplus of 3.3 percent of GDP in the first 4 years and 4.6 percent of GDP in the following 6 years.
- **Front-loading the adjustment (blue line).** The preferred approach improves the primary budget balance with an instantaneous adjustment in order to build fiscal buffers and lead the debt-to-GDP ratio to the target. In the case of Belize, it would require an average primary surplus of 4 percent of GDP over a 10-year period.





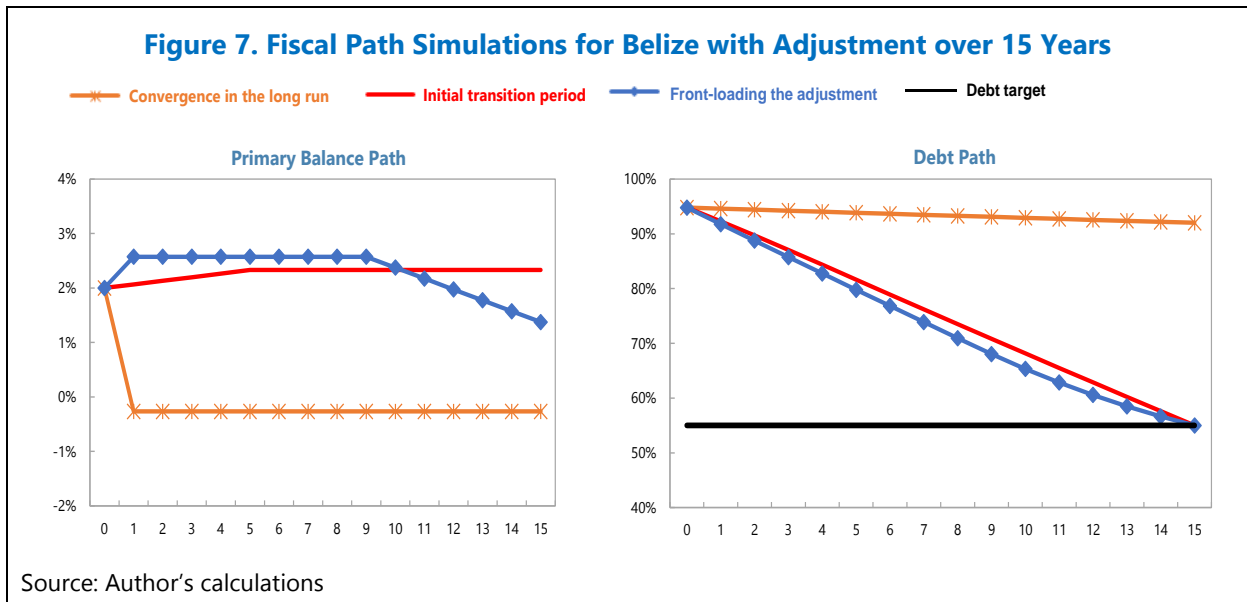
**A gradual fiscal adjustment with a primary surplus target of 3 percent of GDP a year over the next 15 years could be considered as an alternative.** Cross-country evidence shows that there are only three cases (and just one if resource-rich countries are excluded) that achieved an average primary surplus of 3.5 percent of GDP or more over a 10-year period.<sup>10</sup> Furthermore, a frontloaded fiscal adjustment is likely to reduce GDP growth in the near term and delay the reduction in debt as a share of GDP. Although postponing fiscal consolidation in a country like Belize with excessively high government debt would undermine confidence and consequently have even more disruptive effects on the economy, it could be more feasible to maintain a primary surplus of 3 percent of GDP over a period of 15 years until the debt-to-GDP ratio converges to the target. With the front-loaded adjustment approach (blue line), this would entail keeping an average primary surplus of 3 percent of GDP in the first 9 years followed by a loosening towards 1.7 percent of GDP in the next 6 years.

**Introducing an expenditure rule, along with the primary balance rule, could bring stronger operational guidance and countercyclical features.** While a debt anchor and a primary balance rule are generally considered to be adequate for rule-based policymaking, adopting an expenditure rule would provide additional macroeconomic stabilization properties in an emerging market economy with a high level of debt and significant development needs.<sup>11</sup> For a given  $pb^*$  target and average tax pressure ( $r^*$ ), the implied expenditure ratio is determined as

<sup>10</sup> Escolano and others (2014) provide an overview of fiscal adjustment episodes in the post-war period across the world, while David and Leigh (2018) focus exclusively on fiscal consolidation efforts in Latin America and the Caribbean.

<sup>11</sup> Some countries adopt "golden rules" excluding investment spending, but this tends to complicate the implementation of fiscal rules and weaken fiscal sustainability, as it creates an incentive for inefficient investments and opportunistic reclassification of current into capital expenditure, and leads to higher current spending associated with maintenance of a higher level of public capital stock. IMF (2014) and Cordes and others (2015) provide an overview of expenditure rules.

$e^* = r^* - pb^*$ , which implies that  $\Delta e^* = \Delta r^* - \Delta pb^*$ . Assuming a stable revenue ratio ( $\Delta r^* = 0$ ), and that the country complies with the budget balance rule ( $pb = pb^*$  and  $\Delta pb^* = 0$ ), the two equations show that the primary balance rule requires spending growing at the same speed as nominal GDP growth, or alternatively that spending remains constant as a share of GDP. Therefore, in the case of Belize, an appropriate expenditure rule could link the annual growth rate of total government spending to potential nominal GDP growth. Since measures of potential GDP are subject to estimation uncertainty, it could be estimated simply as an average over the past 10 years.<sup>12</sup> In countries with high levels of debt, however, expenditure growth may need to remain below potential GDP for some time in order to bring the debt-to-GDP ratio to its target.



## VII. CONCLUSION

**This paper examines fiscal sustainability and calibrates a set of numerical fiscal rules to guide policymaking and anchor debt sustainability.** Belize has pursued budgetary reforms and prudent fiscal policy in recent years, but escaping the cycle of low growth and high debt remains a challenge. The empirical analysis presented in this paper indicates that fiscal policy was highly procyclical and failed to meet the necessary condition of fiscal sustainability, on average, during the period 1976–2018, although there has been a major fiscal adjustment since 2016. There is abundant evidence showing that countries, including in the Caribbean, with well-designed explicit fiscal rules have stronger fiscal performance, better access to funding sources, and benefit from a credibility boost to growth. To this end, the following combination of fiscal rules—based on the stochastic simulation exercise—is recommended for Belize to formulate policymaking with countercyclical properties and an explicit reference to debt sustainability:

<sup>12</sup> This approach is used in a number of countries, including Argentina, Croatia and Mongolia.

- Under a “maximum debt limit” of 60 percent of GDP, adopting a debt target of 55 percent of GDP to ensure that government debt remains below the “maximum debt limit” with high probability even when negative shocks occur over the medium term.
- Maintaining a primary surplus target of 4 percent of GDP a year over the next 10 years (or 3 percent of GDP a year over the next 15 years) and debt-stabilizing primary balance once the debt-to-GDP ratio converges to the debt anchor.
- Introducing an expenditure rule linked to long-run nominal GDP growth to bring additional stabilization properties and reduce the procyclicality of fiscal policy.

**Fiscal rules should have sufficient flexibility to respond to shocks, while being supported by explicit enforcement procedures and corrective mechanisms.** The success of fiscal rules in guiding policymakers as well as shaping expectations depends on predetermined provisions for dealing with deviations from the fiscal rules. To balance credibility and flexibility in responding to developments outside the direct control of policymakers, the FRL should establish an automatic correction mechanism that would be triggered by a pre-specified deviation from the fiscal rules, and require additional fiscal adjustment in subsequent years to bring fiscal performance back in line with the rules. To this end, Belize should have clearly-defined escape clauses that allow for temporary deviations from the fiscal rules according to: (i) a limited number of exceptional and unforeseeable events such as natural disasters and severe financial crises and economic recessions; (ii) well-specified guidelines on the interpretation and determination of such events and triggered only with parliamentary approval; and (iii) an unambiguous transition path to compliance with the fiscal rules and the regime that applies during the convergence period.<sup>13</sup> Empirical evidence also indicates that fiscal rules with no effective enforcement mechanism result in worse fiscal outcomes than fiscal rules with well-defined enforcement directives (Debrun and others, 2008). The FRL should therefore include enforcement sanctions (i.e., public report to parliament) in case of deviations from the fiscal rules and a specific timetable to offset such deviations over a certain period of time. In this context, the establishment of an independent fiscal council is particularly important to provide unbiased macro-fiscal projections and evaluate compliance with fiscal rules. This would enhance transparency and accountability of fiscal operations and buttress credibility of the rule-based fiscal policy framework.

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<sup>13</sup> Budina, Kinda, Schaechter, and Weber (2012) provide a detailed account of escape clauses across all countries with a rule-based fiscal policy framework.

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