



**FISCAL POLICY:
FISCAL SUSTAINABILITY AND
PROPOSALS FOR INSTITUTIONAL
CHANGE**

INTRODUCTION

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2019 Joint Research Program

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Public Debt Sustainability in Latin America and the Caribbean

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This electronic volume compiles 10 articles written on the topic of public debt sustainability as part of CEMLA’s 2019 Joint Research Program. The papers confront the fiscal sustainability issue using different methodologies in order to answer a number of specific questions and describe the recent history of debt and public finance for many of the member economies up until 2019. The compilation of statistics, the application of different methodologies, and the description of different institutional setups and their process of reform over time, paint a detailed and useful picture of the pre-Covid-19 evolution of debt and primary budget levels in Latin American economies. It serves as a starting point for academics and policymakers to think about these issues in the post-pandemic period. In this introduction, we describe the importance of this topic, the main methodologies used in this literature, and how they have been applied in the articles included. We also reflect on the analysis and policy challenges that remain and speculate on how to address them. In the face of the Covid-19 pandemic and the resulting public deficit increases and GDP declines during 2020, beyond serving the general purpose of furthering the analysis of public finance and debt sustainability, this project and book turn out to be highly prescient given the circumstances.

An Essential Topic in Public Finance and an Essential Ingredient for Monetary Policy

While the ongoing pandemic has made all fiscal issues especially urgent, the topic of public debt sustainability in Latin America is important for many other reasons:

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- First, fiscal policy in general has implications for the day-to-day workings of our economies, for their long-term development, and for their ability to respond to shocks. Indeed, fiscal policy has been at the center of macroeconomics at least since [Ramsey \(1927\)](#), and [Keynes \(1936\)](#) and figures prominently in the post-WWII economic history. The behavior of the economy during and after the war seemed to imply that high government expenditure levels had contributed to the transition from the great depression into the economic boom that followed, a view that persisted until the episodes of stagflation in advanced economies and high inflation and default in emerging economies in the 70's and 80's. More generally, the level of government expenses and revenues and the composition of both affect many areas of economic life: taxes generally distort market prices and generate inefficiencies; tax progressivity and redistribution affect inequality, and also incentives to be productive, invest and take risks; firm size is also affected by taxation; government expenditure affects aggregate demand, and its financing affects capital markets, and so on and so forth, and decisions on all these fronts and many others are contingent on a country's headline budget constraints.
- Second, the experience of the Latin American and Caribbean region shows that sovereign debt crises, the result of debt becoming unsustainable, are very costly in terms of welfare. In the 1970's and 80's and again in the early 2000's, a number of economies experienced export-commodity-driven booms that led to expanded budgets only to then result in very high debt deficits and debt levels once the commodity boom subsided. Importantly, these types of crises affect economic performance both ex-ante and ex-post: Ex-ante, the possibility of a debt crisis generates high interest rates and uncertainty, consumes public resources, and limits investment and growth. Ex-post, the materialization of one of these crises generates large-scale economic disruption and output losses and often comes along with high inflation, banking crises, and draconian budget cuts. Most countries in our region have experienced debt crises first-hand and realize the damage they cause.
- Third, economies in the Latin American and Caribbean (LAC) region face especially dire fiscal scenarios looking forward: in terms of aging, while the fraction of the population over 60 was 11% in 2018, vs. 22% in the US and Canada, by 2050 both regions will be nearly as old (25% of the population above 60 y.o. in LAC vs. 28% in the US and Canada); pension systems are in many cases non-contributory or pay-'go, and while some countries reformed theirs towards fully funded systems with individual savings accounts that provide assets for retirement, the low return rates on investments are putting strain on these systems as well. Finally, economic populism remains a common theme in political discourse and in citizens preferences in the region, leading to costly subsidies, for example on energy products, and

lowering investor confidence regarding debt repayment, all of which contributes to increasing pressures on fiscal policy.

- Fourth, fiscal sustainability is central to monetary policy and to price stability. There are many channels by which fiscal deterioration can lead to price increases: there is the possibility that the government attempts to finance itself through seigniorage, by printing money and by benefiting from the decline in the real value of its domestic currency debt; governments also set prices in some markets and charge fees for public services which can also be increased to address fiscal issues; and also, the central bank is the lender of last resort and in a scenario where the government defaults on bonds held by the banking system, the central bank must provide liquidity to avoid a collapse of the financial sector and the payments system. Moreover, while independent central banks have become the norm in the region¹, and this independence protects monetary policymaking from government influence, a fiscal crisis scenario would surely lead to important pressures on the corresponding central bank and its monetary policy decision-making. In that regard, the sustainability of public debt is of the utmost importance for monetary policy.²
- Fifth, the success achieved in the fight against inflation, obtained in part through institutional reform of central banking, has yet to be largely replicated in the area of fiscal policy. The health of public budgets continues to be a function of political needs and public debt in the region and still occasionally reaches high or unsustainable levels, as judged by the recent default events in Argentina³ and Ecuador⁴. While important efforts at establishing laws and regulations that aim to guarantee fiscally responsible behavior by policymakers have been made, there is still a long way to go before public deficit and public debt limits can be set by technical bodies insulated from political whims. In that sense, this joint research project serves as background and motivation to the design and implementation of institutional change that improves public debt sustainability.

Overall, the importance of fiscal sustainability cannot be exaggerated. An improved understanding of fiscal sustainability, its determinants, and the risks surrounding them, as well as the implementation of fiscal responsibility laws and fiscal councils can lower the risk of sovereign default, allow monetary policy to work towards price stability, and

¹Fifteen out of seventeen Central Banks in Latin America can be described as independent according to “América Central: Crecimiento Económico e Integración,” IMF, 2007.

²See Kehoe and Nicolini (Eds, forthcoming), for a wide-ranging analytical and historical account of the relationship between fiscal policy, monetary policy and inflationary outcomes in Latin America through the 1960-2017 period.

³Argentina’s ninth sovereign default and its second one of the current century took place on May 22nd, 2020 as it missed an interest payment due on that date.

⁴Ecuador delayed a payment on its debt on April 20, 2020.

most importantly, by improving market confidence, and leading to a more countercyclical fiscal policy, fiscal sustainability may allow natural debt limits to increase, thus actually achieving a loosening of fiscal constraints in important ways, with the corresponding increase in freedom for countries to tackle their public investment needs.

Finally, a back-of-the-envelope calculation on the effects of Covid-19 is sobering. Debt burdens in Latin America are expected to go from an average of 44.3% of GDP in 2019 to one of 59.7% of GDP in 2021, a one third increase. Furthermore, assuming also that over the next two years real interest rates perform as in the past two Fed tightening cycles, increasing by an average of 310 basis points, and assuming that economic growth returns to pre-Covid-19 trends by then, primary budget balances necessary for debt sustainability in 2022 will be on average 3.84 percentage points of GDP higher than what they were in 2019.⁵ Thus, over the next few years, the region as a whole is likely to need some of the largest budget adjustments ever.

Public Debt Sustainability in Theory and in Practice

The quantitative methodologies used in this volume approach the problem of public debt sustainability using particular perspectives and specific assumptions. In terms of their practical application and of how they improve our grasp of the sustainability problem, these methodologies can be loosely grouped into five sets, as follows:

Sustainability in an Accounting Sense

Following a basic accounting logic, the problem of sustainability is theoretically very simple, and can directly be reduced to evaluating whether future primary fiscal surpluses (PS) will be sufficient to pay current bondholders.

$$\sum_{t=T}^{\infty} \frac{PS_t}{(1+r)^t} \geq D_t \quad (1)$$

where PS_t stands for primary surplus, D_t stands for public debt, and r is an appropriate interest rate to discount future surpluses. While the inequality above makes sense at a very intuitive level, in the context of continuous technological change and economic growth, it may be more reasonable to assume that a sovereign borrower will increase its debt *ad infinitum*, as long as the path of the debt to GDP ratio remains bounded. Under this alternative assumption, sovereigns should be expected to refinance their current debt with new debt over time. Under that assumption, the inequality above is no longer a

⁵Expectations of GDP growth in 2020, 2021 and budget deficits in 2020 and 2021 used for this calculation taken from Haven Analytics. Data on debt levels in 2019 and US real interest rates in the 1990-2010 period from the World Bank.

sensible indicator of sustainability.⁶

A more modern version of this perspective is the Mendoza-Oviedo (2004, 2006)-type “Natural Debt Level” methodology, where the debt limit is the present discounted value of minimum future primary fiscal surpluses which could be expected from a government under a stress scenario. It represents a calculation of the maximum level of debt that can be “guaranteed” in the sense that there will surely be enough resources to pay this level of debt down. Importantly, it is to be interpreted as a limit value for debt, one that governments would like to keep away from, and only reach under a sequence of negative shocks, rather than a benchmark for acceptable indebtedness.⁷ This approach is useful in that it produces a debt limit of sorts that can be contrasted with current debt levels. However, it is important to observe that but an significant concern with this methodology is the lack of elements in the data to discipline these worst-case scenario surplus levels that are necessary for the calculation. It is hard to pin down which expenses could potentially be cut or which taxes could potentially be increased in a crisis scenario.

The Levels of Primary Surplus Necessary for Debt Sustainability

From an entirely different perspective, a practical way to address fiscal sustainability is to compute a target level for the fiscal budget surplus, such that it guarantees the sustainability of fiscal debt from one period to the next. This very standard approach, attributed to Buiter (1985) and Blanchard et al. (1991), assumes that the objective is to keep the current debt level constant and then computes which level of fiscal deficit or surplus is necessary in order to maintain or decrease the referred debt to GDP ratio, under the assumption that the current values for economic growth rates and the interest rate on debt remain constant. The definition of this surplus level is then:

$$\hat{P}\hat{S}_t = \frac{r_t - g_t}{1 + g_t} d_t \quad (2)$$

where r is the real interest rate, g the rate of economic growth, and the debt and the primary surplus are expressed as fractions of GDP. This is a highly practical computation that serves to relate assumptions about growth and interest rates into budget surplus requirements. It tells policymakers how big of an adjustment they need to make, given assumptions about the r or g parameters, in order to keep debt ratios stable at each point in time. However, the usefulness of this calculation is limited by the lack of any consideration for debt dynamics, say by considering a stretch of years with growing debt

⁶From this accounting perspective, computing an economies net asset balance, rather than gross debt levels, is a key endeavor to better assess sustainability. The paper by España, Aquino, Vicente and Fernandez in this volume presents such calculation for the case of Uruguay in 2019.

⁷In this volume, using this approach, Alvarado and Viera (2021) find the 2019 debt levels in El Salvador slightly exceed (70% vs 71% of GDP) the natural debt level, and Catalán-Herrera finds that the 2019 debt level of 24.5% of GDP in Guatemala, was significantly lower than the 37.7% (or 46.6% with different assumptions) calculated to be its natural debt level.

that then stabilizes, or for optimal debt levels, and by the strong reliance on assumptions about g and r .⁸

Sufficient Characteristics of Debt and Budget Dynamics

A technically sophisticated way to address the problem of determining debt sustainability is to look into the statistical properties of the time-series of debt and budget surpluses. Among many possibilities, one way to do this (as pioneered by [Trehan & Walsh \(1991\)](#)), is to evaluate the existence and properties of a cointegrating relationship between these variables. For example, if debt and budget surpluses are cointegrated with a cointegration vector $(1,r)$, then the intertemporal budget constraint in equation (1) holds. This perspective allows for periods where surpluses do not respond to increases in debt levels, and yet, the assumption that the estimated relationship is maintained in the future, guarantees the sustainability of public debt. The value of this procedure is that it takes into consideration the historical behavior of fiscal variables, summarizing their dynamics into a simple metric of whether a country's past suggests that its public debt trajectory will remain sustainable. However, it is important to realize that the behavior observed for an economy in the past, when perhaps fiscal debt levels, political and demographic circumstances were very different, may not be indicative of future behavior. Thus, while debt and budget surplus processes in the past may have fulfilled a set of sufficient conditions for sustainability, a potential issue with this approach is that it is difficult to see why this implies that such conditions will be fulfilled going forward.⁹ In that sense, extrapolating past behavior to current circumstances may or may not lead to accurate conclusions.

Fiscal Reaction Functions

A similar methodology, also based on an econometric test, but which more directly pins down the dynamics of debt and surpluses, and which seems more intuitively related to the sustainability issues is the one advocated by [Bohn \(1998\)](#). It takes into consideration the conditionality of policy actions, and thus constitutes a more flexible and realistic

⁸In this volume, [Lankaster-Campos, Loaiza-Marín and Monge-Badilla](#) using this approach, find that the required adjustment in 2019 to maintain sustainability is large, on the order of 7% of GDP, but argue that under a newly approved reform, a combination of foreign currency issuance, control of expenditure control debt to GDP will continue increasing but at a declining rate, and stabilize from the 52% level currently at a 66% level, and then begin a steady decline. Using a similar approach, [Alvarado and Viera \(2021\)](#) find El Salvador in 2019 needed only small adjustment (from 0.80 to 1.1% of GDP) to its primary budget surplus to maintain a stable debt to GDP ratio, and [Catalán-Herrera](#) finds Guatemala in 2019 needed an adjustment of between 0.37 under the baseline scenario and 2.56 under the pessimistic growth, interest rate and Debt to GDP scenario.

⁹Using this approach, [Lankaster-Campos, Loaiza-Marín and Monge-Badilla](#) show that unit root tests on the debt-to-GDP ratio show it to be a non-stationary variable in Costa Rica from 1974 to 2018, thus implying unsustainability.

approach to the problem at hand. The principle is in effect to compute empirical policy functions, i.e., quantify what the reactions of policy variables in the past have been to increases in debt for different cyclical scenarios. This computation of “fiscal reaction functions” (FRF’s) entails choosing a functional form for surpluses, as determined by the level of debt and other economic conditions, as exemplified by equation (3) below, and then estimating its parameters based on past behavior:

$$PS_t = \beta_0 + \beta_1 PS_{t-1} + \beta_2 d_{t-1} + \gamma X_t + \epsilon_t \quad (3)$$

To determine whether debt is sustainable, the idea is then to take the estimated function and assess whether, beyond some point in terms of indebtedness, surpluses increase more than proportionately with the increases in debt levels. Such a feature guarantees convergence of debt to a finite level. In the specific version presented in equation 3 above, the sufficient condition for sustainability is:

$$\frac{\beta_2}{1 - \beta_1} \geq \frac{r - g}{1 + g'} \quad (4)$$

where r and g represent interest rates and economic growth as before. This computation introduces realistic dynamics to the sustainability problem in the sense that it is natural for governments to make important efforts to tighten their belts only after debt has gotten too large, and not when indebtedness is growing but has not reached high levels. However, as before, this process focuses on summarizing the dynamics observed in the past, and therefore it remains vulnerable to the criticism that past behavior may not be an indicator of future behavior. For example, while a linear or convex reaction function for surpluses as debt, estimated off of a period where debt went from 40 to 60% of GDP, does not necessarily imply the same relationship will hold as debt increases from 60 to 80% of GDP.¹⁰

Fiscal Reaction Functions with Fiscal Fatigue

Finally, among the most recent perspectives in this literature, and one that captures likely political dynamics surrounding debt repayment, is the estimation of a fiscal reaction function that allows for a region of “fiscal fatigue” (Ostry et al. 2010, Ghosh et al. 2013).

¹⁰In this volume Serju-Thomas uses a variety of methods to estimate the Fiscal Reaction Functions for Jamaica and finds negative or insignificant responses of primary surpluses to debt in the period before the recent fiscal reform, concluding that debt has been generally unsustainable in the past. Similarly, Mongroo and Tjon Kie Sim-Baker focus on estimating fiscal rules for Suriname through a variety of specifications. They generally find coefficients on the debt level that imply sustainability, although the authors’ further analysis suggests inflation and financial repression over the years contributed to Suriname’s acceptable debt levels in 2019. For the case of Uruguay, a fiscal reaction function estimation results in small coefficients for debt which, when compared to the evolution of growth and interest rates implies that debt sustainability has been at times sustainable and at others unsustainable, but has been mostly sustainable since the early 2000’s.

In that setup there is a level of fiscal budget surpluses beyond which further increases become politically untenable. Thus there appear two distinct regions in the range of possible indebtedness levels. In one region debt remains stable, with budget surpluses increasing quickly in response to higher debt levels, which then decline. In the other region, however, debt diverges due to fiscal fatigue, as budget surpluses do not increase fast enough, and, moreover, also due to financial market's awareness of this dynamic, which leads to interest rate increases, thus compounding the sustainability problem. As with the original FRF calculation, this methodology captures the conditionality of budget surpluses, in the sense that at some point governments decide that debt has increased too much and must be brought down. However, it goes further in the sense that it considers whether there is a budget surplus level at which fiscal fatigue comes in. At such a level presumably the indebted government decides that there are limits to the sacrifices that can be made politically, i.e. that the population will accept, in order to pay down the debt. Overall, this state-of-the-art methodology provides a useful, intuitive, and politically realistic way, to address the evaluation of debt sustainability. Nevertheless, as before, this methodology summarizes past behavior into a few estimated coefficients and assumes future behavior will follow similar a dynamic and thus is also subject to the criticism expressed before.¹¹

Remaining Challenges

The approaches described above are progressively more complex and more able to capture the likely behavior and considerations of governments, each being useful in a particular setting. However, it is important to highlight some of the concerns and issues that remain outside the realm of our analysis. We chose three of these to describe in the following paragraphs briefly: the possibility of strategic behavior of sovereign borrowers regarding default, the difficulty in considering the effect on sustainability of different expenditure types, and the complexity involved in achieving a comprehensive approach to uncertainty.

¹¹In one of the most ambitious papers in this volume, Lozano-Espitia and Julio Román (2020) estimate a fiscal reaction function on a panel of developing and developed economies. Furthermore, they allow sovereign spreads to be a function of the level of indebtedness. Their estimation considers not only debt, but also the presence of a fiscal rule, openness, demographic characteristic, and inflation as determinants of the budget surplus. They find budget surpluses are maximized around levels of debt-to-GDP of 60%, and create specific natural debt limits for the economies in their sample. Their results suggest Colombia's debt limit is around 68%, giving it 16% of GDP in fiscal space in 2019. Other results include on the one hand a natural debt limit of 166% of GDP for South Korea and on the other a too-high-level of rates relative to growth in Brazil to be able to compute any natural debt limit at all.

Strategic Sovereign Default

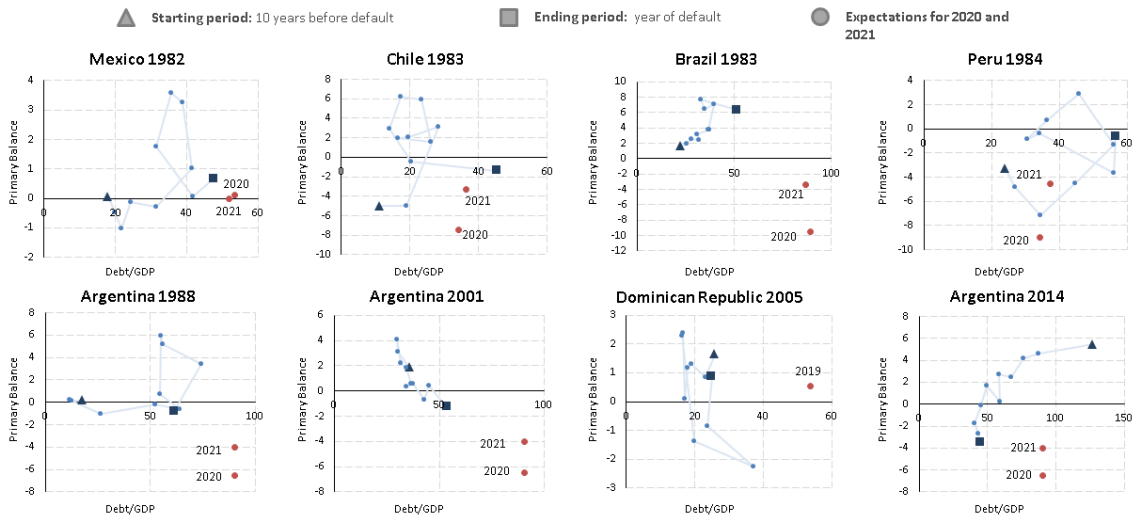
A large literature studies strategic default of sovereign borrowers. It derives from the fact that sovereign states are not bound by a supra-national bankruptcy law and, thus, government decisions to pay or not their debt carry special implications. In principle, under these considerations, it may be convenient for a government to default despite being able to pay its debts. Strategic default may also appear in corporate settings, however, the fact that sovereigns generally do not put-up collateral and cannot easily be forced to pay their debtors, leads to concerns and issues distinct from those in the case of corporate borrowers. In other words, in the case of sovereigns, in the “ability and willingness to pay” adage, the willingness part becomes essential.

This willingness to pay is a more subtle and complex object, less amenable to quantitative analysis. It may be a function of the characteristics of the debt and its holders. For example, while defaulting on debt due to IMF is apparently deemed a politically savvy, popular move, defaulting on debt being held by the local banking system or pension funds may generate more problems than it solves for the sovereign. Likewise, defaulting on foreign currency debt may have strategic advantages vs. defaulting on domestically held debt when considering the likely holders of that debt. The willingness to pay may in some cases be a function of variables outside of the range of macroeconomics, such as the perceived legitimacy of the incurred debt or of the government that incurred it, the ideological bias of the political party, or the faction currently in government. It may even be a function of the lender-perceived legitimacy of the hardship faced by the debtor country. Such legitimacy, or lack thereof, may affect the expected punishment by global markets after default. The case of Greece in the aftermath of the great recession stands out, as, despite what was seen to a large extent by the population as illegitimate debt, and even after the unsuccessful imposition of harsh adjustment measures for several years, it still faced enormous challenges to default on its debt, and ultimately is still expected to pay most of it over time. Potentially, given the lack of a local-currency alternative to the Euro, the likely strain in its relationship with other members of the Eurozone, and the lenders’ perception that its hardship was self-inflicted, it was deemed too costly for it to default.

As an example of the difficulty in explaining default based on the behavior of debt levels and budget surpluses, we describe varied histories of default for countries in the Latin America region. The similarities in the paths that led to default in the 1980’s suggest commonalities, but in other periods default paths have taken a different route, suggestive of strategic default and/or markets being very much aware of the implications of fiscal fatigue. Moreover, the different default histories in Argentina in ’88, ’01, and ’14 suggest that mechanisms altogether different were behind default in each case.

Figure (1) also includes expectations for the corresponding variables for 2020 and 2021,

Figure 1: Default Histories in Latin America



Notes: Data for 1970-2011 are sourced from "A Modern History of Fiscal Prudence" (IMF); and from 2012-2019, from "Country Database of Fiscal Space" (World Bank); Expectations for 2020-2021 come from "Latinamerica Economics Analyst" (Goldman Sachs).

suggesting that in many cases, debt levels will be far greater and government balances in far worse shape in 2020 and 2021 than those which in previous decades led to sovereign default.

Expenditure Types

An important aspect of fiscal policy that may be masked by a focus on bottom-line budget and debt numbers is that of the type of expenditures being made by a government. Well-planned and well-executed investments in infrastructure or education, for example, are highly likely to make debt more sustainable despite increasing bottom-line debt levels and budget deficits for some time. Thus, in principle, computing and using expenditure-specific, long-run output multipliers, applied to a government's past, current, and future expenditure portfolio, should be a highly relevant tool with which to improve the evaluation of fiscal sustainability.

Uncertainty

The last difficulty with the public debt sustainability literature that we call attention to here is regarding the treatment of uncertainty. In looking to assess whether debt is sustainable or not, existing methods does not aim front and center to delimit the set of circumstances in which debt will or will not remain sustainable. To start with, the parameters of likely future shocks with which to subject the baseline scenarios are highly uncertain. As the Covid-19 pandemic has shown, countries face large "unknown

unknowns” in terms of potential future shocks. From that perspective, it is troublesome to attempt to qualify current public debt as sustainable or unsustainable. At the time of writing, the economic recovery from the pandemic-induced recession appears to be gathering momentum, especially in advanced economies. As energy and food prices are on an upward trend globally, and red flags are being raised regarding inflation, a natural possibility to consider is that of real interest rates finally returning to higher levels. Such an increase would imply larger debt-servicing and rollover costs.¹² Thus, taking the pandemic and the recovery as an example, obtaining a comprehensive mapping of the circumstances that would lead to debt unsustainability, both in the sense of ability to pay as well as in the sense of willingness to pay, remains a challenge.¹³

Moving Forward with Debt Sustainability: Institutional Change

The sections above highlight the interesting work of the papers presented by the participants in CEMLA Joint Research Project, and also suggests that despite the progression from simple to complex models, important aspects of debt sustainability remain difficult to tackle or are even outside the realm of traditional methods in macroeconomics. There is a natural conclusion to the discussion above, which was also suggested by the original description of the project. This conclusion is that the most important work that remains to be done forward is the design of institutions that can contribute to an improved governance of countries fiscal decision-making. Institutional change that contributes to guaranteeing that budget dynamics are such that debt is expected to remain within an economy’s ability to pay, and also such that an environment of willingness to pay is fostered, are key. Moreover, as stated above, such institutions should not be regarded or explained as aimed at reducing a country’s borrowing, but instead as fortifying the long term commitment to debt repayment so that more countercyclical fiscal policy and higher natural debt limits become possible, thus loosening economic constraints.¹⁴ Overall the effort made in the papers in this volume set the stage for an analysis and design of fiscal institutions with a look to the difficult times ahead.

¹²The detailed approach to uncertainty taken by Catalán-Herrera in this volume shows the difficulties in this endeavor as they conclude that despite almost constant debt ratios for many years, Guatemala is highly likely to hit its natural debt limits within 9 to 15 years.

¹³España, Aquino, Vicente and Fernandez carefully describe the contribution of different shocks to the evolution of Uruguay’s net asset balance, and conclude currency depreciations have been the most important shocks in the past. Similarly, Serju-Thomas, using the IMF’s DSA framework and a variety of shocks to parameter values finds the debt level can be particularly affected by exchange rate depreciations, given Jamaica’s reliance on borrowing with foreign currency denominated debt (60% of total public debt).

¹⁴In this volume, Ovalle, Ramirez and Rosario (2019) impose fiscal rules of different kinds within a general equilibrium model with sustainable debt in order to evaluate which rules result in more or less output variability. They conclude debt- level based rules reduce volatility while surplus-level rules increase it.

Conclusion

The CEMLA's 2019 Joint Research Program has resulted in solid works of analysis from economists in the member countries. These allow an analysis on various fronts of the issue of public debt sustainability that comes at a time precisely when these issues will move to center stage given the Covid-19-related increase in debt to GDP ratios observed during 2020. These analyses generally point to well-managed debt burdens, especially low in Chile, Guatemala, and Peru, and to ongoing processes of adjustment and policy reform in many others such as Nicaragua and Costa Rica. These quantitative assessments all contribute in their own way to an improved understanding of the state of public debt in the region. Nevertheless, as described above these analysis generally rely on strong assumptions about parameter values and on the continuation of past behavior in future circumstances. However, it remains important to consider the possibility of default even in circumstances where debt is potentially sustainable, to evaluate debt sustainability taking into account the characteristics of debt and debtholders and of the government expenditures being financed, and to take a broad view of the uncertainty surrounding model parameters and assumptions, as well as potential economic shocks.

Importantly, in view of the findings, the challenges in obtaining quantifiable measurements of the sustainability of debt and its limits, and the large changes to the circumstances brought about by the Covid-19 pandemic, a way to move forward in this topic is likely to be to focus on the design and development of institutions that contribute to maintain expected debt levels within the bounds of an economy's ability to pay and also that contribute to a government's or a population's willingness to pay down public debt. Such institutions may span the range from fiscal responsibility laws, the establishment of independent fiscal councils and/or fiscal policy analysis centers, competent infrastructure project cost-benefit analysis, addressing legitimacy concerns through transparency in the acquisition and disposition of new financial resources, and the establishment of parameters regarding expected levels of indebtedness in the future. Advances on any or all of these fronts would be highly welcome and useful for the economies of all member institutions.

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