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Public Investment and Fiscal Crisis in Brazil:

Finding Culprits and Solutions

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Abstract¹

We investigate the relation between existing fiscal rules and investments in the context of a fiscal crisis in Brazil. We analyze existing fiscal rules at national and subnational levels, their enforcement, and proposed alternatives. Using narrative analysis, case studies, interviews, empirical estimation, and model simulations, we conclude that public investment is not closely related to fiscal rules in Brazil but is mainly determined by fiscal conditions both at national and subnational (state) levels. It is the steady increase of personnel expenditures in real terms that underlies the fiscal deterioration of the last decade, despite the existence of fiscal rules devised to prevent it. We argue that a constitutional rule limiting subnationals' personnel expenditures to 50 percent of net revenues, triggering adjustment measures when reaching 47.5 percent, would be an effective instrument for subnational fiscal management, opening fiscal space for increasing investments. At the national level, despite the existence of several fiscal rules, the only effective fiscal anchor is the primary expenditure ceiling introduced in 2016, which has successfully curbed expenditures, including those of the judiciary and legislature.

JEL classifications: H6, H7

Keywords: Fiscal rules, Public investment, Fiscal policy, Brazil

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1. Introduction

Brazil is not yet fully recovered from its deepest recession. Between 2014 and 2016 GDP per capita fell by about 9 percent. Instead of being followed by a vigorous recovery in succeeding years, GDP growth hovered around 1 percent in 2017-2019, only slightly above the rate of population growth. Investment has fallen even further than GDP during the recession. After reaching a peak of 21.5 percent of GDP in 2013, it fell to 15.5 percent in 2016, remaining at this level after three years of modest recovery.

During the 2014-2016 recession, it became evident that the country was facing a severe structural fiscal crisis, which continues to this day. The collapse of public investment to levels close to 2 percent of GDP (central government, subnational and state enterprises) is a corollary of the fiscal difficulties, contributing to the country's infrastructure deficit and its poor quality.

Brazil has a set of fiscal rules that constrains government spending at the federal and subnational levels. Most of them were set before the current fiscal crisis, the government expenditure ceiling being a notable exception. A question this paper will try to address is whether those fiscal rules are to blame for the collapse of public investment or alternatively, the sharp public investment contraction rather reflected the lack of fiscal discipline and uncontrolled fiscal expansion. A further question is whether it is possible to redesign the fiscal framework with alternative fiscal rules which would support the necessary fiscal adjustment and preserve public investment.

An important constraint on the fiscal adjustment strategy is the fact that the tax burden in Brazil is relatively high for a middle-income country, having reached 35 percent of GDP in 2019. Since further increases in taxes are likely to negatively affect private investment, fiscal adjustment must basically rely on curbing expenditures.

About two-thirds of public investments (excluding from state enterprises) are undertaken by subnational governments. Thus, the relation between fiscal rules and public investment must involve the study of the subnational fiscal framework and outcomes, which is no small task given that Brazil has 27 states and 5,570 municipalities. Brazilian subnational entities are facing a fiscal crisis, with more than half of the states with insufficient cash to pay their short-term liabilities. As a consequence, states have also reduced substantially their investment, with few exceptions. Comparing the first semester of new governors' terms in 2019 with the first semester of 2015—both the beginning of a new political cycle—there is a 52.5 percent reduction in states' investment.

We explore the heterogeneity of states' conditions to study the impact of fiscal rules on investment at the subnational level, with a focus on four states representing a diversity of regions, fiscal conditions, rules, and outcomes.

In the next section, we describe the main fiscal rules that constrain national and subnational fiscal policies. In Section 3, we present in more detail the recent evolution of the main fiscal variables and of public investment at the federal level. We also analyze current proposals submitted to Congress to modify fiscal rules. In Section 4 we investigate the relation between fiscal variables and investment at the state level, followed in Section 5 by an assessment of alternative fiscal rules for subnational governments. In Section 6 we simulate the evolution of fiscal relations and investment under different fiscal rules at the national level, and in Section 7 examine how the COVID-19 crisis could modify the outlook for Brazil's fiscal performance and debt sustainability. Section 8 summarizes the main lessons drawn from our analysis. Finally, the last section presents concluding remarks.

2. Fiscal Framework in Brazil

According to the Brazilian Constitution, the fiscal framework adopted by the federal government, states and municipalities is based on: i) the 4-year Pluriannual Plan (PPA), presented by August of year 1 of the new administration, and which sets directives, objectives and medium run goals for the public administration for the full term; ii) the Budget Directive Law (LDO), which guides the annual budget law's elaboration, establishing criteria and limitations to expenditure commitments; and (iii) the Annual Budget Law (LOA).

Fiscal results in Brazil deteriorated substantially with the successful rapid transition to a low-inflation regime in 1994. This led to the end of the inflation tax and of the possibility of adjusting real expenses by delaying payment of the government current liabilities. The Constitution of 1988, moreover, contributed to fiscal pressures by enlarging the State's social responsibilities. These fiscal difficulties were aggravated by high real interest rates on the order of 30 percent, which were deemed necessary to reduce pressures on the fixed exchange rate and support the stabilization plan. Hence, they led to an expansion of the funding needs of the public sector and increased public debt (Berganza, 2012).

A series of state bailouts by the federal government in the 1990s was the result of adverse incentives for subnational fiscal restraint. Brazilian states were bailed out in 1989, 1993 and 1997

(Bevilaqua, 2002).² The 1997 bailout under Law 9496 involved a comprehensive restructuring of state debt, where state outstanding bonds were exchanged for federal government loans. The bailout entailed both up-front debt forgiveness and an interest rate subsidy on the restructured debt and was conditioned on the adoption of fiscal adjustment programs.

In 1998, Brazil adopted a Fiscal Stabilization Program and reached an agreement with the IMF that sought to increase the primary surplus of federal and subnational entities, restructure the public debt, reform the budget process, and promote significant changes in the administration and social security rules. The adoption of a Fiscal Responsibility Law (FRL) in 2000 was a key milestone. Being a “Complementary Law,” it requires a qualified majority (2/3) for approval and modification and is binding for all entities of the public sector at all levels of government. It introduces the use of fiscal targets, and spending and debt limits. Thus, any new permanent expenditure cannot be created without reducing another expenditure item or introducing new taxes. It is noteworthy that it does not specify quantitative targets or limits for the financial indicators, which are specified in separate legislation and regulations. The law also strengthens the institutional fiscal framework of all areas of budget preparation, implementation, and reporting: 2-monthly, 4-monthly, and annual. Brazil has a number of rules and guidelines that apply to various levels of government, and comprise numerous budget lines including revenues, expenditures, transfers and borrowing. Only a few of them can, however, be considered actual fiscal anchors, which affect the level of deficit and debt directly, and trigger sanctions for noncompliance.

At the federal level, the government’s compliance with fiscal rules is scrutinized and monitored by an independent fiscal council (IFI for its initials in Portuguese) created in 2016 and under Senate auspices. The IFI, however, does not provide normative analysis or recommendations. The Federal Court of Accounts (TCU) provides an ex post analysis of compliance with budget targets.

2.1. Federal-Only Fiscal Rules

At the federal level, the fiscal variables are, in principle, constrained by the following fiscal rules: the golden rule, a primary balance target, and an expenditure ceiling.

² Recently, we observed new bailouts that will be discussed further in the paper. There were as well bailouts in 2014, 2016, and 2020. For a comprehensive revision of subnational bailouts in Brazil, see Mendes (2020).

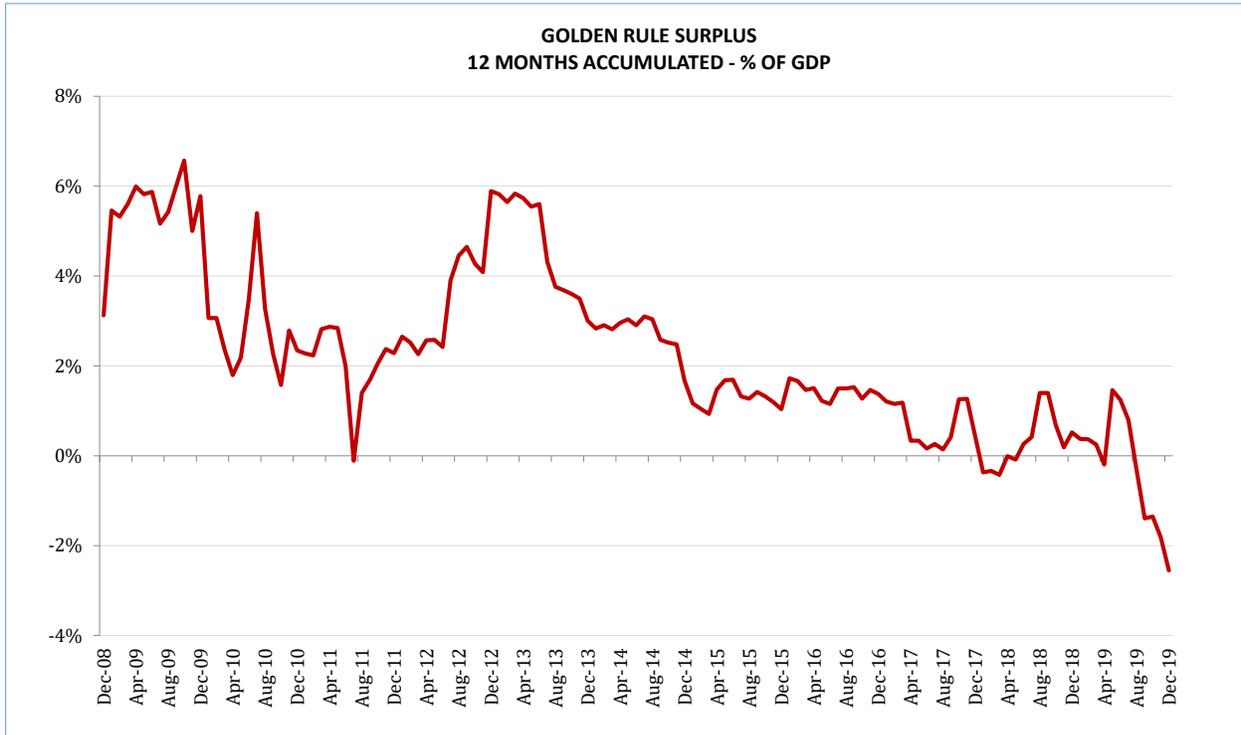
Brazil's golden rule is based on Incise III of Article 167 of the Constitution, namely "credit operations cannot exceed capital spending." The underlying principle is that new debt should finance only investment. Thus, it is aligned with the principle of debt sustainability, since it should restrict the financing of current deficits and protect public investment, which could potentially generate future government revenues. However, the Brazilian implementation of the golden rule departs from this principle by introducing loopholes in the computation of both the current deficit and investment (see Couri et al., 2018, and Appendix A.1 for details).

This rule has been in place for the last 30 years, but it has not fulfilled its objective of preventing current deficits and protecting public investment. Because of the loopholes of the version implemented in Brazil, the law did not prevent taking up new debt to pay for current expenditures. In fact, government indebtedness increased substantially and public investment decreased to very low levels, while the government current balance has been in deficit for the last six years.

Despite all the loopholes, the rule has been binding or close to it (Figure 1). However, violating its limits does not trigger any fiscal adjustment mechanism. When the limits are violated, the government must ask Congress for an authorization of supplementary credit; otherwise, the president may be charged and subject to an impeachment trial. In 2019 and 2020, the central government has asked the Congress to approve supplementary credit in order to prevent this possibility.

The primary balance target is often mentioned as another fiscal rule, although it is not binding even for the year it is set. The government sets multiyear numerical targets for the budget balance. The target is defined for the primary balance and is expressed in nominal currency terms in the annual LDO and is binding for the first year. The targets for the following two years are indicative. The target must also include projections for the overall balance, expenditure, and debt for the two following years and a description of fiscal risks with an assessment of contingent fiscal liabilities. Noncompliance requires corrective measures and may result in sanctions. However, the legislature has the ability to change the target during the year, reducing enforcement.

Figure 1. Golden Rule Surplus Accumulated in 12-Month Periods



Source: National Treasury Secretariat (STN).

Table 1 shows the primary surplus targets from 2001 to 2018 for each respective subsequent year as set in the first approved annual LDO and its realization. In particular, the table shows the fast-deteriorating fiscal position of the country beginning in 2012; in each and every year of the 2012-16 period, the government was unable to fulfill the first indicative target, while a primary surplus turned into large deficits beginning in 2014.

Table 1. Numerical Targets: Primary Balance

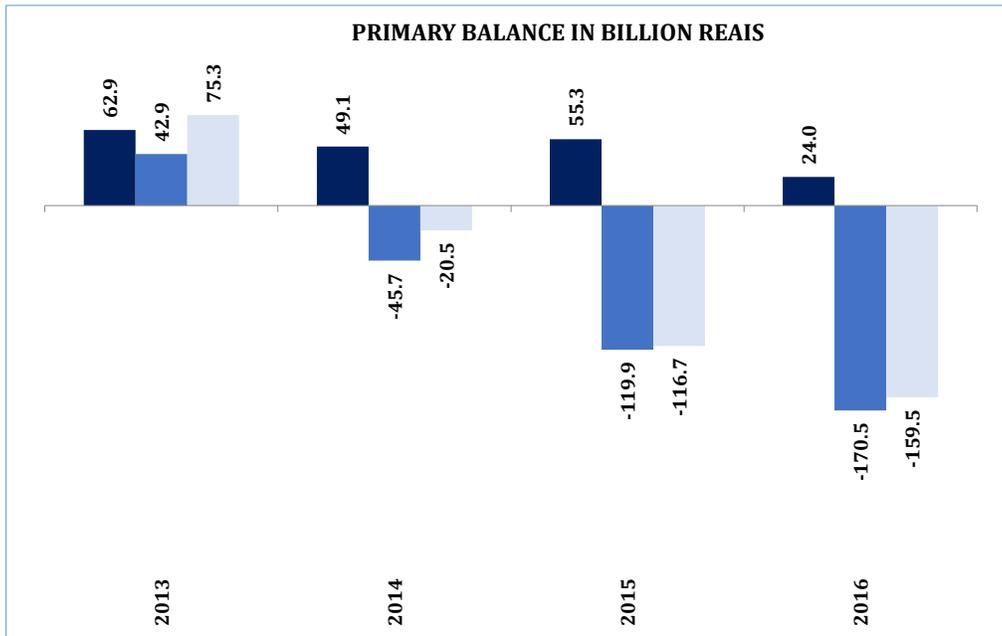
Values expressed as percentage of GDP

Year	First Indicative Target Balance	Realized Balance	Fulfilment with respect to the first indicative target?
2001	3.35	3.60	YES
2002	3.50	3.90	YES
2003	4.25	4.37	YES
2004	4.25	4.58	YES
2005	4.25	4.83	YES
2006	4.25	4.37	YES
2007	4.25	4.50	YES
2008	3.80	4.56	YES
2009	2.50	2.05	NO
2010	3.30	2.07	NO
2011	3.30	3.38	YES
2012	3.10	2.05	NO
2013	3.10	1.82	NO
2014	3.10	-0.60	NO
2015	-0.85	-1.92	NO
2016	0.50	-2.49	NO
2017	-2.11	-1.69	YES
2018	-1.80	-1.57	YES
2019	-1.75	-0.82	YES

Source: LDO and Orair (2016).

Figure 2 shows the fiscal performance in nominal terms in the critical 2013-16 period. Budget targets were systematically revised downwards and turned negative starting in 2014.

Figure 2. Primary Balance: Approved, Revised and Realized Targets



Source: LDO.

A third fiscal rule is the expenditure ceiling. Constitutional Amendment No. 95, adopted in 2016, established an expenditure rule that is to remain in place for the following 20 years. The rule sets ceilings based on the federal government’s 2016 actual primary expenditure; nominal expenditures can grow thereafter in line with inflation, which is calculated as the 12-month inflation rate observed in the period ending in June of the year prior to the budget year. The rule applies to all three branches of federal government—the executive, the legislative, and the judicial—but each has its own ceiling within the overall expenditure ceiling.

The introduction of this rule had three motivations. The first was to correct a short-run bias in the budget legislation, which led to the common practice of revenues overestimation in order to make expenditures fit the budget. The second was to make policymakers and politicians aware of the opportunity cost of the choices made during the budget process and the tradeoffs between different categories of expenditure. Finally, it also sets a limit to the expenditures of branches other than the executive.

The expenditure ceiling sets safeguards against non-compliance: Ex ante, the rule requires any legislative proposal for new mandatory expenditure or new tax expenditure to be accompanied by an assessment of its fiscal impact. Ex post, the rule defines a wide range of automatic

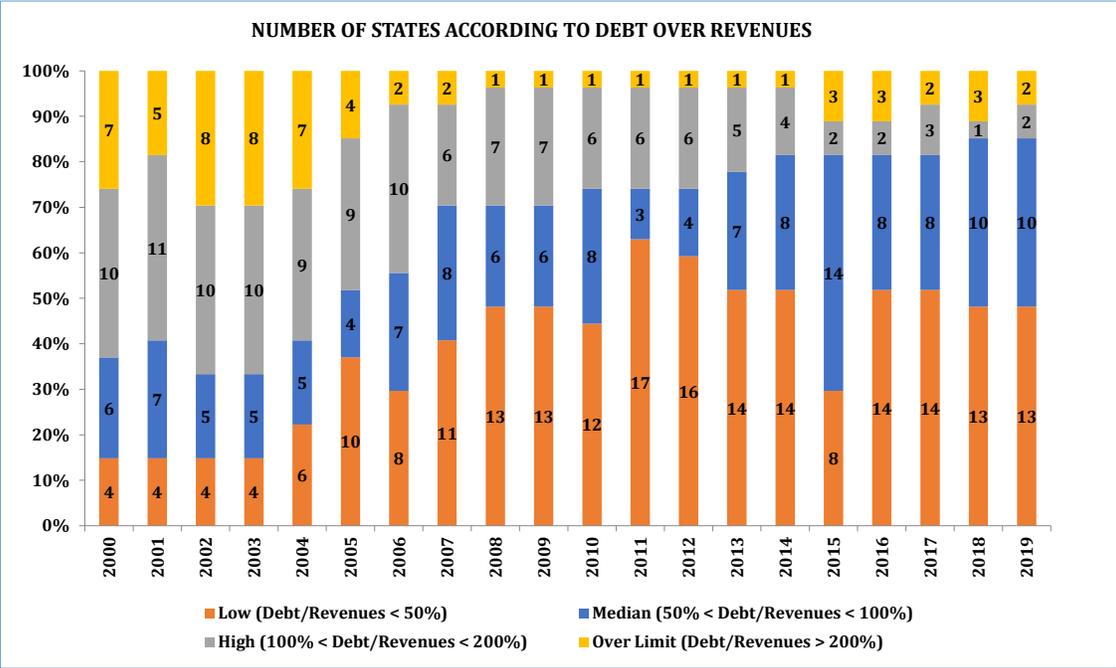
adjustments in case of non-compliance, including prohibiting mandatory spending increases above inflation, preventing the creation of new mandatory spending items, stopping salary increases and new hiring, and prohibiting measures that expand credit lines, programs or tax expenditures. However, the expenditure ceiling law also requires the budget law (LOA) to abide by its limit, which prevents the activation of its correction mechanisms.

2.2. Subnational Fiscal Rules

For subnational entities, two fiscal rules shape public financial accounts, in addition to certain state-specific rules. They are limits on debt and the wage bill.³

The FRL introduced debt ceilings for each level of government defined as a percentage of the net current revenue. According to the FRL, the ratio of net public debt-to-net revenues cannot exceed 3.5 for the Federal government, 2 for States and 1.2 for Municipalities (Figure 3). Since an agreement at the Senate was not reached on the limits for the Federal government, only the limits on indebtedness of States and Municipalities are currently in place.

Figure 3. Subnational Borrowing Limits: Compliant States from 2000 to 2019



Source: STN and IFI.

³ Recently, the IMF has published an instructive report on subnational fiscal behavior, initiatives to improve the design of fiscal rules, and the underlying operational framework, including but not limited to the systems of reporting and controls. See IMF (2020).

An important constraint to states' borrowing is the lack of federal guarantee if the state receives a low debt repayment capacity rating (CAPAG C and D) from the STN. STN provides a credit rating (Capacidade de Pagamento, or CAPAG) for each state for each year. It ranks subnational entities from A (highest) to D (lowest). Only states rated A and B have their borrowings backed by the Treasury. CAPAG ratings are shown in Table 2.

In addition, since 2018 the National Monetary Council (CMN) defines an annual lending limit to the amount of loans to the public sector for each financial institution. This debt limit rule is complementary to the CAPAG rule in preventing subnational entities' excess indebtedness.

Table 2. Credit Ratings (CAPAG) by State

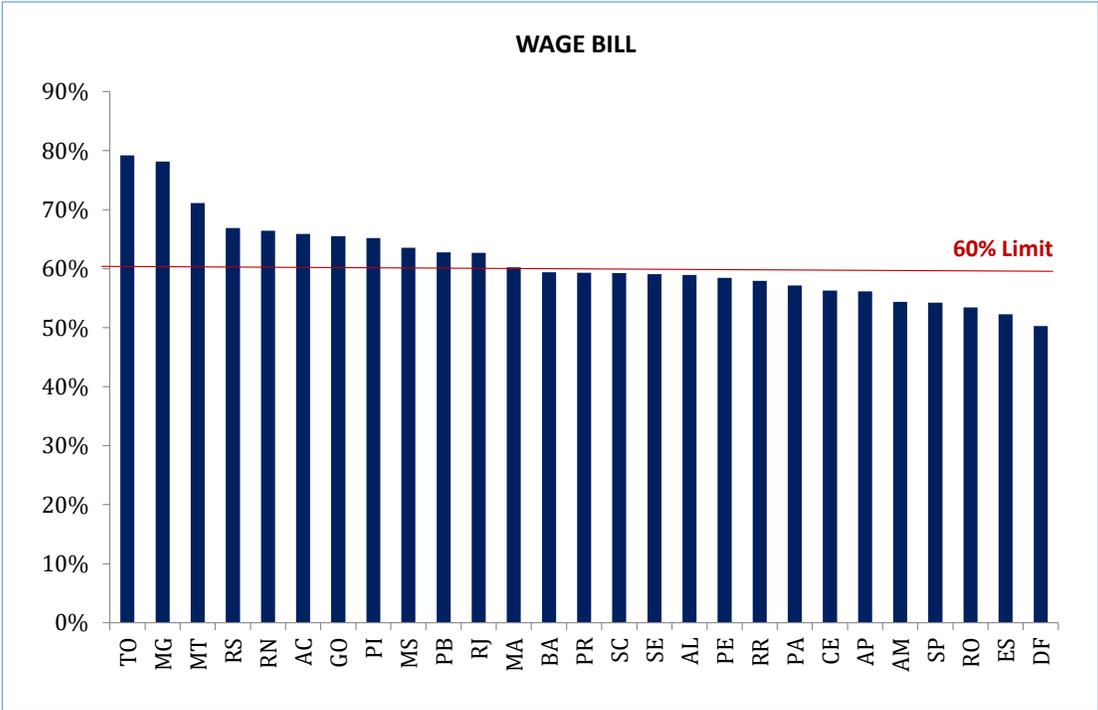
Bold for upgrades, Underline for downgrades

State	CAPAG			
	2017	2018	2019	2020
AC	B	B	B	B
AL	B	B	B	B
AM	B	B	B	B
AP	B	B	<u>C</u>	C
BA	C	C	C	C
CE	B	B	B	B
DF	C	C	C	C
ES	A	A	A	A
GO	C	C	C	C
MA	B	<u>C</u>	C	C
MG	-	-	D	D
MS	C	C	C	C
MT	C	C	C	C
PA	A	<u>B</u>	B	B
PB	B	B	B	B
PE	C	C	C	C
PI	C	C	B	<u>C</u>
PR	B	B	B	B
RJ	D	D	D	D
RN	B	<u>C</u>	C	C
RO	B	B	<u>C</u>	A
RR	B	<u>C</u>	C	C
RS	D	D	D	D
SC	C	C	C	C
SE	C	C	C	C
SP	B	B	B	B
TO	C	C	C	C

Source: STN.

The FRL also established limits on personnel expenditure as a share of net current revenue for the federal government, and for states and municipalities. The limits were 50 percent for the federal government, and 60 percent for states and municipalities. As shown in National Treasury (2019), some states are within the personnel limit under the state methodology (Figure 4), but above the limit under the standardized methodology of STN (Figure 4).

Figure 4. Wage Bill as a Percentage of Net Current Revenue by State in 2019

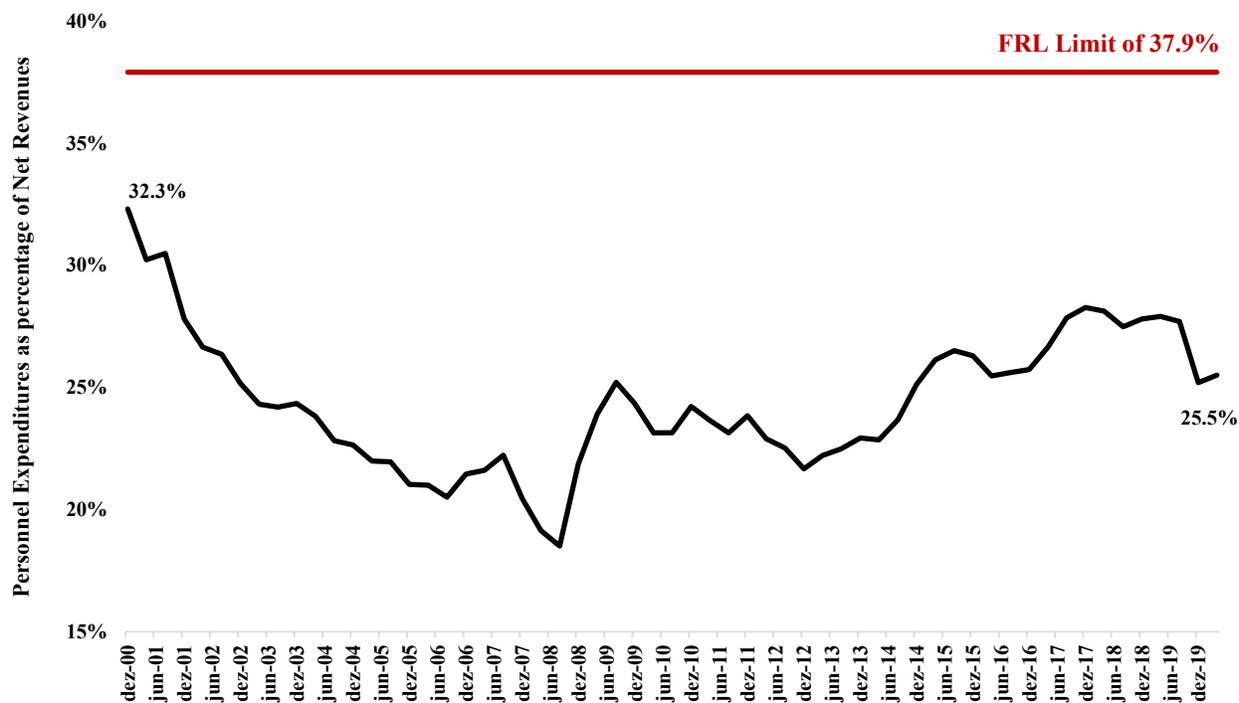


Source: STN.

The enforcement of fiscal rules is undermined by inconsistencies in fiscal reporting and inability to enforce sanctions. The reporting of key fiscal variables has significant divergent interpretations of the law, and different and non-standardized practices of state auditors (state-level Court of Accounts, or TCEs). The application of sanctions by the FRL has been further weakened by judicial decisions, for courts have prevented reduction of public sector employees’ hours and wages paid, and suspension of transfers as envisaged in the law. Combined with the lack of control of expenditures of the judiciary and legislative branches, legally construed to “preserve the independence” of different government branches, the judicial decisions contributed to weaken policymakers’ ability to pursue fiscal adjustment.

Another drawback of the FRL was related to the parameters adopted in assessing fiscal soundness. Debt limits are too high, and almost never binding. Prudential levels of 95 percent of the target limit for the wage bill, for example, too nearly approached a level where states would already be already facing a difficult fiscal situation.

Figure 5. Wage Bill as a Percentage of Net Current Revenue at Federal Level



Source: STN.

We report in Figure 5 wage bill limits for the executive power of the federal government, which accounts for 79 percent of all personnel expenditures at federal level. We see that there is a substantial margin from the limit imposed by FRL, despite the fact that the growth of the federal wage bill and pensions are the most significant pressure on federal expenditures.

In recent years, the federal government launched two programs to improve states’ fiscal conditions: the 2016 Debt Renegotiation Program (DRP) and the 2017 Fiscal Recovery Regime (FRR).

The DRP allowed states to renegotiate their debt with the federal government, and out of the 26 states and the federal district, only eight did not participate in the agreement. Yet, of the 19 states which adhered to the program, 10 did not comply with the expenditure ceiling embedded in

the DRP. The FRR subsequently provided a subnational insolvency framework for the most indebted states, with the main goal of stabilizing the state debt at the end of the program. A state that qualifies and adheres to the regime is granted a suspension of its debt service with the federal government for an initial three years, renewable for another three-year period. Rio de Janeiro is still the only state under the FRR. The financial indicators of Minas Gerais and Rio Grande do Sul are also within the qualifying range, and both states are in negotiations to join the FRR (see Appendix A2.5 for more details).

2.3. Congress's Proposals to Modify Current Fiscal Rules

There are three relevant proposals that modify the current fiscal framework being discussed in Congress: two advanced by the executive power—the Mansueto Plan and the Mais Brasil Plan—and the other by representative Pedro Paulo (hereafter PEC 438).

The Mansueto Plan, named after former Treasury Secretary Mansueto Almeida, intends to help CAPAG C states by providing government guarantees if they take measures that would make them eligible for CAPAG B after a period of time (see Appendix A.2 for the list of those measures). The other objective of the plan is to ensure greater fiscal transparency by unifying public accounting rules

PEC 438 (Constitutional Amendment Proposal nº 438) proposes a number of initiatives to curb the growth of mandatory expenses and bring improvements to the golden rule. In particular, it would introduce adjustment mechanisms when fiscal indicators reach prudential limits, or when the government cannot comply with the golden rule.

The so-called “Mais Brasil” Plan, which was recently sent to Congress, is expected to advance a comprehensive fiscal consolidation agenda, taking another step towards greater fiscal discipline. The plan is in fact a set of three constitutional amendment proposals: The Fiscal Emergency Plan (PEC 186), the Federation’s Pact (PEC 188) and the Public Funds PEC (PEC 187).

The Fiscal Emergency Plan provides instruments for fiscal adjustment in case of a fiscal emergency in terms of both permanent and temporary measures. The latter (listed in the Appendix) are restrictions carried out over a two-year period in order to accelerate the process of fiscal adjustment in case financial indicators reach certain limits.

The Federation’s Pact Plan subsumes some of the measures, such as the Fiscal Emergency Plan, but it is more comprehensive, modifying the Brazilian fiscal framework (see Appendix A.2 for a list of measures). It includes introducing a single floor for health and education expenditures, a cap of 2 percent of GDP on tax benefits (expenditures), and standardization of accounting rules for all three levels of government. It proposes the creation of a Fiscal Council of the Republic with the function of coordinating and monitoring national and subnational fiscal policy and sustainability. This council would be composed by the president of Brazil; the heads of the House of Representatives, Senate, Judiciary, and TCU; three governors; and three mayors. The plan also proposes to dissolve municipalities with less than 5.000 inhabitants and an inability to raise at least 10 percent of their total revenues from their own tax base, incorporating them into larger municipalities.

Finally, the Public Funds Plan proposes closing down earmarked public funds, channeling these funds to amortize public debt, but with limited fiscal impact. It also restricts the creation of new public funds.

Table 3 summarizes fiscal benefits from both PEC 438 and the Fiscal Emergency Plan (FEP). The expected fiscal economy from PEC 438 dominates that of FEP, due to both stricter expenditure controls and increase in tax revenues. Thus, the amount available for investment and discretionary current expenditures in 2023 is estimated at R\$ 75.0 billion in status quo, R\$ 133.4 billion if FEP is approved, and R\$ 152.8 billion if PEC 438 is in effect.

Table 3. Fiscal Relief from PEC 438 and Fiscal Emergency Plan

PRIMARY EXPENSES SUBJECT TO CEILING	2020	2021	2022	2023
Executive Branch Ceiling	1,392.0	1,436.4	1,489.2	1,545.1
<i>Mandatory Executive with current rules</i>	<i>1,256.1</i>	<i>1,328.2</i>	<i>1,397.3</i>	<i>1,470.1</i>
<i>Mandatory Executive with PEC 186/2019 measures</i>	<i>1,251.6</i>	<i>1,302.8</i>	<i>1,355.7</i>	<i>1,411.7</i>
<i>Mandatory Executive with PEC 438/2018 measures</i>	<i>1,234.4</i>	<i>1,284.9</i>	<i>1,337.0</i>	<i>1,392.2</i>
Total Discretionary on current rules	135.9	108.1	92.0	75.0
<i>Total Discretionary on PEC 186/2019 measures</i>	<i>140.4</i>	<i>133.6</i>	<i>133.6</i>	<i>133.4</i>
<i>Total Discretionary on PEC 438/2018 measures</i>	<i>157.6</i>	<i>151.5</i>	<i>152.2</i>	<i>152.9</i>
FISCAL RELIEF WITH FISCAL EMERGENCY PLAN MEASURES	4.5	25.5	41.6	58.4
FISCAL RELIEF WITH PEC 438 MEASURES	21.7	43.4	60.2	77.9

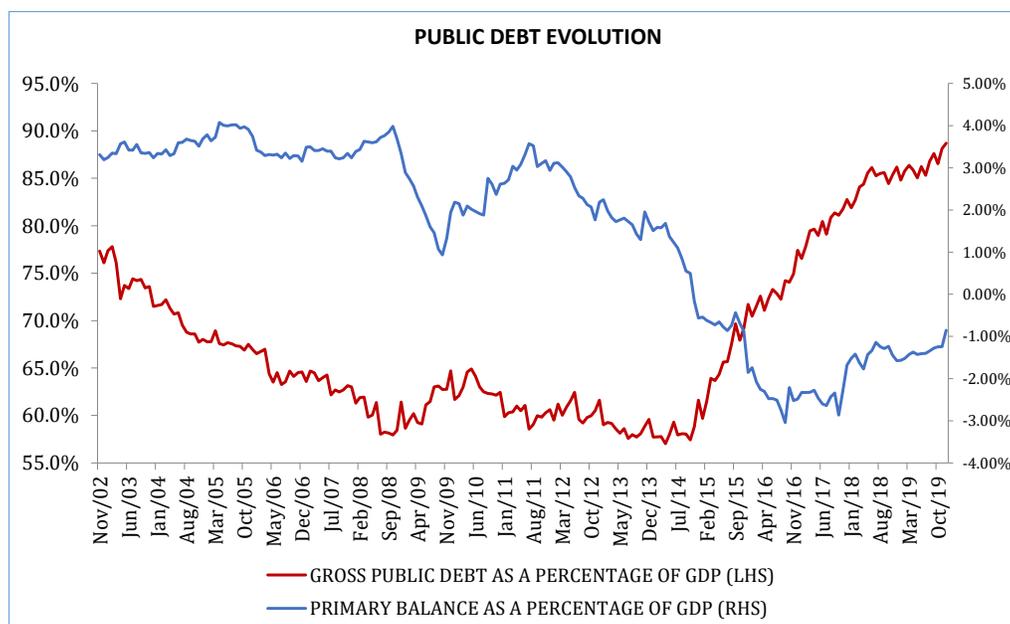
Source: Technical Study n° 50, Chamber of Deputies.

3. Fiscal Results and the Evolution of Public Investment in Brazil: A Panoramic View

3.1. Fiscal Outcomes

This section presents the trajectories of key fiscal variables in Brazil in the last 2 decades, since the inception of the FRL (approved in 2000). An initial strong commitment to fiscal sustainability, represented by this new law, was considerably weakened during President Dilma Rousseff's first term (2011-14), to an extent that the country is now in the midst of a second major fiscal crisis in less than 20 years. During her term—which witnessed an unparalleled sequence of macroeconomic policy mistakes—a lax monetary policy combined with fiscal largesse led to an inflationary bout which threatened the low-inflation record the country experienced since the Plano Real. As a result, the Central Bank of Brazil (BCB) under the Tombini administration was finally forced to raise interest rates to counter out-of-line inflationary expectations. In view of the fact that public debt is to a significant measure indexed to the BCB policy rate or to some price index, the nominal deficit took a sharp turn upwards in 2014-15, driven by a combination of fast-growing nominal interest payments and, for the first time since 2000, a primary deficit in public sector accounts (Figure 6 and Table 4).

Figure 6. Brazil: Public Debt and Primary Balance (2002-2019)



Source: BCB.

Table 4. Brazil - Fiscal Trajectories of Key Variables, 2002-19

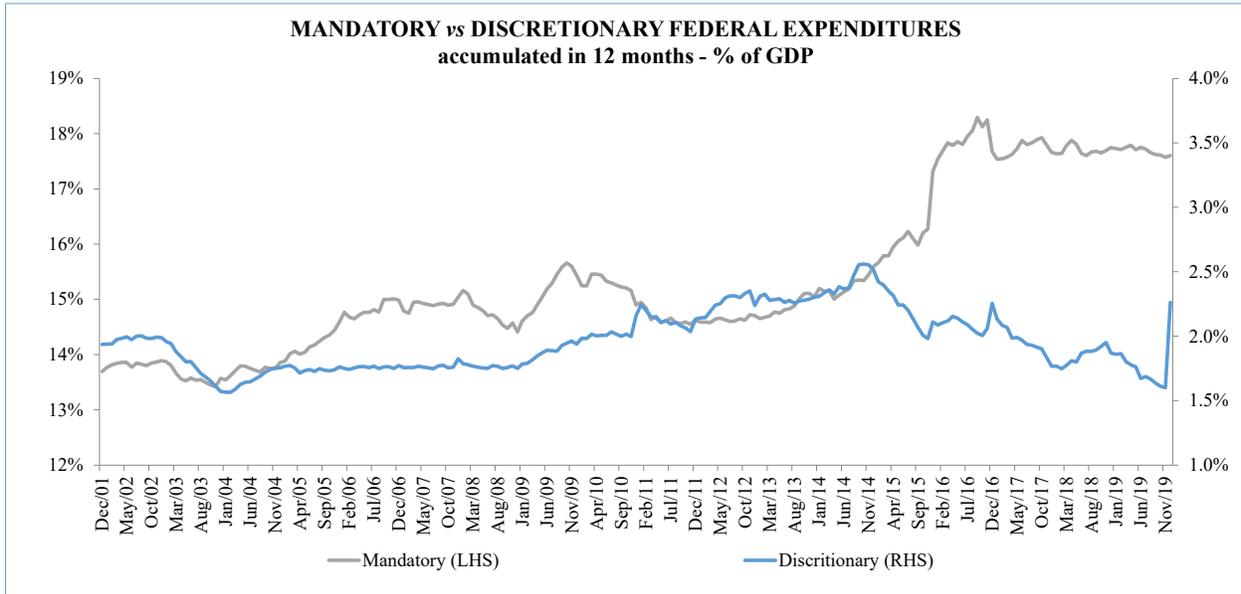
% of GDP	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Gross public debt	76.10	71.51	68.03	66.97	64.60	63.02	61.42	64.70	62.43	60.63	61.61	59.59	61.62	71.73	77.45	83.14	86.97	88.39
Primary balance	3.19	3.24	3.69	3.74	3.15	3.24	3.33	1.94	2.62	2.94	2.18	1.71	-0.56	-1.86	-2.49	-1.69	-1.59	-0.85
<i>Federal</i>	2.14	2.26	2.68	2.57	2.13	2.19	2.29	1.27	2.03	2.13	1.79	1.41	-0.35	-1.95	-2.54	-1.81	-1.70	-1.23
<i>Subnational</i>	0.71	0.80	0.89	0.98	0.82	1.10	0.98	0.63	0.53	0.75	0.45	0.31	-0.13	0.16	0.07	0.11	0.05	0.21
<i>State-owned companies</i>	0.33	0.18	0.12	0.19	0.20	-0.05	0.05	0.04	0.06	0.06	-0.05	-0.01	-0.07	-0.07	-0.02	0.01	0.06	0.16
Nominal interest payments	7.61	8.42	6.56	7.28	6.72	5.98	5.32	5.13	5.03	5.41	4.44	4.67	5.39	8.37	6.49	6.12	5.55	5.06
Nominal Deficit	4.42	5.18	2.88	3.54	3.57	2.74	1.99	3.19	2.41	2.47	2.26	2.96	5.95	10.22	8.98	7.80	7.14	5.91
Tax burden⁴	32.03	31.39	32.37	33.57	33.32	33.67	33.59	32.31	32.50	33.38	32.49	32.58	31.90	32.15	32.34	32.30	33.58	33.17
Federal Expenditures	15.88	15.14	15.61	16.35	16.76	16.87	16.16	17.37	17.06	16.76	16.94	17.35	18.11	19.42	19.94	19.52	19.80	19.86
Mandatory federal expenditures	-	-	-	-	-	-	-	-	14.90	14.63	14.71	15.04	15.59	17.31	17.68	17.74	17.91	17.60
Discretionary federal expenditures	-	-	-	-	-	-	-	-	2.16	2.13	2.24	2.30	2.52	2.11	2.26	1.78	1.89	2.26
<i>Investment</i>	0.45	0.20	0.21	0.33	0.38	0.42	0.44	0.60	0.79	0.60	0.54	0.63	0.70	0.45	0.39	0.38	0.37	0.33
<i>Other discretionary expend.</i>	-	-	-	-	-	-	-	-	1.37	1.53	1.70	1.67	1.82	1.66	1.87	1.40	1.52	1.93

Sources: BCB, IFI, Orair et. al (2013), and STN.

In late 2016 a new and quite strict constitutional fiscal rule was approved capping public expenditures, setting the stage for an inflexion in the trend towards an explosive primary deficit and a fast-growing public debt that was threatening Brazil’s solvency. Despite the expenditure ceiling, the country still faces a set of fairly rigid expenditures centered on social security and personnel, in addition to health and education (both indexed to a proportion of GDP). These “mandatory” federal expenditures have been growing consistently due to the strong inertial forces of indexation, while discretionary federal expenditures, after peaking in the election year of 2014, were progressively compressed as the fiscal crisis deepened (Figure 7).

⁴ Data from IFI and Orair et. al (2013), except for 2018 and 2019, in which we collect the data from STN.

Figure 7. Brazil: Federal Government Mandatory vs. Discretionary Expenditures



Source: IFI.

Discretionary expenditures include investments by ministries and other entities dependent on the national treasury, which in 2018 reached their nadir after the 2003-05 adjustment. It should be noted that there is strong resistance to creating fiscal space by increasing taxes, since the tax burden of over 33 percent of GDP (Table 4 above) is at least 10 percent of GDP above that of other middle-income countries. While the tax system is an object of reform in Congress, there is a strong premise of no increase in the tax burden.

3.2. Evolution of Public Investment

One of the implications of the significant fiscal fragility in federal and subnational finances is the compression of public sector investment, which peaked in 2010, driven in part by the electoral cycle (Table 5). In that year, all the components of public sector investment were at a peak. The Federal PAC II (2011-14) investment program (PAC is an acronym for *Programa de Aceleração do Crescimento*), combined with a lax attitude towards providing state governments with Treasury guarantees for taking up debt, allowed for still high and unsustainable levels of investments until 2014. As a result of the growing fiscal imbalances, the gross public debt grew by more than 15 percent of GDP in two years. Thus, in 2014, total public investment was still at 3.95 percent of GDP, declining to a nadir of 1.85 percent of GDP in 2017 and growing back to 2.70 percent of

GDP the following year mostly on account of the (partial) recovery in the investment capacity of a few key state-owned enterprises (with Petrobrás being the most relevant).

At the subnational level, state governments and municipalities followed a similar pattern. In the case of state investments, they peaked in the electoral years of 2006, 2010 and 2014, decreasing afterwards, while the investment pattern of municipal governments followed suit with a two-year lag, peaking in 2004, 2008 and 2012. We singled out four states for case studies both for their relevance and geographical diversity. Ceará and Espírito Santo are cases of relative solid fiscal performance, while Goiás oscillated and more recently is under extreme fiscal distress.⁵ Finally, Rio Grande do Sul is a state which had for many years resisted fiscal consolidation on the face of sharply deteriorating public sector accounts, but since 2015 has had a moderately reformist government, and as of 2019, elected a governor committed to fiscal responsibility. If one compares the investment to (state) GDP ratios of the four states, with the average for all states, it is clear that: i) the investment ratios of Ceará and Espírito Santo are significantly higher than the average; ii) investments in Goiás have followed a typical electoral cycle pattern, which came to a head in 2018, when state finances collapsed; and iii) for Rio Grande do Sul, the populist option of privileging public sector salaries and pensions in the context of bloated bureaucracies and an ageing population has led to a collapse of public investment since at least 2008, after which state investment has systematically been below national average (and half that much in the later years).

Infrastructure investments are a major component of total public investments. In Brazil, the public sector—and the federal government in particular—has been historically the driver in infrastructure investments since the 1930s. The multiple crises of the 1980s and 1990s, and the political equilibrium arising out of the 1988 Constitution, leading to greater government transfers and mandatory social spending, have progressively constrained the government's ability to invest in infrastructure, and led to growing private sector involvement. Two pieces of legislation may be considered the founding elements of this shift, in addition to the ambitious and mostly successful privatization program undertaken in the 1990s, mainly under the government of Fernando Henrique Cardoso: the 1995 Law of Concessions (preceded by the new Law of Ports in 1993) and the 2004 Law of Public-Private Partnerships. In addition, as the privatization and concession

⁵ The recent financial deterioration of Goiás motivated a decision from a Supreme Court judge to allow it to temporarily join the FRR without necessarily abiding by all its preconditions.

programs advanced, the Cardoso government established a system of regulatory agencies, with a focus on areas characterized by natural monopolies or at least large network economies of scale.

Under this new legal framework, the private sector share of infrastructure investment advanced, and since 2011 it has been systematically above the share of public investment. Once the critical phase of the fiscal consolidation process of the early 2000s came to an end, public investment also experienced an expansionary cycle under the aegis of the two PAC programs which ran from 2007 through 2014 (Table 5). PAC I and II cannot be considered successful, except on a purely quantitative basis: PAC I led to growing investment expenditures, peaking in 2009-10, and PAC II—already under fiscal stress—came to a more subdued head in 2013-14. Yet, no matter the amount of capital spent, the degree of misallocation and weak project management, ultimately an outcome of the very poor governance of public investments during 2007-14, led to massive waste, with over 14,500 unfinished publicly funded projects (including but not limited to infrastructure). Thus, the fall in public expenditure in infrastructure has more than a single cause, namely the fiscal crisis that the country is experiencing, but also relates to attempts in the recent past by the government to boost investment at any cost, and its sequelae of large-scale corruption, poor resource allocation, and failed execution. Arguably, this is ultimately related to the country's political economy, and the role that public investment play in mobilizing political resources in the context of a highly fragmented party system.

Table 5. Brazil: Public Sector Investment, 2002-2019

% of GDP	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total public investment	3.24	2.60	2.59	2.63	2.91	2.84	3.52	4.02	4.56	3.75	3.97	4.06	3.95	2.85	2.29	1.85	2.70	2.26
Federal government	0.45	0.20	0.21	0.33	0.38	0.42	0.44	0.60	0.79	0.60	0.54	0.63	0.70	0.45	0.39	0.38	0.44	0.47
State governments	0.73	0.56	0.59	0.68	0.73	0.52	0.69	0.89	1.02	0.68	0.68	0.87	0.99	0.57	0.48	0.44	0.53	0.40
Ceará	3.94	2.91	2.05	1.53	3.86	1.42	1.97	3.10	3.88	3.00	2.28	2.35	3.10	1.94	1.74	1.83	1.96	1.23
Espírito Santo	2.56	2.52	2.73	2.92	3.31	3.33	3.23	3.70	2.98	1.14	2.34	2.17	1.89	0.97	0.89	0.90	0.75	0.85
Goiás	0.35	0.38	0.48	0.47	0.26	0.27	0.40	0.38	0.95	0.43	1.44	1.27	1.77	0.91	0.54	0.94	0.60	0.26
Rio Grande do Sul	1.15	1.69	1.29	1.14	1.08	0.56	0.80	0.71	0.69	0.33	0.43	0.43	0.50	0.21	0.27	0.26	0.29	0.20
Municipal governments	0.95	0.75	0.78	0.61	0.83	0.82	1.01	0.75	0.88	0.85	0.94	0.64	0.73	0.64	0.63	0.34	0.49	0.59
State-owned federal companies	1.11	1.09	1.01	1.01	0.97	1.08	1.38	1.78	1.87	1.62	1.81	1.92	1.53	1.19	0.79	0.69	1.24	0.80

Source: Orair (2016) for public investment on federal, state and municipality levels. For each state, data from IPEA until 2016, and from STN for 2017 to 2019. The values for each state are a percentage of each one's GDP, and not the country. GDP values obtained from IBGE until 2017 and are estimates in 2018 and 2019, obtained from Economics Secretariat of Goiás, Coordination of Economic Studies.

Public infrastructure investment in Brazil is carried out by both federal and state governments (with a residual undertaken by municipalities). Until recently the levels of investment from the federal government and the states (including public enterprises) were not far apart, but they began to diverge in 2016, with states (and their enterprises in water and, for some states, power) investing nearly twice as much as the federal government (including its enterprises). Thus, looking retrospectively, the big step down in public investment in infrastructure was the result of a contraction in federal investment, mostly federal state-owned enterprises, reeling from poor governance, mismanagement, and corruption scandals (Table 6). The contraction at the state level was considerably milder, with the burden of adjustment concentrated in the fiscal component. Finally, despite the widespread investment decline among states, those that were historically better managed (Ceará and Espírito Santo, in particular) were able to mobilize more resources (as a proportion of state GDP) for investment than the average, and disproportionately more than Rio Grande do Sul, which has been battling fiscal mismanagement.

Table 6. Brazil: Infrastructure Investment, 2002-19

% of GDP	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total public sector investment in infrastructure	0.86	0.61	0.81	0.90	0.91	0.73	0.85	1.23	1.25	1.04	0.94	1.06	1.00	0.90	0.89	0.62	0.58	0.51
Fiscal component	0.36	0.22	0.26	0.29	0.35	0.34	0.43	0.56	0.63	0.46	0.36	0.43	0.42	0.24	0.21	0.22	0.19	0.16
Parafiscal component	0.50	0.39	0.55	0.61	0.56	0.39	0.43	0.67	0.62	0.58	0.58	0.63	0.58	0.67	0.68	0.41	0.38	0.36
Federal government	0.58	0.38	0.35	0.42	0.39	0.38	0.43	0.57	0.64	0.58	0.50	0.52	0.51	0.43	0.38	0.21	0.20	0.16
Fiscal component	0.23	0.10	0.14	0.16	0.21	0.22	0.27	0.34	0.41	0.32	0.26	0.26	0.26	0.16	0.14	0.15	0.14	0.11
Parafiscal component	0.34	0.27	0.21	0.26	0.18	0.16	0.16	0.23	0.23	0.26	0.25	0.27	0.25	0.28	0.25	0.06	0.06	0.05
State government	0.28	0.24	0.46	0.49	0.51	0.35	0.43	0.66	0.61	0.45	0.43	0.54	0.48	0.47	0.50	0.41	0.37	0.35
Fiscal component	0.13	0.12	0.12	0.13	0.13	0.12	0.16	0.22	0.21	0.14	0.10	0.18	0.15	0.08	0.07	0.07	0.05	0.05
Parafiscal component	0.15	0.12	0.33	0.36	0.38	0.23	0.27	0.44	0.40	0.32	0.33	0.36	0.33	0.39	0.43	0.34	0.32	0.30
Ceará	2.79	1.12	1.21	1.37	1.90	0.62	0.35	0.96	1.94	1.32	0.46	0.21	0.35	0.50	0.39	0.34	0.34	0.29
Fiscal component	2.55	0.79	0.32	0.40	1.08	0.42	0.17	0.75	1.79	1.02	0.19	0.12	0.29	0.43	0.27	0.27	0.20	0.14
Parafiscal component	0.24	0.33	0.89	0.97	0.82	0.20	0.18	0.21	0.15	0.30	0.27	0.09	0.07	0.07	0.12	0.07	0.15	0.15
Espírito Santo	0.13	0.13	0.57	0.92	1.15	0.66	0.49	0.81	0.84	0.54	0.46	0.61	0.61	0.37	0.38	0.38	0.41	0.52
Fiscal component	0.06	0.02	0.14	0.39	0.51	0.50	0.21	0.40	0.55	0.35	0.31	0.44	0.49	0.23	0.21	0.18	0.22	0.32
Parafiscal component	0.07	0.11	0.43	0.53	0.64	0.16	0.28	0.41	0.29	0.19	0.15	0.17	0.12	0.14	0.17	0.20	0.19	0.20
Goiás	0.64	0.63	0.98	1.15	0.71	0.54	0.48	0.39	0.51	0.25	0.20	0.12	0.45	0.75	0.53	0.46	0.33	0.19
Fiscal component	0.36	0.39	0.68	0.68	0.39	0.25	0.20	0.16	0.36	0.13	0.07	0.01	0.06	0.40	0.18	0.39	0.20	0.10
Parafiscal component	0.28	0.24	0.29	0.46	0.32	0.28	0.28	0.23	0.14	0.12	0.14	0.12	0.39	0.35	0.35	0.07	0.13	0.09
Rio Grande do Sul	0.31	0.36	0.26	0.32	0.35	0.41	0.25	0.41	0.38	0.25	0.28	0.42	0.24	0.17	0.23	0.28	0.30	0.13
Fiscal component	0.14	0.27	0.16	0.18	0.18	0.24	0.09	0.18	0.15	0.12	0.12	0.08	0.06	0.04	0.09	0.10	0.14	0.03
Parafiscal component	0.17	0.09	0.10	0.13	0.16	0.17	0.16	0.23	0.22	0.13	0.16	0.34	0.17	0.13	0.14	0.18	0.16	0.11

Sources: Public sector companies; Siafi, CNI; Ipeadata; Portal Transparency; BCB and own estimates. While the parafiscal component represents all public sector companies' capital expenditures, the fiscal component reflects the infrastructure investment budget of each state and of the federal government. Total public sector investment in infrastructure is the sum of federal and all states' investments. The federal parafiscal investment represents all public sector companies controlled by the central government, while the fiscal component are the investments accounted in the federal budget.

3.3. Efficiency of Public Investment

Why is the efficiency of public sector investment a relevant issue? The share of public investment has been decreasing in the last decade: while in 2010, 55.5 percent of infrastructure investment was undertaken by government and state-owned companies, it is estimated that by 2019, this ratio had declined to 34.9 percent. At least to a limited extent public and private investments are complementary: on the supply side, certain private investments will not be profitable without public investments which are more in the nature of public goods or which provide large enough production externalities that make private production profitable; on the demand side, again public investment in rural water and sanitation, or urban mobility, are arguably strict complements to private investment, in providing productivity-enhancing services.

Thus, in view of the low rate of investment and the limited share of the public sector, and the public-private complementarity, it could be argued that more should be invested by the public sector. Would this be a good policy prescription? It is less than obvious. And the fundamental reason goes beyond fiscal restrictions faced by both the Federal Government and most subnational governments. It has to do with the poor quality of public investment, with the political economy driving both allocative decisions and the problematic implementation of projects, often characterized by systematic overruns in cost and time. The waste of public resources has been rampant for many years, which points, among other things, to the fact that measured public capital stock likely overstates services being provided by infrastructure assets.

The most glaring evidence of waste and fraud in public sector investment projects is provided by a recent audit of the TCU (2019). After examining 38.412 federally-funded contracts worth R\$ 725.456 billion in nominal (historic) values, the audit pointed out that 37.5 percent of the contracts (19.9 percent of the values) corresponded to projects (in physical and social infrastructure) which remained unfinished—abandoned or paralyzed. It is noteworthy that completed or ongoing projects which were significantly delayed or poorly executed were not included. Thus, the problem facing the public sector is even worse than what was revealed by the audit.

When looking into the causes, the audit did not dig deep enough: it assigned to “technical” problems 47 percent of the cases (typically poor or insufficient design); in 23 percent the contractor abandoned the site (likely from delays and payment arrears); and in 10 percent there were financial issues (related to project funding, among other reasons).

In order to improve the allocative efficiency of infrastructure investments and ensure the judicious use of public resources, a fundamental change is needed in the governance of public sector investment, involving not only greater judicial certainty and regulatory predictability, but a revamping of the planning and decision-making process when it comes to investment allocation and contracting. Political capture still distorts public investment decisions, with few projects being subject to an ex ante cost-benefit analysis. While infrastructure planning carried out competently is essential, until recently it was dispersed across states and municipalities, while implementation decisions were concentrated in Brasília. This approach created overlaps, wasted resources, and did away with potential synergies, bringing gross allocative inefficiencies.

State-owned or state-controlled enterprises are responsible for most public sector investment, and the experience in Brazil is equally one of poor corporate governance, with the use of such entities for political purposes. Public enterprises have been in fact object of capture, usually by a coalition of politicians, employees and their unions, suppliers, and contractors, engaged in syphoning off resources. Moreover, public managers are constrained by low levels of autonomy when it comes to investment and pricing decisions, which detract from their ability to effectively maximize value. In this context, there are few reasons to keep these enterprises in the public sector or to argue for more state enterprise investments, given the propensity for misallocation and inefficient deployment of public resources.

4. State-Level Fiscal Analysis

Since states have a more prominent invest role more than the federal government, it is essential to investigate the relation between fiscal rules and public sector investment at the state level. This is also interesting because states are facing very diverse fiscal conditions. While some such as Ceará have been responsibly managed for a long period, others like Rio Grande do Sul have a long history of financial difficulties. We also find states that have improved substantially in the recent past, and others with fast deteriorating fiscal conditions. Given that a detailed analysis of all states would not be feasible, we chose four states from different regions which faced varied fiscal conditions in the last 10 years, and have currently different ratings from the STN:

- **Ceará**, a state of the Northeast region—the poorest in Brazil—that has been successful in creating a culture of fiscal responsibility and has a B CAPAG rating.

- **Espírito Santo**, a state of the Southeast region, currently in excellent financial condition resulting from a strong fiscal adjustment, with an A rating.
- **Goiás**, a state of the Center-West region, which faced a rapidly deteriorating fiscal situation in recent years, has a C rating.
- **Rio Grande do Sul**, the southernmost state, in fiscal distress for a long period and negotiating entry into the FRR, has a D rating.

As an additional support for our state level analysis, we interviewed current or former policymakers of the four states:

- **Mauro Benevides Filho**: Congressman from Ceará, former Finance Secretary.
- **Paulo Hartung**: former Governor of Espírito Santo for three mandates.
- **Leany Lemos**: former Secretary of Planning and Budget of Rio Grande do Sul and former Secretary of Planning and Budget of Brasília.
- **Cristiane Schmidt**: Secretary of Finance and Planning of Goiás.

In addition, we interviewed **Marcos Mendes**, former advisor to the Minister of Finance, and one of the proponents of the expenditure ceiling rule.

4.1 Cross-State Analysis

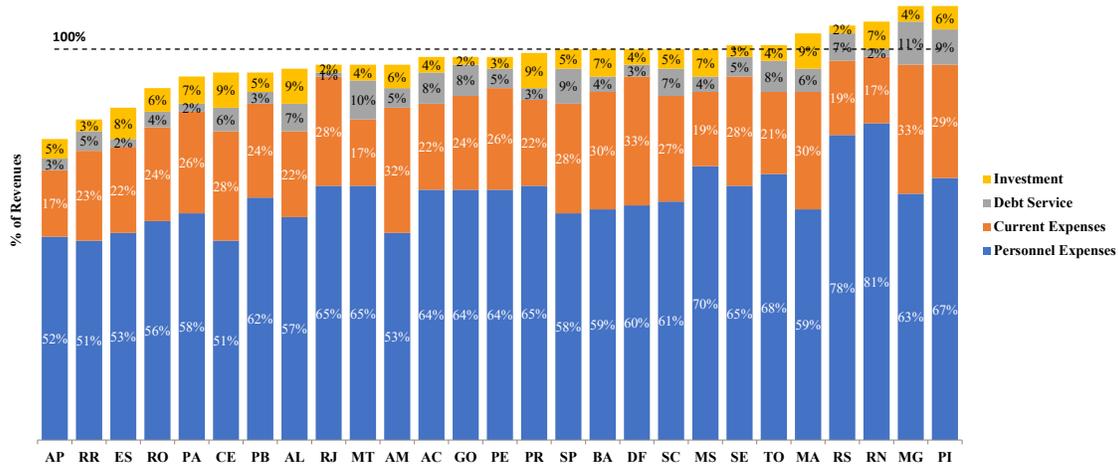
4.1.1 Comparative Fiscal Statistics

States in Brazil display highly differentiated fiscal performance.⁶ The latest 2019 statistics show some states with considerable budget surpluses—including Espírito Santo and Ceará—and others incurring in deficits, with expenditures above total revenues (Figure 8). A closer look at the composition of expenditures (in relation to total revenues) shows that states with a greater fiscal space—typically from a lower share of personnel expenditures (including pensions)—tend to have a higher share of investments over revenues and conversely (such as Ceará and Rio Grande do Sul at the two extremes of the spectrum), though there are exceptions. At the same time, debt service does not seem to be a major constraint on investment. since most states have undergone a number

⁶ States which were created in recent years tend to show better fiscal performance due to the fact that they have not inherited the fiscal burden associated with debt, and underfinanced pension plans.

of debt restructurings in the last two decades. Indeed, debt service generally amounts to no more than 10 percent of revenues, though for most states it stands between 3 percent and 5 percent.

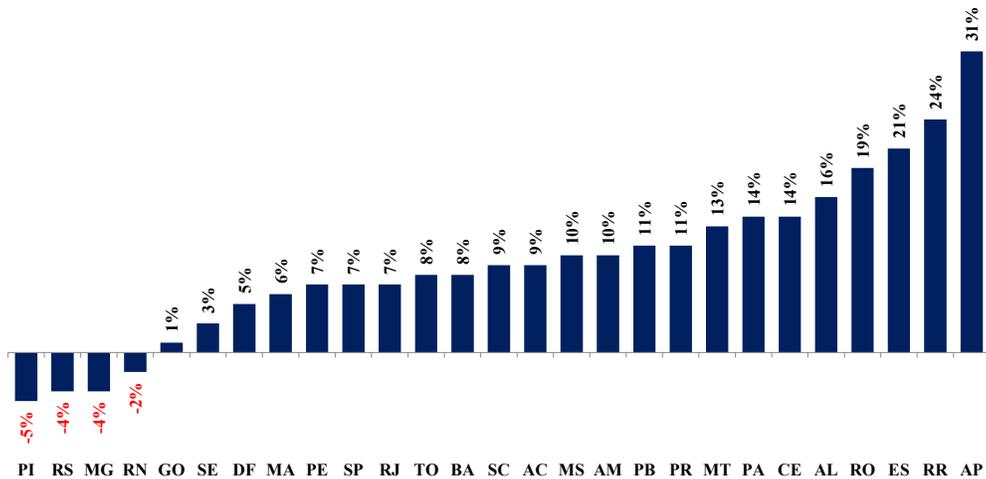
Figure 8. Decomposition of States' Expenditures, 2019



Source: STN.

States' ability to invest autonomously—that is, with their own resources—is directly dependent on current savings, as shown in Figure 9. Most states (with the exception of Piauí, Rio Grande do Sul, Minas Gerais, and Rio Grande do Norte) show a positive savings ratio (with respect to net current revenues). Except for the newer states of Amapá, Roraima and Rondônia, the three states with the highest savings ratio are Espírito Santo, Alagoas and Ceará.

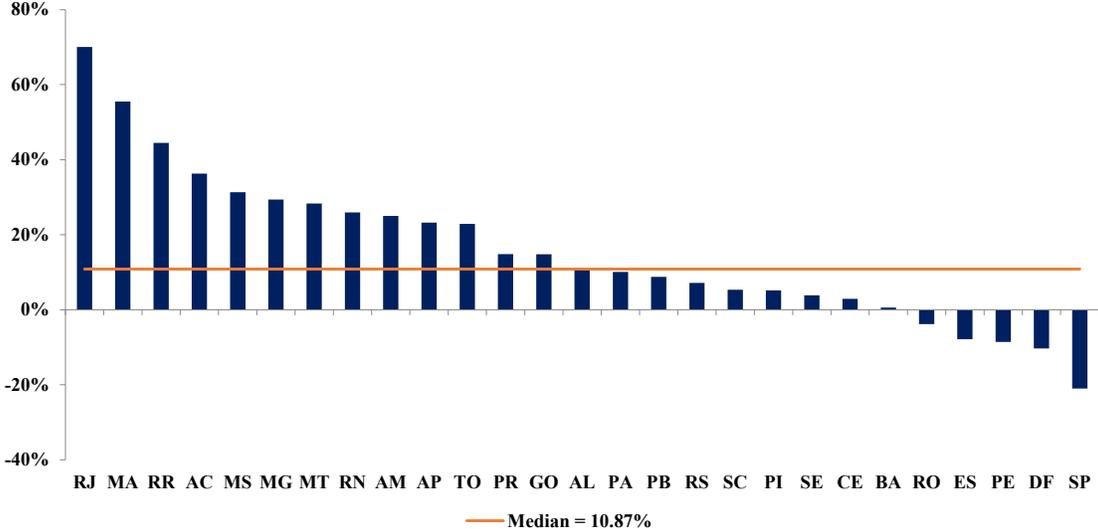
Figure 9. States' Savings-to-Net Current Revenues, 2019



Source: STN.

States that devoted a large share of their budget to personnel-related expenditures tended to have limited fiscal space for investment. Figure 10 shows a highly heterogeneous picture when it comes to real growth in personnel expenditures over the 2011-19 period. While the median real growth over the period was no less than 10.87 percent, states such as Ceará and Espírito Santo displayed gross personnel expenditures significantly below the median. Others such as Rio Janeiro—the extreme case—and Minas Gerais, among others, went well above it, and this explains in large measure their current fiscal crisis.

Figure 10. Personnel Expenses Real Growth from 2011 to 2019



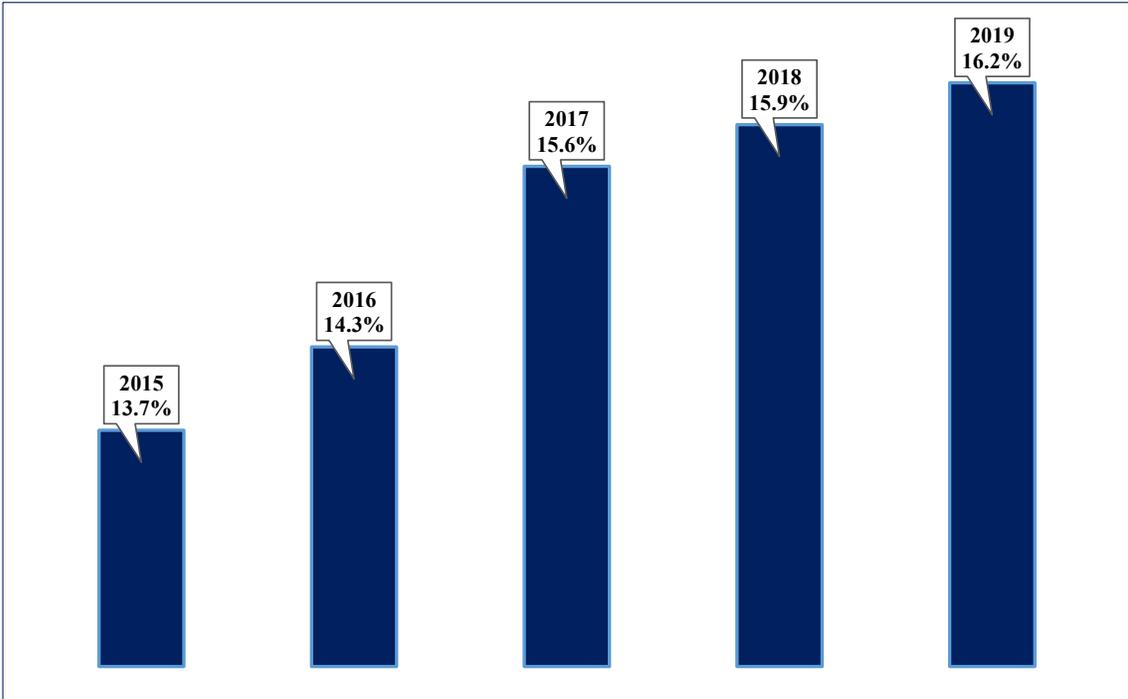
Source: STN.

The degree of fiscal discipline, when it comes to personnel expenditures, is the hardest to maintain, and may also be inferred by the widely used metric of their ratio over net current revenues. Most states—Minas Gerais, Rio Grande do Sul, Rio de Janeiro and Goiás, among others—have historically overspent, going beyond the FRL 60 percent maximum limit by 2019, despite in some cases (Rio de Janeiro) being under the Fiscal Recovery Regime or close to bankruptcy (Minas Gerais and Rio Grande do Sul).

The burden of personnel expenditures is made worse by the deficit from the pension systems of public employees. Not only the population at large is getting older, but ageing is affecting civil servants—a cohort with typically longer life spans and which have been allowed early retirement (such as policemen and teachers). Figure 11 shows the growth in expenditures

incurred by states with retirees and pensioners as a proportion of net current revenues—which increases in a monotonic fashion, jumping from 13.7 percent in 2015 to 16.2 percent in 2019. Even in fiscally well managed states—such as Ceará—the situation has become untenable, and ambitious reforms are being proposed and approved by the legislature. For states which have been managed less prudentially, such initiatives are even more urgent. It is a fact that at all levels of government, reform of the public administration personnel policies, including employees’ pension systems, has become essential for states to regain fiscal breathing space and be able to sustain investment recovery over the longer term.

Figure 11. Ratio of States’ Total Pension Spending to Net Current Revenues, 2015-19



Source: STN.

4.1.2 Investment and Fiscal Conditions across States: Regression Analysis

The variation of fiscal policies and outcomes across states provide an opportunity to learn about the relation between investment and fiscal conditions. One natural way to do that is by running panel regressions. However, states differ in their accounting procedures, which make their data not directly comparable.

Recently however, the STN has made an effort to standardize and recalculate the states’ fiscal statistics, with data covering the 2015-2019 period, for which comparable accounting

numbers are now available. The fiscal variables collected for all states are described in Table 7. As mentioned in Section 2, STN provides a credit rating (CAPAG) for each state for each year. It ranks subnational entities from A (highest) to D (lowest). However, CAPAG data before 2017 was subject to political interference, with the rating methodology updated in November/2017.⁷ CAPAG is computed as a weighted average between a debt ratio (debt-to-revenues), a current savings indicator (expenditures-to-revenues) and a liquidity indicator (short-term financial liabilities as a percent of liquid assets). CAPAG details are described in Appendix A2.2.

Table 7. Variable Definitions

Variable	Description
CAPAG	Credit rating set by STN
Debt-to-Revenues	Net public debt as a percentage of net current revenues
Expenditures-to-Revenues	Current expenditures as a percentage of net current revenues
Liquidity Ratio	Short-term financial liabilities as a percentage of liquid assets
Revenues <i>per capita</i>	Total revenues <i>per capita</i>
Investments	Investments as either a percentage of total revenues, expenditures or <i>per capita</i>
Personnel Expenditures	Personnel expenditures as either a percentage of total revenues, expenditures or <i>per capita</i>
Guaranteed Debt Growth	Outstanding guaranteed debt increase as a percentage of total debt
Agricultural Production <i>per capita</i>	Agricultural production <i>per capita</i> multiplied by the average price paid to producer

Source: Authors' calculations.

Note: This table describes the variables collected for all states in our study. The first column gives the name of the variable, and the second column describes the variable.

Table 8 reports summary statistics for each variable. Panel A presents mean, median, standard deviation and number of observations for each numerical variable in our dataset. We note that the median state has a debt-to-revenues ratio of 60.4 percent, invests 4.5 percent of its revenues and spends 55.6 percent of its revenues in personnel. Panel B reports the average investment rate for states for a given CAPAG classification. There is only one state where CAPAG “A” was assigned by STN: Espírito Santo.

⁷ Resolution #501 by the Minister of Economy.

Table 8. Summary Statistics

Panel A: Overall Statistics				
Variable	Mean	Median	SD	N
Debt-to-Revenues	80.65	60.44	67.25	53
Expenditures-to-Revenues	100.20	96.33	13.82	53
Liquidity Ratio	153.09	62.81	479.17	53
Investments-to-Revenues	4.93	4.48	2.63	53
Personnel Expenditures-to-Revenue	57.00	55.63	8.04	53
Guaranteed Debt Growth	2.32	0.81	3.88	53
Panel B: Investments by CAPAG				
CAPAG	Mean	Median	SD	N
A	5.37	5.37	0.11	2
B	6.38	5.83	2.88	19
C	4.56	4.45	2.05	26
D	1.79	1.69	0.65	6

Source: Authors' calculations.

Note: This table reports summary statistics. Panel A presents mean, median, standard deviation, and number of observations for each numerical variable in our dataset. Panel B reports investments statistics according to CAPAG. All variables are defined in Table 7 and shown as percentage.

Excluding Espírito Santo, investment rates increase monotonically with the rating. One-notch change in CAPAG is associated with a 3 percentage points change in investment-to-revenue. The average investment rate of CAPAG D states is less than half of those with CAPAG C, and approximately one third of the average investment rate of CAPAG “B” states. Moreover, we identify greater investment rate variability among states with higher credit ratings. This result may indicate that low-rating states are facing a severe fiscal restriction insofar as they have no choice other than restricting investment. Higher-rating states have greater discretion.

We use the information collected to run state-level panel regressions for the most recent years (2018 and 2019) after CAPAG’s methodology update, since the ratings before those years did not follow a comparable methodology. Our specification relates state public investment to fiscal variables. In particular, we investigate whether there is a systematic relation between the

overall fiscal conditions, captured by the CAPAG rating (Tables 9 and 10), or the budget commitment with the wage bill (Tables 11 and 12), and public investment.⁸

Table 9. Fiscal Rule Effects on Public Investments: The Case of CAPAG

	Panel A			Panel B		
	Investments-to-Revenues			Investments-to-Expenditures		
Constant	6.347*** (8.95)	7.123*** (8.95)	6.395*** (3.78)	6.450*** (9.18)	5.973*** (10.29)	5.133*** (4.27)
CAPAG "C"	-1.774** (-2.07)	-1.304* (-1.70)	-1.454* (-1.73)	-1.615* (-1.86)	-1.090 (-1.46)	-1.560* (1.86)
CAPAG "D"	-4.559*** (-6.41)	-4.423*** (-6.08)	-4.090** (-2.10)	-4.679*** (-6.66)	-4.324*** (-6.53)	-3.603** (-2.07)
Debt-to-Revenues			-0.001 (-0.05)			-0.004 (-0.52)
Expenditures-to-Revenues			0.010 (0.61)			0.028** (2.13)
Liquidity Ratio			-0.000 (-1.26)			-0.000* (-1.66)
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
N	51	51	51	51	51	51
R-squared	0.286	0.440	0.445	0.293	0.438	0.474

Source: Authors' calculations.

Note: Panel regressions are shown in this table. The dependent variable is either investments as a percentage of total revenues (Panel A) or investments as a percentage of total expenditures (Panel B). The independent variables are CAPAG dummy variables for each credit rating category. Each CAPAG dummy assumes the value one for the related CAPAG credit rating and zero otherwise. We control for the following additional independent variables: debt-to-revenues, expenditures-to-revenues, and liquidity ratio. Heteroskedasticity robust t-statistics are reported. *, **, *** indicate significance at the 10%, 5% and 1% levels, respectively. We exclude Espírito Santo from our set of observations since there is no other CAPAG A state to compare.

Results from panel regressions involving CAPAG rating are shown in Table 9. The dependent variable is either investment as a percentage of total revenues (Panel A) or investment as a percentage of total expenditures (Panel B). The independent variables are dummy variables for CAPAG C and D. Each CAPAG dummy assumes the value one for the related CAPAG credit rating and zero otherwise. Thus, a CAPAG B state will have a value zero for both dummies. We control for the following additional independent variables as well: debt-to-revenues, expenditures-

⁸ We exclude Espírito Santo from our set of observations, since there is no other CAPAG A state to compare.

to-revenues, and liquidity ratio. There is a question of whether the CAPAG rating is an important determinant of investment because it synthesizes the state financial conditions as captured by the fiscal indicators of its methodology or because it has an additional effect on its own.

The regressions in Table 9 indicate that an inferior rating is associated with a lower level of public investment. The main difference in investment appears to come from changes from CAPAG B to CAPAG C, where we observe a robust significant decrease in investment rate of about 1.5 percentage points. This association holds even after controlling for all fiscal indicators from CAPAG methodology. Thus, CAPAG determinants explain less of investment variability than CAPAG itself. Since states with CAPAG C and D cannot borrow money with National Treasury guarantee, those results indicate that a major restriction to investment for those low rating states is their restricted access to external finance.

In order to assess the external finance constraint hypothesis, we ran additional regressions with the rate of growth in state debt guaranteed by the National Treasury as the main explanatory variable, while adding CAPAG dummies as additional explanatory variables. Results are reported in Table 10. We observe a positive correlation between growth in guaranteed debt and investment ratios, with a R^2 of almost 30 percent. After controlling for CAPAG dummies, guaranteed debt growth still explains the bulk of investment heterogeneity, with the three variables combined explaining close to 50 percent of cross-state investment variation. However, the CAPAG C coefficient is only moderately significant, while the CAPAG D dummy remains highly significant. Notice that the effect of CAPAG C rating in our regressions, in comparison with the omitted CAPAG B, reflects the state loss of access to the Treasury guarantee of its debt. The coefficient of CAPAG D having a larger magnitude than that of CAPAG C means that states with CAPAG D tend to invest less, indicating that while we see a mild association of CAPAG C and investments, once controlled for guaranteed debt growth, the CAPAG D dummy is still highly statistically significant. This suggests that worsened fiscal conditions may affect investment even for states already excluded from the credit market. Overall, the results corroborate our debt constraint hypothesis, although fiscal conditions appear to be important on their own.

Table 10. Testing the External Finance Constraint Hypothesis

	Panel A			Panel B		
	Investments-to-Revenues			Investments-to-Expenditures		
Constant	4.016*** (10.34)	5.165*** (9.65)	6.348*** (9.78)	4.258*** (9.73)	5.489*** (10.11)	6.571*** (10.84)
Guaranteed Debt Growth	0.437*** (4.84)	0.238** (2.09)	0.246** (2.54)	0.402*** (4.60)	0.186* (1.70)	0.197** (2.00)
CAPAG "C"			-1.521** (-2.22)			-1.300* (-1.89)
CAPAG "D"			-3.910*** (-6.74)			-4.084*** (-7.04)
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
N	51	51	51	51	51	51
R-squared	0.354	0.368	0.568	0.284	0.301	0.526

Source: Authors' calculations.

Note: This table replicates the panel regressions from Table 9 controlling for National Treasury guaranteed debt growth. As in Table 9, the dependent variable is either investments as a percentage of total revenues (Panel A) or investments as a percentage of total expenditures (Panel B). We control for CAPAG dummy variables for each credit rating category. Each CAPAG dummy assumes the value one for the related CAPAG credit rating and zero otherwise. Heteroskedasticity robust t-statistics are reported. *, **, *** indicate significance at the 10%, 5% and 1% levels, respectively. We exclude Espírito Santo from our set of observations since there is no other CAPAG A state to compare.

We next investigate whether personnel expenditures crowd out investment, in accordance with the view of some analysts. In Tables 11 and 12 we report results from regressions which use the wage bill as an explanatory variable.

Table 11 includes CAPAG as control variable, reducing our sample period to 2018 and 2019, while Table 12 does not, extending the period cover from 2015 to 2019. From columns 1 and 4 either in Table 11 or in Table 12, it is clear that the wage bill as a proportion of revenues is negatively related to the investment rate. However, when a time dummy is included, the personnel expenditures coefficient ceases to be significant. The exception is the panel regression including years 2015-2019 where we have investment-to-expenditures as the dependent variable. In this case, the coefficient of personnel expenditures is negative and statistically significant even when we have time dummies or other control variables.

Table 11. Fiscal Rule Effects on Public Investments: The Case of the Wage Bill, 2018-19

	Panel A			Panel B		
	Investments-to-Revenues			Investments-to-Expenditures		
Constant	13.889*** (6.16)	6.887*** (3.59)	7.318*** (3.27)	13.275*** (6.74)	6.436*** (3.55)	6.751*** (3.59)
Personnel Expenditures	-0.157*** (-4.45)	-0.017 (-0.47)	-0.004 (-0.10)	-0.138*** (-4.41)	-0.010 (-0.17)	0.008 (0.24)
CAPAG "C"			-1.302* (-1.67)			-1.109 (-1.43)
CAPAG "D"			-4.237*** (-6.03)			-4.356*** (-6.26)
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
N	51	51	51	51	51	51
R-squared	0.169	0.186	0.440	0.128	0.166	0.437

Source: Authors' calculations.

Note: This table replicates the panel regressions from Table 10 taking personnel expenditures as our explanatory variable of interest. The dependent variable is either investments as a percentage of total revenues (Panel A) or investments as a percentage of total expenditures (Panel B). We control for CAPAG dummy variables for each credit rating category. Each CAPAG dummy assumes the value one for the related CAPAG credit rating and zero otherwise. Heteroskedasticity robust t-statistics are reported. *, **, *** indicate significance at the 10%, 5% and 1% levels, respectively. We exclude Espírito Santo from our set of observations since there is no other CAPAG "A" state to compare.

While it is plausible that investments could be affected by financing conditions or competing mandatory expenses, it is also possible that fiscal revenues are among its determinants. In Table 13 we run panel regressions of public investments on fiscal revenues, without controls (first column), controlling for personnel expenditures (second column), guaranteed debt growth (third column), and CAPAG (fourth column). Public investments are positively correlated with fiscal revenues across specifications. Moreover, fiscal revenues variation explains about 30 percent of public investments variation.

Table 12. Fiscal Rule Effects on Public Investments: The Case of the Wage Bill, 2015-19

	Panel A				Panel B			
	Investments-to-Revenues				Investments-to-Expenditures			
Constant	12.081*** (6.16)	7.313*** (2.73)	7.544*** (7.80)	8.537** (2.34)	14.793*** (7.58)	11.660*** (2.98)	6.982*** (8.00)	11.668*** (4.68)
Personnel Expenditures	-0.124*** (-3.63)	-0.029 (-0.60)		-0.016 (-0.32)	-0.165*** (-4.80)	-0.103** (-2.04)		-0.108*** (-2.58)
Debt-to-Revenues			-0.017*** (-3.93)	-0.017*** (-4.06)			-0.019*** (-4.65)	-0.019*** (-5.98)
Expenditures-to-Revenues			-0.002 (-0.34)	-0.004 (-0.39)			0.007 (1.08)	0.021 (1.52)
Liquidity Ratio			0.000 (0.62)	0.000 (0.63)			0.000 (0.70)	0.000 (0.98)
Year Fixed Effects	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	128	128	123	123	128	128	123	123
R-squared	0.109	0.125	0.215	0.223	0.146	0.169	0.238	0.312

Source: Authors' calculations.

Note: This table replicates the panel regressions from Table 10 taking personnel expenditures as our explanatory variable of interest. The dependent variable is either investments as a percentage of total revenues (Panel A) or investments as a percentage of total expenditures (Panel B). We control for CAPAG determinant variables: debt-to-revenues, expenditures-to-revenues, and liquidity ratio. Heteroskedasticity robust t-statistics are reported. *, **, *** indicate significance at the 10%, 5% and 1% levels, respectively. We exclude Espirito Santo from our set of observations since there is no other CAPAG A state to compare.

Although we found a positive and significant correlation between public investments and fiscal revenues, we cannot infer causality from Table 13. A higher public investment could, for example, be complementary to private investment, resulting in a higher activity at state level, increasing state revenues. Thus, the positive correlation found could be due to reverse causality. To overcome endogeneity concerns, we run an instrumental variable panel regression taking agricultural production as exogenous. Agricultural production in a year depends mainly on two sources of variation: weather conditions and commodity prices. Our hypothesis is that agricultural production, which is mostly driven by weather and commodity fluctuations, is not correlated with unobservable variables explaining public investments at state level, except through tax collection and spillover effects on fiscal revenues.

Table 13. Fiscal Revenues on Public Investments

	Panel A		Panel B	
	2015 - 2019		2018 -2019	
Constant	10,948*** (3.70)	10,971*** (4.21)	9,959** (2.25)	18,196*** (6.40)
Revenues <i>per capita</i>	0.025*** (3.18)	0.029 (1.32)	0.027*** (3.06)	0.023*** (3.29)
Personnel Expenditures <i>per capita</i>		-0.007 (-0.19)		
Guaranteed Debt Growth			725.011* (1.69)	
CAPAG "C"				-4,965* (-1.83)
CAPAG "D"				-15,023*** (-7.81)
Year Fixed Effects	Yes	Yes	Yes	Yes
N	128	128	51	51
R-squared	0.282	0.283	0.439	0.558

Source: Authors' calculations.

Note: Panel regressions adopting per capita variables are shown in this table. The dependent variable is investments per capita. The independent variables are: i) revenues per capita, ii) personnel expenditures per capita, iii) guaranteed debt growth, and iv) CAPAG dummy variables for each credit rating category. Each CAPAG dummy assumes the value one for the related CAPAG credit rating and zero otherwise. Heteroskedasticity robust t-statistics are reported. *, **, *** indicate significance at the 10%, 5% and 1% levels, respectively. We exclude Espírito Santo from our set of observations since there is no other CAPAG A state to compare.

Results are shown in Table 14. Because we have agricultural production data until 2018, our regressions cover the period from 2015 to 2018. The first two columns show our findings in the first stage of our instrumental variable approach. Agricultural production is highly correlated with revenues, with an F-Statistic of 25.55 in the specification without year fixed effects, and 26.97 when year fixed effects are included, lessening weak instrument concerns. The next two columns present results from the second stage. An increase in fiscal revenues, instrumented by agricultural production, causes a rise in public investment. One thousand reais per capita improvement in revenues leads to 40 reais per capita growth in public investments. In comparison to estimates

from the OLS regressions, we find a greater impact of public investments on fiscal revenues, indicated that the endogeneity bias is due to a negative relation between investment and revenues in the reverse direction.

**Table 14. Fiscal Revenues on Public Investments:
Agricultural Production as Instrument, 2015-18**

	First Stage		Second Stage		OLS	
	Revenues <i>per capita</i>		Investments <i>per capita</i>		Investments <i>per capita</i>	
Revenues <i>per capita</i>			0.040** (2.18)	0.039* (1.96)	0.032*** (4.81)	0.031*** (4.72)
Agricultural Production <i>per capita</i>	0.124*** (5.05)	0.120*** (5.19)				
Year Fixed Effects	No	Yes	No	Yes	No	Yes
N	108	108	108	108	108	108
R-squared	0.066	0.092	0.191	0.210	0.203	0.223
First Stage F-Statistic	25.55	26.97				
First Stage P-Value	0.000	0.000				
Underidentification P-Value			0.011	0.009		
Weak Identification F-Statistic			25.547	26.970		
Stock Yogo 10% Critical Value			16.380	16.380		

Source: Authors' calculations.

Note: Panel regressions adopting per capita variables are shown in this table. The dependent variable is revenues per capita in the first stage and investments per capita in the second stage regressions. The independent variables are agricultural production per capita in the first stage and revenues per capita instrumented by agricultural production per capita in the second stage. We present the OLS estimates for the same dependent variables, treating revenues per capita as an exogenous variable. Heteroskedasticity robust t-statistics are reported. *, **, *** indicate significance at the 10%, 5% and 1% levels, respectively.

The results in this section so far indicate that states investment is constrained by both the tightness of the state budget and the lack of access to credit. From the budget perspective, part of revenue shocks tends to be absorbed by (a fall in) investment. Also, personnel expenditures tend to crowd out investment expenditures, although this result is not statistically robust. Finally, access to credit, proxied by either financial indicators or federal government guarantees, seems to be an important determinant of investment.

4.1.3 Is the Political Cycle Driving Personnel Expenditures?

As is often the case in developing democracies, fiscal performance is subject to the political electoral cycle, notwithstanding legislation, rules and norms which regulate public sector accounts and government fiscal behavior, including in election years. Not that those rules are of secondary importance, let alone irrelevant. To the contrary, even if non-binding in some cases, they are quite relevant as a signaling device to those at which they are targeted (public officers and employees in particular, but also representatives in the legislative and judges in the judiciary) in the sense that there are restrictions and limitations when it comes to the job of taxing, borrowing and spending. But such rules are also a relevant supporting device to secretaries of finance and other budget officers that are under continuous pressure to allow for salary and related increases for public sector employees, tax incentives typically from incumbents, and higher transfers to the judiciary and the legislative.

Still, our results strongly support the relevance of the political fiscal cycle. Table 15 shows the results of panel regressions with the ratio of personnel expenditures over net revenues as dependent variable, and four dummies related to the election year T, the previous year T-1, and the two succeeding T+1 and T+2, in the period 2015-19. It is noteworthy that personnel expenses as a proportion of net revenues in the election and pre-election years (T and T-1) exceeds those in post-election years (T+1 e T+2) by 6 percentage points.

The evidence therefore seems to point to a strong electoral fiscal cycle at the state level, reflected in the expansion, and then adjustment and contraction, of the major driver for fiscal imbalance at the state level, namely personnel expenditures, with the ratio to net revenues capturing in a statistically significant way the full cycle.

Table 15. Political Cycle and Personnel Expenditures, 2014-19

	Personnel Expenditures / Net Revenues			
Constant	61.286*** (-54.08)	65.422*** (-27.03)		
Dummy for Elections Year T - 1			62.165*** (-46.03)	62.165*** (-45.73)
Dummy for Elections Year T			63.273*** (-42.29)	65.422*** (-27.03)
Dummy for Elections Year T + 1			59.854*** (-54.48)	58.590*** (-49.87)
Dummy for Elections Year T + 2			59.298*** (-50.38)	59.298*** (-50.06)
Year Fixed Effects	No	Yes	No	Yes
N	162	162	162	162
R-squared	0.000	0.076	0.984	0.985

Source: Authors' calculations.

Note: Panel regressions are shown in this table. We take four dummies related to the election year T, the previous year T-1, and the two succeeding T+1 and T+2, as our explanatory variables of interest. The dependent variable is personnel expenditures as a percentage of net revenues. Heteroskedasticity robust t-statistics are reported. *, **, *** indicate significance at the 10%, 5% and 1% levels, respectively.

4.2 Case Studies for Selected States

4.2.1 Ceará: Solid Fiscal Governance and Institutional Maturity

One million people in Ceará live on less than 22 dollars a month, which makes the state fourth in terms of extreme poverty. Despite adverse initial development conditions, the state of Ceará is one where the culture of fiscal responsibility has become dominant in government and civil society. Fiscal discipline has prevailed almost uninterruptedly for different governments covering a fairly broad political spectrum over the last three decades.⁹

It is a source of pride for the people of Ceará to live in a state that stands out in terms of quality and performance of its public accounts. Ceará has fiscal education courses for elementary,

⁹ A study by State Court of Accounts from Ceará identified during 2012-2016 problems in the accounting definitions which led to higher primary surpluses than otherwise would have been the case if stricter definitions were used (TCE-CE, 2017). It seems that this problem has been addressed since 2016.

middle, and higher education (see material in Figure 12), having reached approximately 7,800 students per year from 2015 to 2018.

Figure 12. Ceará Fiscal Education and Citizenship Book Collection



Source: Secretary of Finance of the state of Ceará

The solid fiscal management in Ceará is reflected in several fiscal indicators (Table 16). Ceará's unpaid commitments (*restos a pagar*) represented only 0.22 percent of its net revenues, less than a tenth of the national average of 2.6 percent, and personnel expenses have been below 60 percent of net current revenue from 2015 to 2018. Indeed, personnel expenses are close to 54 percent of net current revenue, which is the prudential limit set by the Fiscal Responsibility Law for signaling an alert to state officials. The state had one of the lowest real growth rates in personnel expenditures from 2011 to 2018, which contributed to its continued fiscal stability.

Table 16. Ceará Fiscal Indicators, 2015-19

Main Fiscal Indicators For Ceará					
% of Net Current Revenues	2015	2016	2017	2018	2019
Net Personnel Expenditures	59.7%	54.1%	56.0%	56.3%	55.3%
Other Current Expenditures	50.8%	49.6%	50.8%	50.9%	49.9%
Debt Service	7.3%	7.4%	8.1%	7.1%	7.3%
Investments	15.9%	12.1%	12.9%	15.5%	9.4%
Savings	7.0%	11.2%	11.6%	10.1%	13.1%
Budget Result	-1.0%	5.5%	4.7%	-3.0%	5.2%
Net Debt	63.1%	44.9%	48.5%	57.1%	52.6%

Source: STN.

Ceará made use of and benefitted from its status of CAPAG B, which entitled the state to national treasury guarantee for its loans (up to a limit). Decomposing the CAPAG indicator, Ceará had grade B in debt ratio (12 percentage points from grade A), grade B in current savings (2 percentage points from grade A) and grade A in liquidity. Debt service is stable at 7 percent of net current revenue, despite the increase in debt outstanding over the past 3 years (2016-2018).

The state of Ceará had the highest rate of public investment in Brazil in 2018, around 15 percent of net current revenues, twice the national average of 7.4 percent in the past four years. The state has also shown a high savings capacity, with current revenues exceeding current expenditures by 10 percent (of net current revenues). The combination of high savings and limited loans has provided the basis for an outstanding investment performance.

The state assembly of Ceará has been instrumental in supporting and voting for fiscal stability. In 2016, it approved a 10-year expenditure ceiling rule, just six days after the federal bill was enacted. The ceiling is proportional to net current revenue, and excludes health and education expenses, and investment. More recently, the assembly passed a social security reform for state employees, which increases minimum retirement age and contribution rates, among other measures. Remarkably, the state experienced no major changes in pension expenditures from 2015 to 2018. In fact, the motivation for the reform was the projected two-fold increase in pension expenditures in the next seven years. Finally, the government has been successful in devising organizational innovations such as COGERF, an effective intra-government coordinating body responsible for assisting the Governor on fiscal issues, and establishing guidelines and policies regarding state investments and expenditures.

4.2.2 Espírito Santo: A Tale of Two Fiscal Adjustments by the Same Governor

Espírito Santo is a small state in the Southeast region, just north of Rio de Janeiro state, and also with significant oil-related activities (though not on the same scale). It is currently the state with the best fiscal indicators, and the only with CAPAG rating A, reflecting an A evaluation in indebtedness, current savings, and liquidity.

However, this is a recent conquest. In 2014, the state was facing a difficult situation, after a very significant expansion of personnel expenses (30 percent in real terms between 2010 and 2014). The 2014-2016 recession, the sharp decrease in oil prices, the drought that affected the coffee crop, and the 2016 mining accident affecting Samarco (an important producer of iron pellets

in the state), had a relevant depressing effect on state revenues. Incoming Governor Paulo Hartung implemented in 2015-2018 a fiscal consolidation based on strict control of expenditures. Between 2014 and 2017, in operational support areas the reduction reached 68.4 percent (see Hartung, 2018). During this period, the state also managed to reduce personnel expenditures as a share of net current revenues from 56.5 percent (above the FRL prudential limit) to 53.5 percent. This reduction of 3 percentage points is not a modest achievement, given the constraints posed by the protective rules which govern public sector careers in Brazil. As a result, Espírito Santo was one of the nine states that did comply with the expenditure ceiling imposed by the 2016 State Debt Renegotiation Agreement.

This adjustment generated growing primary surpluses. In the last year of Governor Hartung's term (2018), that surplus reached R\$ 808 million—twice the level of the first two years. The accumulated savings were used to reduce the state debt, which as a proportion of net current revenues fell from 31 percent to 19 percent—one of the lowest among states (see Table 17).

Table 17. Espírito Santo Fiscal Indicators, 2015-19

Main Fiscal Indicators For Espírito Santo					
<i>% of Net Current Revenues</i>	2015	2016	2017	2018	2019
Net Personnel Expenditures	55.1%	55.1%	54.6%	52.3%	46.0%
Other Current Expenditures	53.0%	51.2%	52.8%	52.6%	47.1%
Debt Service	4.8%	5.1%	4.3%	4.3%	3.1%
Investments	5.2%	4.4%	4.3%	6.6%	6.5%
Savings	14.4%	14.7%	15.5%	16.5%	26.3%
Budget Result	5.2%	6.6%	6.1%	3.6%	16.7%
Net Debt	31.4%	26.4%	17.3%	19.0%	14.0%

Source: STN.

Although the investment rate does not stand out, the quality of the state programs and its management guaranteed a substantial improvement in education, health, public safety, and environment (Hartung, 2018). In the area of education, the state advanced from eleventh to the second position in the performance of students from public high schools. It also registered the lowest child mortality rate, the second highest life expectancy and the lowest number of violent deaths per 100 thousand inhabitants in 2018, in a steep progression.

An interesting aspect of Espírito Santo's case is that the 2015-2018 fiscal stabilization was the second one led by the same governor, who also inherited a situation of fiscal disarray at the inception of his 2003-2006 mandate. Nonetheless, the two stabilizations resorted to different fiscal instruments. When Hartung was elected at the end of 2002, the state was not honoring short-term liabilities, and was in arrears with public servants' salaries and suppliers. The insufficiency of revenues was due to widespread tax credits distributed to firms, as well tax fraud and avoidance.¹⁰ The fiscal recovery engendered by Hartung in his first mandate was based on improving the revenue base, the elimination of wasteful tax credits and ensuring proper tax collection. Together with the commodity boom of 2003-2010, they contributed to substantial increase in revenues during his two consecutive mandates. Between 2002 and 2008 revenues increased by 93.1 percent in real terms (Garson, 2009). The inherited budget deficit of R\$ 89 million in 2002 (in 2008 prices), became a R\$ 869 million surplus in 2008. He left the state in excellent fiscal condition in 2010. However, his successor¹¹ expanded substantially government expenditures and indebtedness, leading to the 2014 fiscal crisis.¹²

The overall emerging pattern is that fiscal crisis often (though not always) leads to a period of fiscal discipline, but sustaining a serious fiscal adjustment under different governments is neither easy nor common, and often there is a return to fiscal indiscipline. However, after two cycles of stabilization with positive repercussions in social outcomes, it is likely that the population has learned that fiscal stability has its merits and starts to evaluate negatively populist initiatives. In a few years it will be possible to assess whether Espírito Santo has, like Ceará, finally embraced a lasting culture of fiscal responsibility.

4.2.3 Goiás: Recent Fiscal Deterioration

The highly urbanized state of Goiás in the center-west of Brazil has a 2.8 percent share of national GDP and the eighth- highest income per capita. Until 2018, the state was governed for over two decades by the same political group, which failed to ensure sound fiscal management, despite a serious attempt in 2015-16 led by the new secretary of finance in view of the dire fiscal condition

¹⁰ In fact, tax credits were allocated to individual firms by the state assembly leaders.

¹¹ Renato Casagrande, who was also elected again in 2018 to succeed Paulo Hartung as governor for the second time.

¹² Government debt increased from 39.5 percent of net current revenues in 2011 to 65.5 percent in 2014.

of the state.¹³ The 2018 elections followed the fiscal political cycle pattern. However, the dominant group lost despite an attempt to spending its way to victory through fiscally irresponsible behavior, which led the new administration to declare at the beginning of January 2019 a state of “fiscal calamity.”

The heavy legacy facing the new administration may be thus summarized:

- As of January 1, there were approximately R\$ 3.1 billion of unpaid commitments, even though formally these added up to only R\$ 855 million. A total of R\$ 2.3 billion did not even become formal budget commitments in 2018, despite being a clear legal obligation under the law, with R\$ 1.8 billion of uncommitted expenses related to December government employee salaries. The practice is illegal under Law 4.320/64 which states that expenditures belonging to a specific fiscal year should be committed in the year.
- The fact they were not committed (“empenhados”) by December 31, 2018 was a ruse perpetrated by the previous state government in order to end the fiscal (and calendar) year with a positive cash balance in the state account (of R\$ 11 million) and a positive primary balance (~ R\$ 1 billion). By this fictitious initiative—not committing to pay obligatory expenses—state officials were able to avoid formally incurring in a crime of fiscal responsibility under the Law of Fiscal Responsibility (LC 101/2000).
- Under this legislation (Art. 42), it is forbidden to contract expenditures in the last eight months of the mandate of the administration which cannot be paid in its entirety in the same year, or for which there are payments in the subsequent year for which there is no provision of cash balances in the state’s accounts.
- The net result was that the 2019 budget presented a deficit of R\$ 6 billion, of which R\$ 3.5 billion “structural” in nature and R\$ 2.5 billion of carryover unpaid expenses, while the 2020 budget proposal projects a deficit of R\$ 3.6 billion (12 percent of total revenues).

¹³ See SEFAZ (n.d.), particularly pages 8-11. The secretary of finance, who led the effort, resigned at year’s end 2016. Thus, after two years of adjustment, the (same) government regressed to a pattern of overspending, accelerated in the election year of 2018.

Over and above the electoral cycle, there was a massive institutional failure among institutions that were supposed to ensure the adherence to basic norms of good fiscal behavior.

The first of those failures was by the state assembly, which over the years was able to capture political rents, by trading a lax approach to overseeing state accounts for an accommodating posture by the executive, when it came to political patronage and the transfer of resources to the Assembly proper. Second, the State Accounts Tribunal—formally an institutional arm of the Assembly but de facto functioning in a quasi-independent fashion—was historically led by allies of the dominant political group, and therefore had the wrong incentives to ensure more than a modicum of fiscal integrity by the state government. In fact, the very criteria used by the Accounts Tribunal to assess the extent to which the state was being fiscally responsible facilitated bypassing fundamental rules of precautionary behavior when it came to supervising and auditing expenditures, mainly personnel. Third, the Federal government Secretary of Treasury during Dilma’s first administration displayed quite a lenient approach towards the states’ fiscal accounts, reflecting the years of (irresponsible) fiscal expansion and waste in government. In fact, the Ministry of Finance during those years encouraged states to take up debt (including foreign exchange denominated loans) while fudging the fiscal numbers. This practice was carried out to such an extent that since 2016 the reconstruction of public finances has been accompanied by the recalculation of the states’ fiscal accounts, with stricter criteria to more fully reflect fiscal performance.

As in most other states, the fulcrum of the fiscal problem, which Goiás faces, is bloated personnel expenses, which were already beyond the 60 percent limit in 2015-17, despite attempts to rein them in, and took an extreme turn in 2018. The state accommodated political demands in the hopes—usually well founded—that the Federal government would find a way to bail it out. And indeed, that happened multiple times, in a way that the state was able to manage its stock of debt and leave for a future date addressing the “flow” problem. For the public administrator, revenues are fundamentally exogenous and determined by the economic cycle, although tax management can always be improved (by targeting the large and customary tax evaders, while reducing tax expenditures).

The hard work, however, lies on the expenditure side. This was not facilitated in the case of Goiás in view of both institutional failure, and imperfect fiscal and accounting rules which pushed the state into fiscal distress. Table 18 presents Goiás’ fiscal performance during the last

term (2015-18). First, personnel expenditures are systematically over the limits imposed by the Fiscal Responsibility Law, once public sector accounts are adjusted and correctly reported, despite the significant fiscal consolidation which was undertaken in 2015-16 (and abandoned thereafter). Second, those expenditures jump by no less than 6.2 percent of net current revenues during the election year of 2018. Third, the trajectory of the savings rate plunged again in 2018, putting in jeopardy state investments. In fact, all investments currently undertaken by the state depend on federal transfers, as the state has no endogenous capacity to finance its investment needs, including but not limited to social infrastructure. Finally, debt service as a proportion of net current revenues reached single digits as of 2017, reflecting that its burden is of second order importance post-debt restructuring and that the debt path is sustainable.

Table 18. Goiás Fiscal Indicators, 2015-19

Main Fiscal Indicators For Goiás					
<i>% of Net Current Revenues</i>	2015	2016	2017	2018	2019
Net Personnel Expenditures	59.2%	57.0%	58.4%	65.5%	58.3%
Other Current Expenditures	46.7%	49.9%	49.1%	48.2%	48.1%
Debt Service	15.4%	10.2%	8.7%	8.5%	4.4%
Investments	6.8%	4.1%	6.2%	5.6%	2.1%
Savings	12.4%	9.0%	9.3%	4.9%	1.5%
Budget Result	-10.7%	-2.7%	-2.0%	-6.5%	2.1%
Net Debt	97.6%	95.2%	92.0%	94.9%	78.3%

Source: STN.

In sum, when the new Administration declared a state of fiscal calamity in early 2019, the extreme situation was a reflection of a specific pattern associated with a long-established culture of using the state apparatus for private purposes, even though some progress was achieved in modernizing the economy and providing improved social services.¹⁴ Despite fiscal measures designed to stabilize the state accounts in 2015-16, government resources continued to be diverted to secure support through political patronage, and from institutions which were supposed to

¹⁴ The most striking results were obtained in education, as attested by the IDEB index (which reflects proficiency in grades 1-9), with respect to which the state moved from 7th to 2nd place for grades 1-5, 11th to 1st place for grades 6-9, over the 2005-17 period. In addition, for grades equivalent to high school (“ensino médio”), the state climbed from 13th to 1st place during those years. Obviously, these achievements should not have come at the cost of the extreme fiscal fragility that the state experienced by end 2018 (and on a recurrent basis in previous years).

oversee the quality and integrity of fiscal management. Such fiscally corrosive practices tend to become exacerbated during election years, and this was indeed the case in 2018. The result is a state struggling to regain its fiscal ground. It had to undertake a tough fiscal adjustment in its first year, and relevant reforms in the subsequent year, in order to pay for its bills, and avoid a major crisis. Among the fiscal measures taken and reforms approved in the State Assembly in 2019 were a 10 percent across-the-board cut in tax expenditures, a state pension reform, a reform of the state public employees' career structure, and elimination of earmarks in the state budget.

4.2.4 Rio Grande do Sul: A Long Trajectory of Fiscal Indiscipline

Rio Grande do Sul is the fifth most populous and southernmost state of Brazil, and in the most developed region, according to the Human Development Index. The state has the highest life expectancy and the lowest birth rate, with a fast-ageing population, and not surprisingly, a very large and growing social security deficit.

The state had the worst budget result in 2018 and 2019, with a deficit that amounted to 10 percent and 12 percent of net current revenues, respectively, three times higher than the second worst performer (Goiás). The history of fiscal irresponsibility is not new; the state has been delaying the payment of public employees' salaries for the last four years.

The fiscal problem of Rio Grande do Sul, according to the former Planning and Budget Secretary Leany Lemos, is due to very high indebtedness, a large social security deficit, and a very heavy wage bill.

The state debt reached 2.3 times net current revenues, being one of the few states to surpass the limit of 2 established by the Fiscal Responsibility Law. As a result, it has no further capacity to borrow, and its current fiscal account is impacted by its high debt service (R\$4.5 billion in 2020). For the last two years, the payment of debt service has been suspended, due to a Supreme Court decision, in response to a state injunction protecting the state's cash flow.

Over the past 10 years, personnel expenditures jumped 187 percent, more than twice the CPI inflation rate (87 percent), with state police salaries increasing by 323 percent and those of schoolteachers by 122 percent. In 2018 the state reached a ratio of net personnel expenses to net current revenues of 77 percent (in all likelihood underestimated—see Table 19). It is noteworthy that Rio Grande do Sul has the largest social security deficit in Brazil, with substantial impact on its fiscal accounts; 60 percent of its wage bill is allocated to retired state employees. For each

active public employee there are 1.63 retirees or pensioners, the worst proportion among all states. This is the result of a combination of lax rules allowing for early retirement of important categories, such as schoolteachers and police, high post-retirement benefits, and an ageing population.

Table 19. Rio Grande do Sul Fiscal Indicators, 2015-19

Main Fiscal Indicators For Rio Grande do Sul					
<i>% of Net Current Revenues</i>	2015	2016	2017	2018	2019
Net Personnel Expenditures	71.8%	65.6%	69.1%	66.9%	66.4%
Other Current Expenditures	55.0%	54.1%	55.3%	54.9%	52.6%
Debt Service	12.3%	4.9%	6.4%	1.9%	2.0%
Investments	2.8%	2.2%	2.4%	3.6%	2.3%
Savings	-0.1%	5.7%	-0.1%	3.1%	2.3%
Budget Result	-15.7%	-0.5%	-6.0%	-9.2%	-8.6%
Net Debt	261.3%	239.9%	212.4%	216.3%	216.3%

Source: STN.

In terms of the ratio of total expenses over total revenues, Rio Grande do Sul presents the worst result. For every R\$ 100 in revenues, the state spends R\$ 108, with R\$ 83 going to personnel, R\$ 17 to general expenditures, R\$ 7 to debt service and R\$ 4 to investments. In other words, Rio Grande do Sul collects tax and transfers from the federal government in order to pay personnel (active and retired, in addition to pensioners) and avoid a government shutdown. In 2019, Rio Grande do Sul achieved negative savings of 9 percent of net current revenues and a public investment rate (in terms of GDP) of 0.3 percent, or 3.6 percent. Both figures represented the worst performance among all states (in the 1970s, by comparison, public investments were 1.9 percent of GDP, or 29.7 percent of net current revenues).

In 2017, Rio Grande do Sul applied to the Ministry of Economy for the Fiscal Recovery Regime, but it was rejected due to non-compliance with certain requirements. The state took the case to the Supreme Court, which issued an injunction determining the anticipation of the regime's benefits (suspension of debt service) while the state formalized its participation. Almost R\$ 10 billion of Rio Grande do Sul debt were honored by the federal government during this period.

In the 2020 Budget Directive Law, the state forecasts a primary deficit for the next three years in the range of 0.1 percent to 0.3 percent of GDP. Currently the state is neither paying the debt service to the federal government nor its court-ordered payments (*precatórios*), both

supported by Supreme Court rulings. With those two injunctions, it is reducing its expenses by R\$ 9 billion. If injunctions were reversed, the delay in public employee's salary payment would increase from 45 days to six months.

A State Fiscal Responsibility Law was approved in 2016, as a complementary law to the federal Fiscal Responsibility Law of 2000. It establishes directives to reach balance over time in its accounts and sets certain rules that limit personnel and maintenance expenditures growth for the Executive, the Judiciary and the Legislative branches, but it has been violated since then. Exclusions of personnel expenses arising from alternative accounting standards set by its Court of Accounts allow the state to bypass both federal and state laws. In the words of former Secretary Leany Lemos: "We are masters in creating laws and rules that are bypassed."

Finally, having inherited a very difficult fiscal situation, the current administration is making an earnest effort of fiscal adjustment, having approved structural reforms, including in social security and the state apparatus.

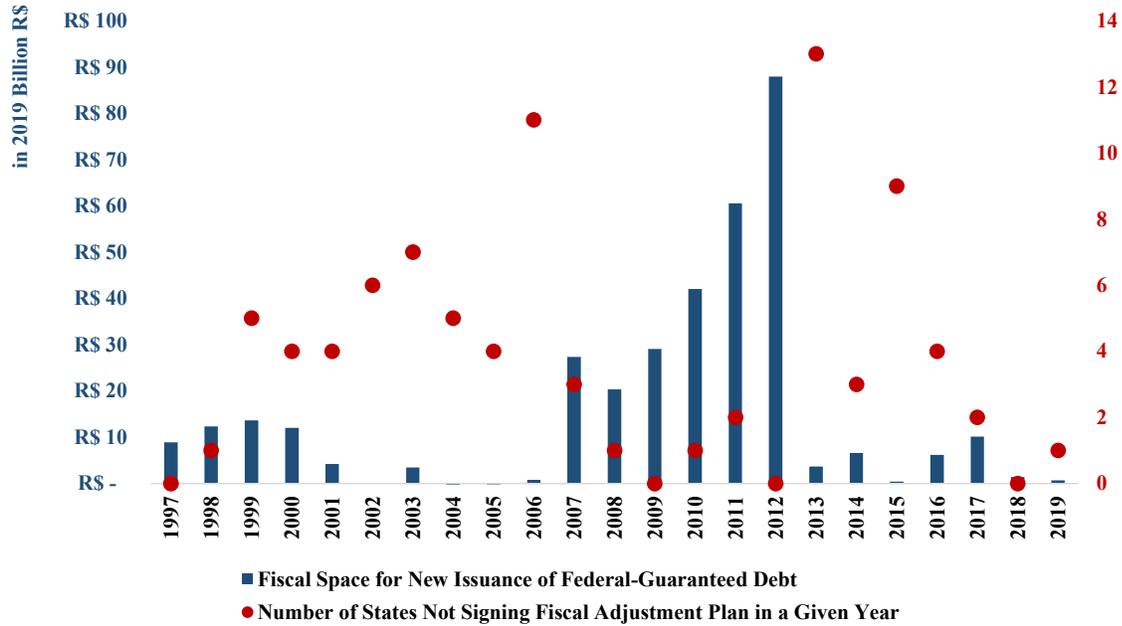
5. Evaluation of Subnational Fiscal Rules: Implications for States Debt Dynamics and Expenditures

Would the enforcement of an appropriate fiscal rule prevent the recent deterioration of states accounts and reduction of public investments? In this section we address this issue with counterfactual simulations of two alternative fiscal rules for subnational governments. For every fiscal rule we calculate and report in aggregate the counterfactual trajectories for expenditures, investment and debt. We start by providing some background information on the evolution of states' debt and investment from an aggregate perspective.

5.1 Evolution of States' Debt Issuance and Investment

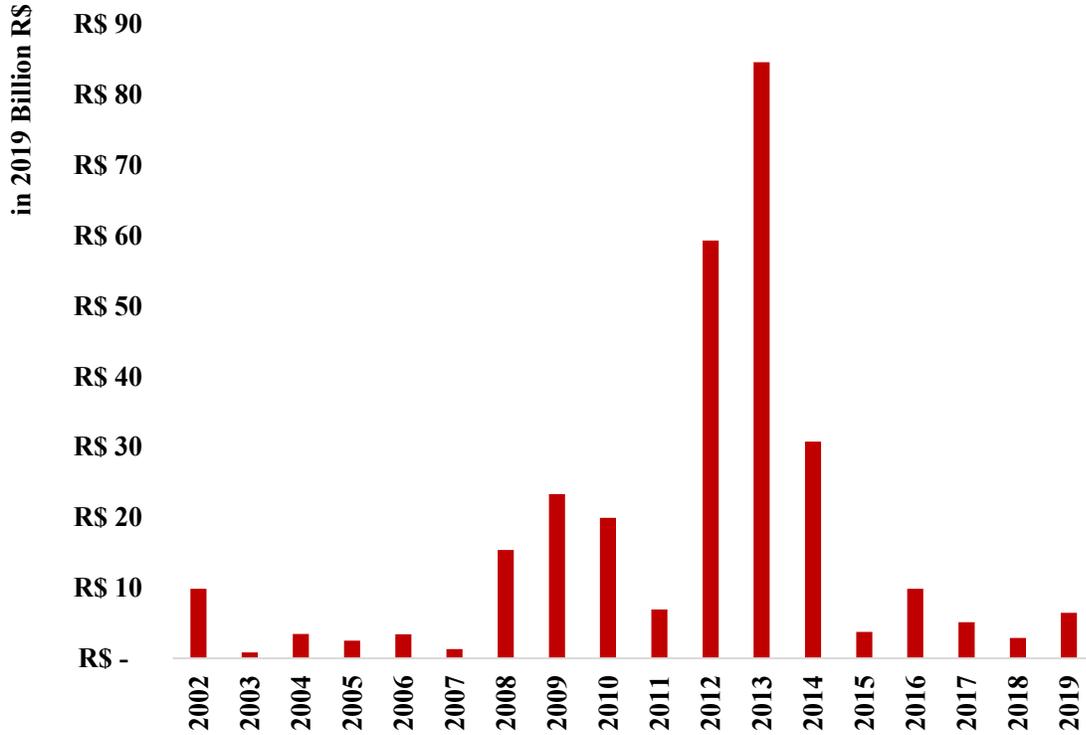
The federal government's fiscal policies experienced a reorientation when Finance Minister Guido Mantega replaced Antonio Palocci in 2006. As shown in Figure 13, from 2007 to 2012 the government allowed states to increase their debt, in part with federal-level guarantees. "Fiscal space" captures how much debt a state can raise in a given year if it formally commits to follow fiscal targets in the Fiscal Adjustment Plan set by the National Treasury.

Figure 13. Fiscal Space for New Issuance of State Debt



Source: STN.

Figure 14. Federally Guaranteed Debt Issuance: All States



Source: STN.

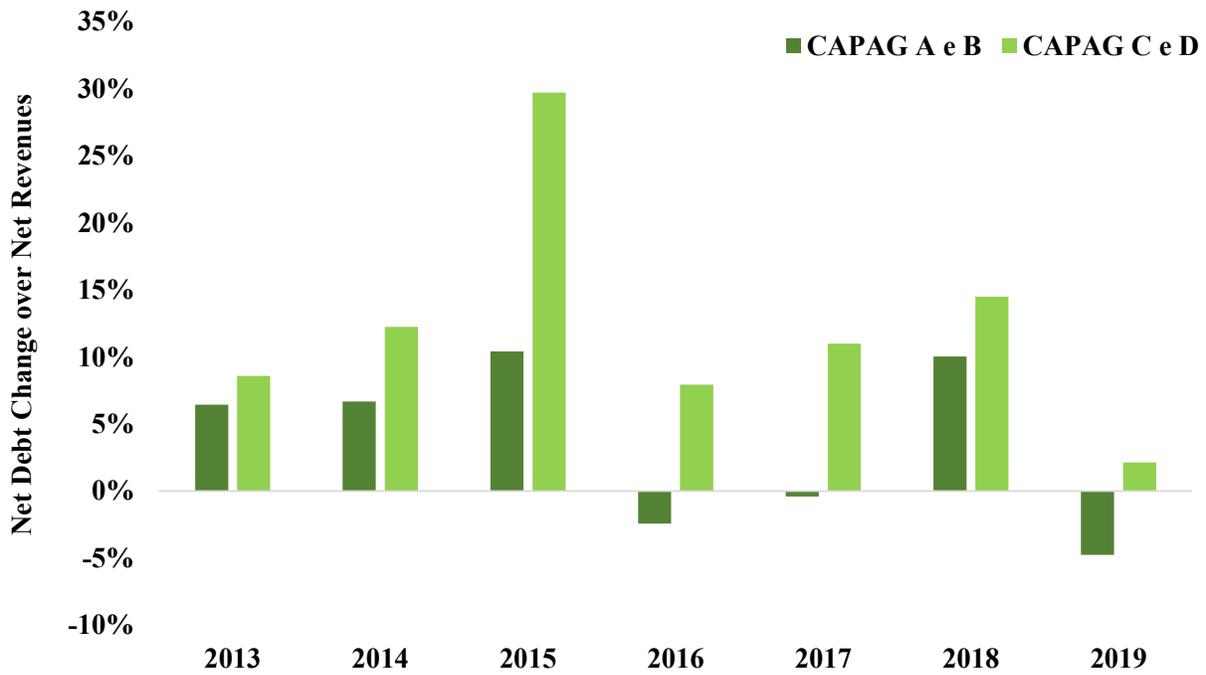
States are constrained to increase their indebtedness without federal guarantee. Therefore, the evolution of their federal-guaranteed debt issuance is illustrative of the actual fiscal space they face. Figure 14 shows that states federal-guaranteed-debt increased substantially in the years 2008-2014.

The rationales invoked for the abrupt expansion in fiscal space in the 2007-2012 period included the following: i) countercyclical reaction to the 2008 crisis, ii) 2014 World Cup financial needs, and iii) investments required for the Rio de Janeiro Olympics. Note that many states did not sign the fiscal adjustment plan in 2013. Nonetheless, access to federal guarantees peaked in 2013 (see Figure 14).

In order to issue debt with federal guarantees a state must obtain a credit rating (CAPAG, as discussed in earlier sections) equal to A or B. The CAPAG rule was defined in 1997 and underwent changes in 2012 and 2017. The 2012 amendment authorized CAPAG C and D states to obtain federal guarantees at the discretion of the Ministry of Finance. This arbitrary and subjective mandate was terminated at the end of 2017, after a new CAPAG regulation was published, with a clearer definition of the ratings. The 2017 version of CAPAG definition is detailed in Appendix A2.2.

There was an expansion of debt issued by CAPAG C and D states from 2013 until 2018 (Figure 15). The increase until 2016 was favored by the discretionary decisions of the Ministry of Finance. However, even in 2018 there was still a CAPAG C and D positive net debt change, particularly from Rio de Janeiro (which is under a special regime of fiscal recovery, the FRR) and Minas Gerais, both in financial distress.

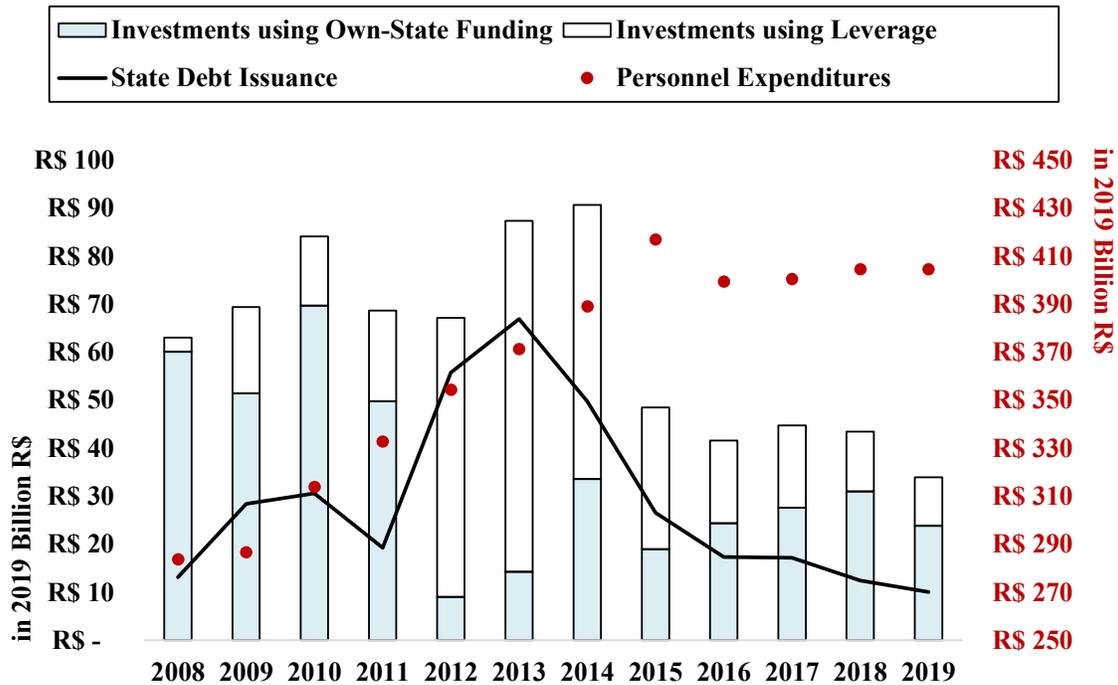
**Figure 15. Change in Net Debt Over Net Revenues
for States with Differential CAPAG Ratings**



Source: STN.

The main reason for a state to borrow would be to invest, but apparently some states were diverting the extra resources to cover other expenditures, personnel in particular (Figure 16). While investments using own-state funding dropped from an average of R\$ 55 billion to R\$ 20 billion in real terms between 2008-11 and 2012-2018 (with the highest proportion of own-investments over total investments dropping from 95 percent in 2008 to 13 percent in 2012), personnel expenditures increased in parallel, which suggests that the new sources of funding were used to increase current expenditures.

Figure 16. Investment and Debt Level: State Path, 2008-19



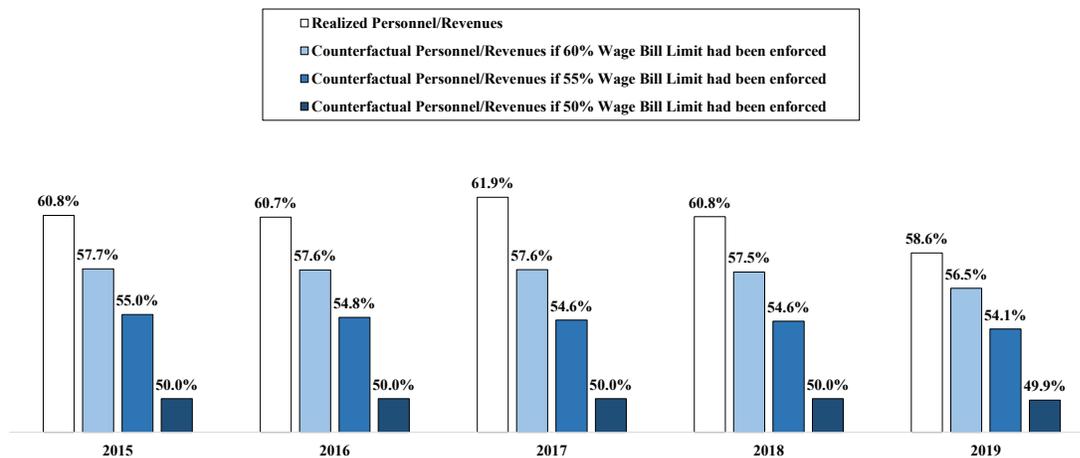
Source: STN.

Note: Investments and debt in the LHS; personnel expenditures in the RHS.

5.2 Personnel Expenditures and the Wage Bill Rule: Actual and Counterfactual Evolution

In Section 4, we pointed out that states’ personnel expenditures increased substantially in the last decade. In this subsection we establish that strict enforcement of FRL wage bill limits would bring significant fiscal relief for states, allowing them to reallocate such expenditures to public investment, a reduction in debt levels, or a combination of both.

Figure 17. The Magnitude of Fiscal Relief as Percentage of Net Revenues: Consequences of Wage Bill Limit Enforcement with Hard Limits of 60 Percent, 55 Percent and 50 Percent



Source: STN, Authors' calculations

According to the FRL, personnel expenditures at the state level could not exceed 60 percent of net current revenues, but the average personnel expenditures across states already surpassed the 60 percent limit, reflecting a systematic violation of this rule. We simulate the counterfactual evolution of fiscal variables for years 2015-2018 under three alternative limits for the personnel expenditures, assuming that they were binding and thus enforced: the actual limit of 60 percent and lower limits of 55 percent and 50 percent. The limit of 50 percent was proposed by the Finance Secretary of Goiás, Cristiane Schmidt, who argues that the 60 percent limit is too high. Since 50 percent would be very restrictive, given the current figures for those expenditures, we also simulated an intermediate limit of 55 percent.

Results for the aggregate personnel expenditures over states' net revenues are shown in Figure 17, and the aggregate amount of resources saved is reported in Figure 18. Figure 19 shows how public investments would have evolved under those rules if the resources saved were used instead to finance their expansion, while Figure 20 shows the effect on the states' debt if they prioritized reductions in personnel expenditures reduction over an increase in investment.

Notice that even the current 60 percent rule would bring sizable reduction in expenditures if enforced. Since a number of states have wage bills above 60 percent, the enforcement of the rule would bring an aggregate decrease in expenditures of 3 to 4 percent of aggregate net revenues (Figure 17) and generate aggregate fiscal relief of R\$20 billion to R\$30 billion (Figure 18). These

savings could have prevented investment from reaching levels extremely low levels, close to 0.5 percent of GDP, and keeping it between 0.9 percent to 1 percent of GDP. Alternatively, if the savings were used to pay off states' debt, the debt/GDP ratio would increase only moderately, from 9.6 percent of GDP to 10.4 percent, instead of reaching 12 percent.

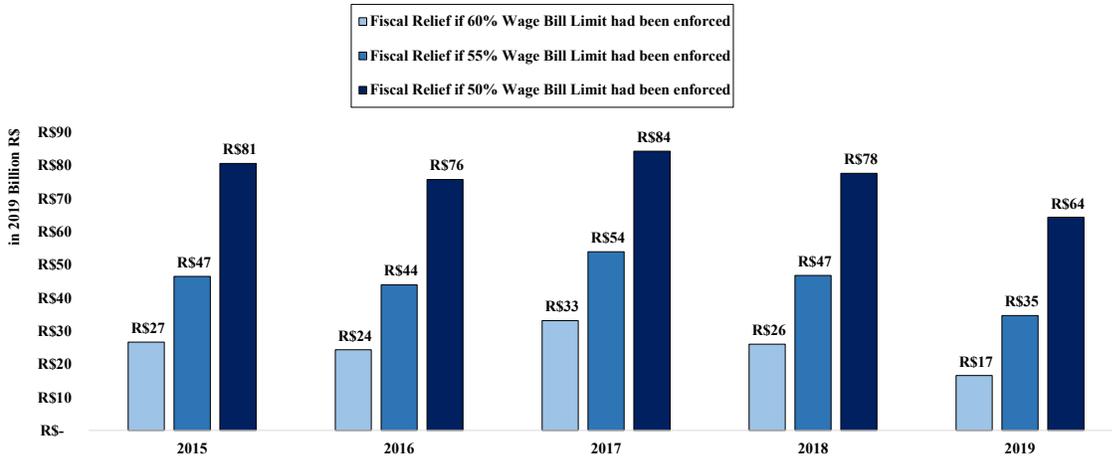
Still, even if the 60 percent rule were enforced, it would not have prevented deterioration in investment and indebtedness, since even if all savings were directed to one use, the amount would not be enough to prevent a mild deterioration of that indicator, while the other would continue to worsen at a relatively fast pace. In order to prevent both a reduction of investment and an increase in indebtedness, a stricter rule would have to be applied.

A 50 percent rule would have a powerful effect. If it were in place, the amount of yearly savings would be between R\$ 64 billion and R\$ 79 billion, nearly three times those of the 60 percent rule, if the latter were enforced. If those resources were used for investment, its rate would reach 1.63 percent to 1.73 percent of GDP, 40 percent above the 2014 rate, and about three times higher than the current rate. If the savings were used towards debt amortization, the total states debt would be reduced by more than 2 percent of GDP, from 9.6 percent to 7.4 percent. Of course, the substantial savings generated by this rule could be split between the two goals of increasing investment and at least preventing a rise in states' indebtedness.

Would an intermediate ceiling of 55 percent be a strong enough medicine to achieve substantial improvements? The answer is no. It would slightly increase the investment rate from its 2014 level, while debt would deteriorate substantially. Or it could reduce the states' indebtedness by 0.5 percent of GDP, while letting states' investment fall to less than half.

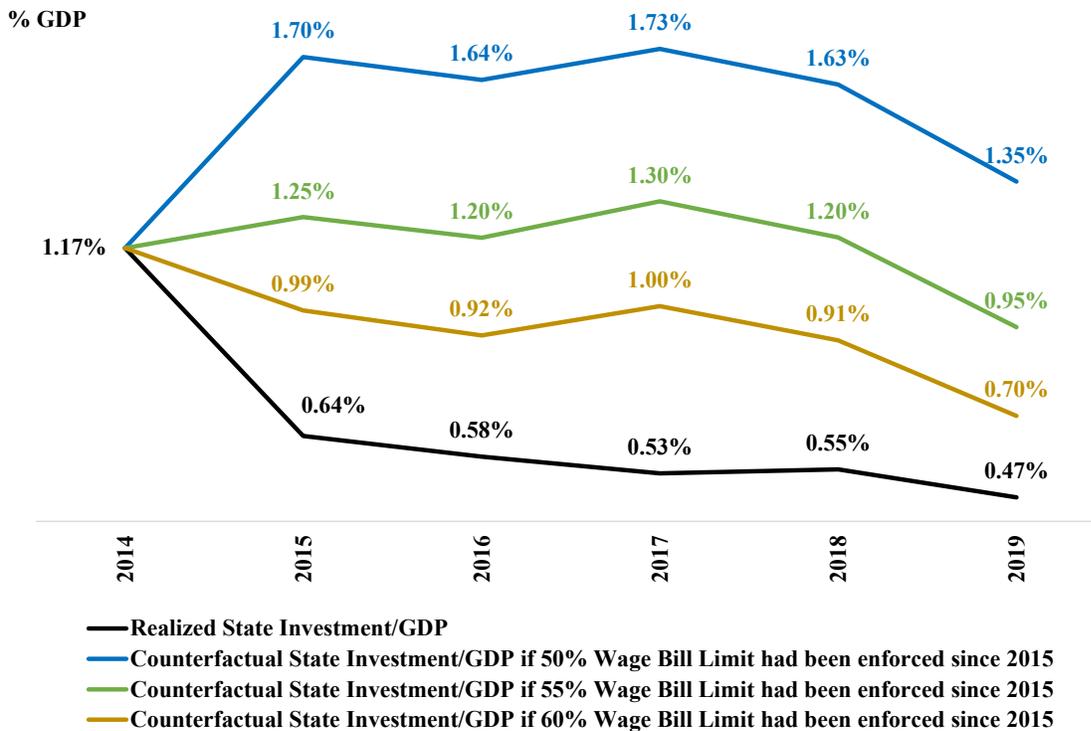
We conclude that a limit of 50 percent for personnel expenditures could generate enough fiscal relief to improve states' investment while preventing an increase in indebtedness. However, this type of rule could not be immediately enforced, since states' wage bills substantially exceed the 50 percent limit, requiring a transition period. In order to facilitate adjustment, harsh measures should be triggered when the limit is reached. Additionally, manipulation of accounting rules or judicial decisions that exempt states from following the stricter rule would need to be impeded or overturned. This which would require a constitutional amendment where unified accounting principles and adjustment measures triggered by the limit should be clearly stated. Details on the fiscal rule proposed here are outlined in Section 8.

Figure 18. The Magnitude of Fiscal Relief in 2019 R\$ Billion: Consequences of Wage Bill Limit Enforcement with Hard Limits of 60 Percent, 55 Percent and 50 Percent



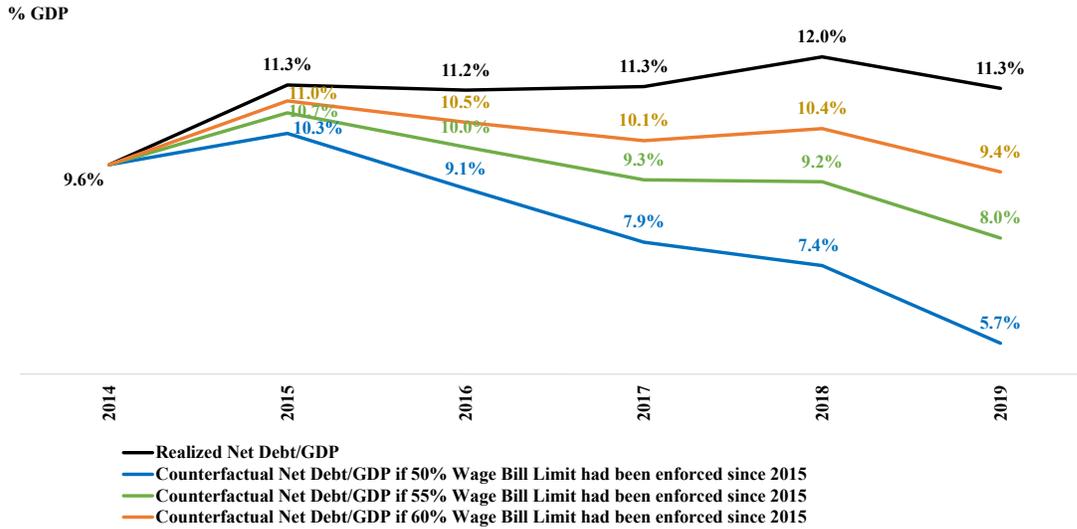
Source: STN, Authors' calculations

Figure 19. Effects of Wage Bill Rule Enforcement on State Investment



Source: STN and authors' calculations.

Figure 20. Effects of Wage Bill Rule Enforcement on State Debt



Source: STN and authors' calculations.

5.3 Inflation-Adjusted Expenditure Ceilings at Subnational Level

We now evaluate the implementation of an expenditure ceiling at the state level. We propose four types of ceilings: i) limits on primary expenditures growth, ii) limits on current expenditures growth, iii) limits on primary expenditures growth but excluding health and education expenditures from the ceiling computation, and iv), limits on current expenditures growth but excluding health and education expenditures from the ceiling computation.¹⁵ Starting at 2015, we stipulate that nominal expenditures will grow at the rate of CPI inflation. We will denominate a net expenditure limit where health and education expenditures are excluded from the limit.

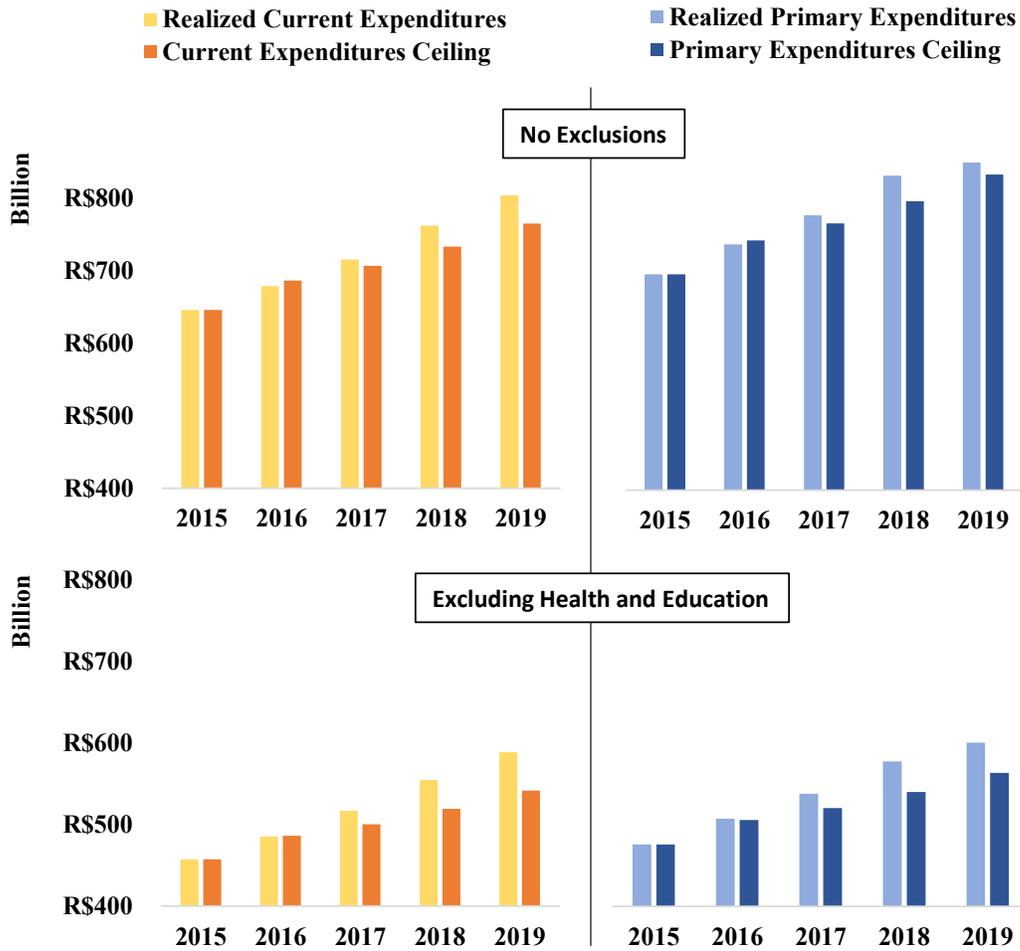
The primary expenditure ceiling without exclusions is similar to the federal one. The rationale for excluding health and education is due to the potential sizeable social impact from expenditures in those two areas. The alternative of limiting current expenditures, instead of primary expenditures, allows investments to grow above inflation.

Figure 21 shows current and primary expenditures paths that would be observed if a ceiling were imposed in 2015, taking effect in 2016 and continuing through 2019. The expenditures trajectory is basically the same regardless of which ceiling definition we adopt. Yet, when the

¹⁵ Rule iv) is inspired by the one that is currently in place in Ceará. There, the expenditure ceiling legislation caps (primary) current expenditures (personnel) beginning in 2017 and for the next nine budget cycles, limiting increases either by the inflation index or 90 percent of net current revenues (if positive)—typically whichever is higher—and excluding health and education. See https://www2.al.ce.gov.br/legislativo/legislacao5/leis2016/ec88_16.htm

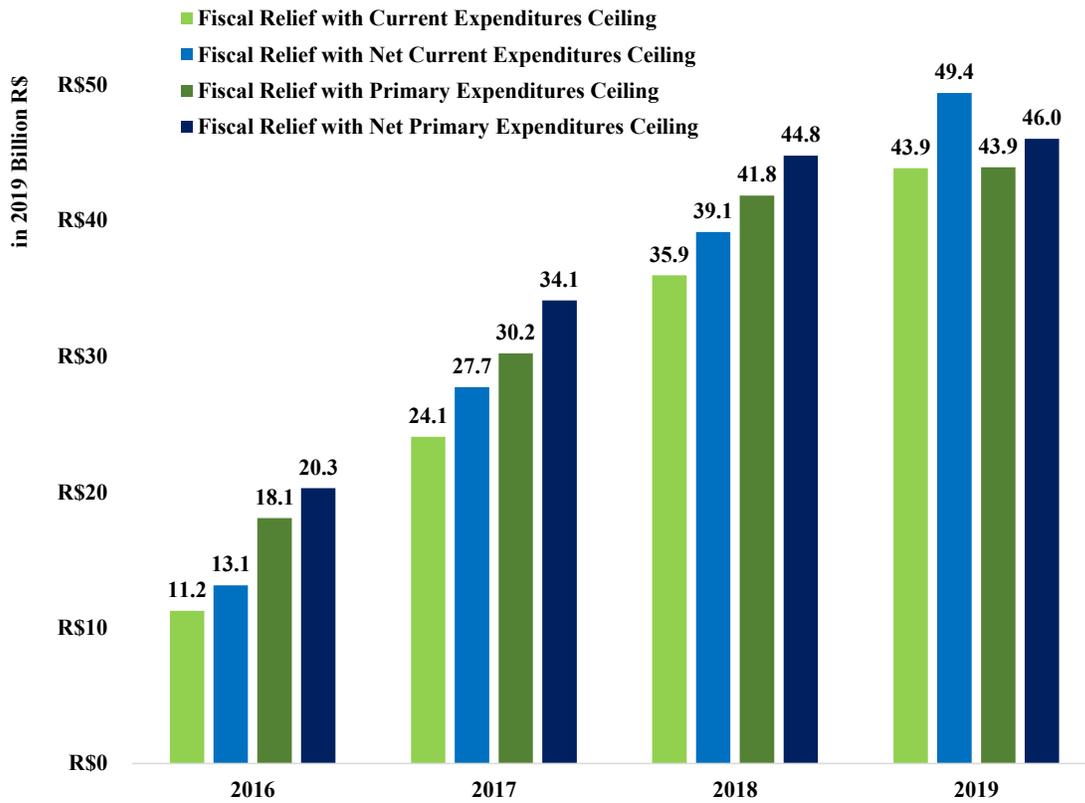
ceiling excludes health and education, it affects on average only 72 percent of total expenditures (either current or primary).

**Figure 21. Actual Expenditures vs. Hypothetical Expenditures Ceiling:
Current and Primary Expenditures Projections for 2015-2019**



Source: STN and authors' calculations.

Figure 22. Cumulative Fiscal Relief for Each Expenditures Ceiling Rule



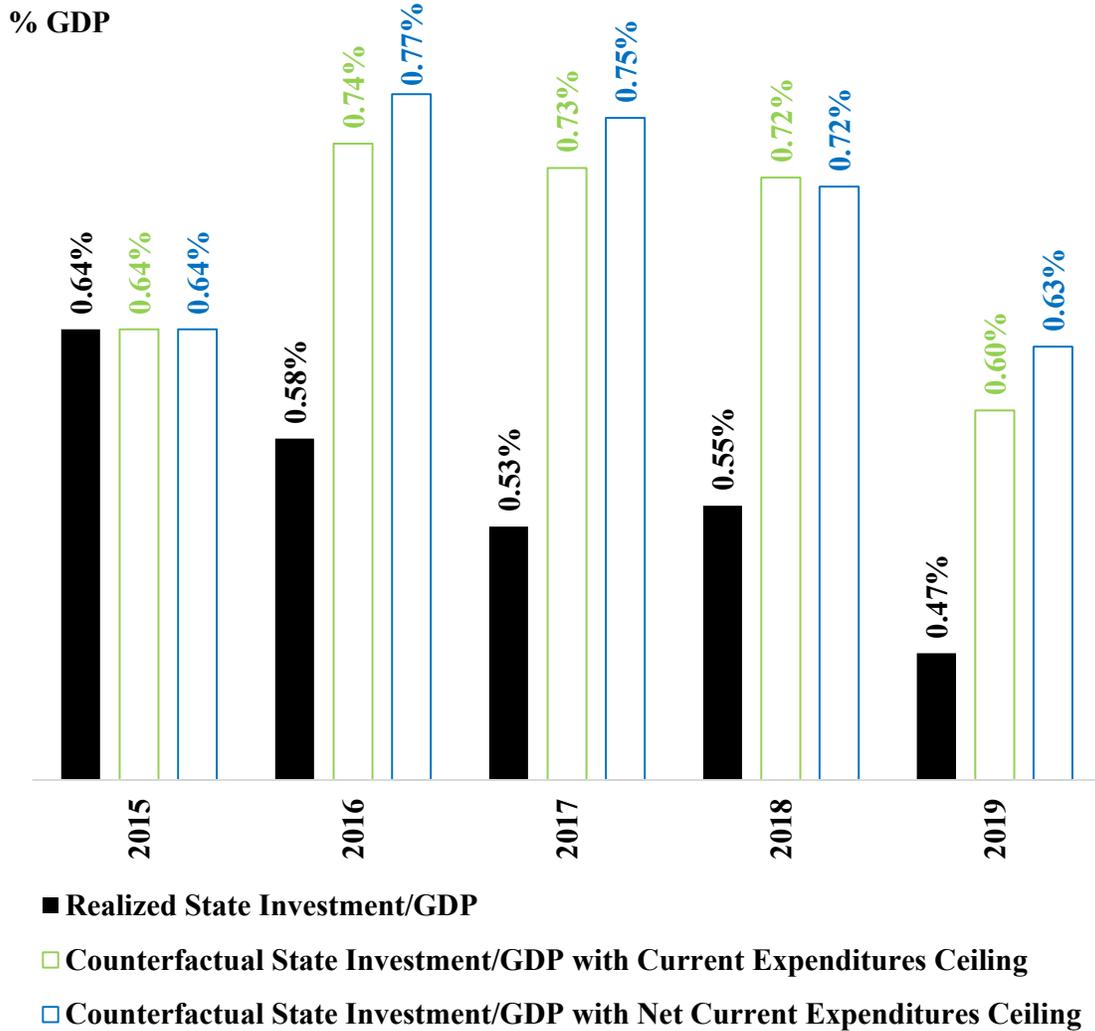
Source: STN and authors' calculations.

The estimated cumulative fiscal relief from imposing each expenditure ceiling is shown in Figure 22. A ceiling using primary expenditures net of health and education expenses was able to deliver the second fastest and largest fiscal relief next to one which focuses on current expenditures. After only four years of the ceiling rule, states are able to save in real terms for investment and debt amortization up to R\$ 49.4 billion, equivalent to 8.4 percent of 2019 aggregate net current expenditures, while the ceiling on net primary current expenditures delivered the second highest. However, we should emphasize that those results depend on the phase of the economic cycle, since health and education expenditures have floors linked to revenues. During economic recovery, those two expenses grow more than other expenditures, leading to the differences observed above.

We now evaluate the effect on aggregate states' investment and leverage if fiscal relief arising from an expenditure ceiling had been directed to alter the trajectory of each of those two variables. For the case of investment, we provide a counterfactual analysis only when the

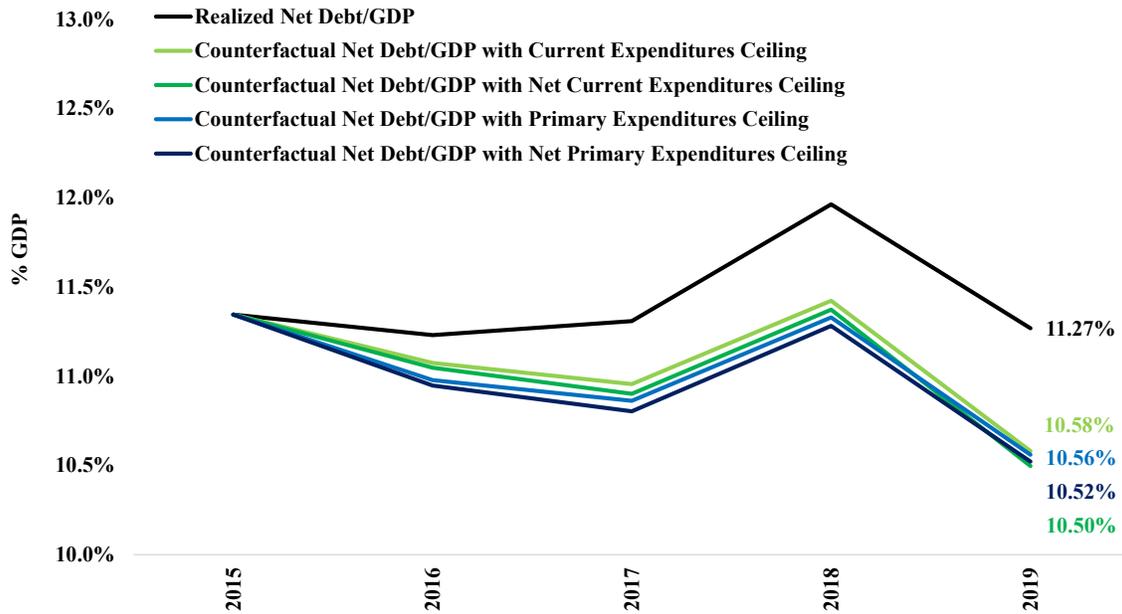
expenditure ceiling is imposed on (gross or net) current expenditures, since investments tend to be curbed when a primary expenditures ceiling applies. Figures 23 and 24 present our simulation results.

Figure 23. Effects of an Expenditure Ceiling on State Investment



Source: STN and authors' calculations.

Figure 24. Effects of an Expenditure Ceiling on State Debt



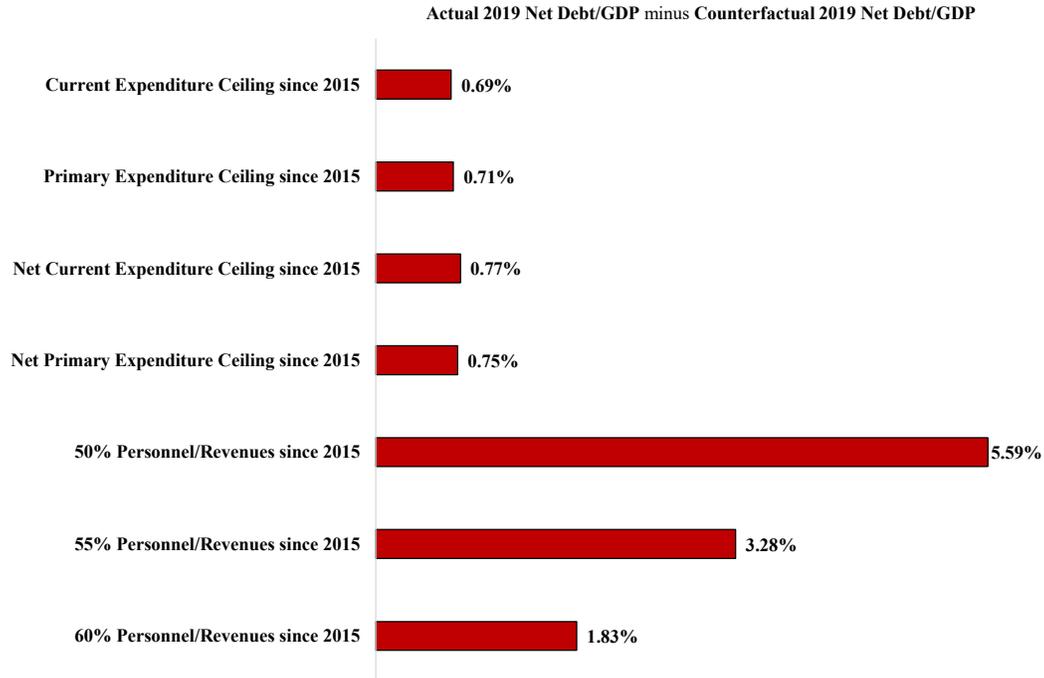
Source: STN and authors' calculations.

From Figures 23 and 24 we see that the effects are moderate, and that all tested expenditure ceiling rules lead to similar effects on investments or debt. We thus conclude that i) an expenditure ceiling has limited effect in the short term, but its impact increases with time; and ii) the four ceiling definitions provide qualitatively similar results, with marginal quantitative differences.

5.4 Overall Findings

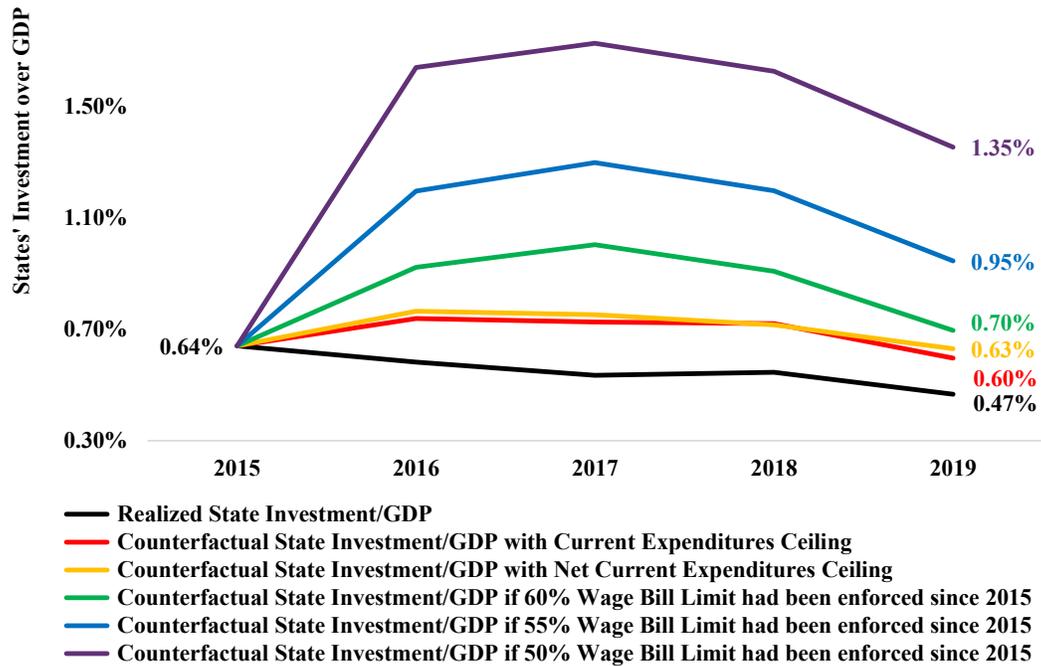
Figure 25 summarizes our findings on the impact of alternative fiscal rules on states' debt reduction, while Figure 26 on their aggregate investment. In Figure 25 we report 2018 actual net debt over GDP in excess of 2018 counterfactual net debt for each rule (in this instance there are a total of seven alternatives), while in Figure 26 the actual and counterfactual investment trajectories from implementing the five subnational fiscal rules (as explained above).

**Figure 25. States' Leverage for Each Fiscal Rule Simulation:
Actual vs. Counterfactual**



Source: Authors' calculations.

**Figure 26. States' Investment for Each Expenditure-Driven Fiscal Rule Simulation:
Actual vs. Counterfactual**



Source: Authors' calculations.

It is clear from the figures that a binding limit on personnel expenditures on the order of 50 percent of net revenues generates much larger fiscal relief than the alternative rules. As a consequence, it leads to a substantial increase in public investments, or a significantly reduction in state leverage. More generally, expenditure control through wage bill limits rather than overall expenditure ceilings are far more effective in improving states' fiscal outcomes. This is consonance with the lessons drawn from case studies, which indicated that the substantial increase in personnel expenses is the main fiscal problem to be tackled. It is also consistent with our regression analysis results, where personnel expenditures were found to be negatively related to investments.

In view of the need for a sharp adjustment in personnel expenditures, it could be argued that states would need a long transition period, of at least a decade if not much longer. We take issue with this assertion for two reasons. First, the degree of fiscal fragility in Brazil is not only high but fast deteriorating, and it will affect both the federal and states governments (in addition to municipalities), and therefore a reduction in such expenditures is urgent. Second, at least one state—Espírito Santo—has shown that with political will and technical competence, the reduction of sensitive expenditures and fiscal consolidation can be effected within a relatively short time horizon. Between 2015 and 2019, the ratio of personnel expenditures over net revenues in real terms decreased from 55.1 percent to 46.0 percent, reaching a level deemed sustainable from the perspective of the dynamics of states public accounts.

Table 20. Espírito Santo: Personnel Expenditures over Net Revenues Per Capita

in 2019 R\$			
Year	Real per capita personnel expenditures (A)	Real per capita net revenues (B)	A/B
2015	2.103.82	3.820.74	55.1%
2016	1.869.88	3.395.05	55.1%
2017	1.773.83	3.247.07	54.6%
2018	1.853.32	3.543.36	52.3%
2019	1.813.24	3.940.32	46.0%

Source: Boletim de 2020 dos Entes Subnacionais.

6. Counterfactual Analysis: Alternative Federal Expenditure Rules and their Timing

In this section we simulate the evolution of fiscal variables under alternative government expenditures rules at the federal level. We base our projections on a simple partial equilibrium model, and we build a simulator that tracks the primary surplus as a proportion of GDP, the debt-to-GDP ratio, and the composition of expenditures over the period 2020-29.¹⁶ The main goal is to assess the impact of alternative rules on the composition of expenditures and fiscal sustainability under different scenarios.

The simulator is also useful also to evaluate how likely a specific rule will be binding, and whether correction mechanisms embedded in the rule are powerful enough to ensure debt sustainability. We start by using our fiscal simulator to perform a counterfactual analysis of the effect of an expenditure ceiling rule if it had been implemented in 2010, before fiscal conditions in Brazil deteriorated.¹⁷ Then, we simulate alternative expenditures rules where different ceilings for investment and discretionary current expenditures are less strict than the one for mandatory expenditures. Finally, we simulate the effects of two measures proposed in Congress: The Fiscal Emergency Plan and Constitutional Amendment (PEC) 438.

6.1 Methodology

In the simulation, the nominal cost of public debt, inflation and real GDP growth projections are exogenous, as shown in Table 21. From 2010 to 2018, we use historical values for each year. From 2019 onwards, the data source is the Focus Market Readout¹⁸ survey forecasts, except for the nominal cost of public debt, for which we use the last 12 months' cost of issuance published by STN in September/2019 for the year of 2019 and the last month cost of issuance for all years after 2019.

For revenues and expenditures, needed to project the primary surplus, from 2010 to 2018, we use the actual (realized) values, except when simulating a counterfactual trajectory. For 2019

¹⁶ Simulated paths are produced using information available until December-2019. We evaluate the impact of COVID-19 (up to May-2020) on fiscal outcomes in Section 7.

¹⁷ The simulator spreadsheet can be download at <https://sites.google.com/site/marcoacbonomo/covid-fiscal-simulator>.

¹⁸ The Focus Market Readout reports market expectations for price indices, economic activity, exchange rate and Selic rate, among others. The expectations are provided by market analysts. The Focus is managed by Central Bank of Brazil.

and 2020, we use the Prisma Fiscal¹⁹ survey forecasts, and from 2021 on we assume revenues to grow at the same pace as real GDP. Expenditures specification will be described according to the fiscal rule, with mandatory expenditures assumed to grow at a rate half of that of GDP when an expenditure ceiling is in place.

Table 21. Macroeconomic Variables Projections

Year	Primary Revenues	Inflation	Real Cost of Debt	Real GDP Growth
2010	20.21%	5.91%	5.37%	7.53%
2011	18.86%	6.50%	5.95%	3.97%
2012	18.45%	5.84%	5.39%	1.92%
2013	18.70%	5.91%	5.11%	3.00%
2014	17.70%	6.41%	5.11%	0.50%
2015	17.40%	10.67%	4.88%	-3.55%
2016	17.36%	6.29%	5.39%	-3.28%
2017	17.62%	2.95%	7.13%	1.32%
2018	17.98%	3.75%	5.89%	1.12%
2019	18.56%	4.31%	4.13%	1.10%
2020	15.72%	2.01%	2.90%	-5.05%
2021	16.30%	3.00%	3.18%	3.50%
2022	16.87%	3.40%	3.18%	2.50%
2023	17.45%	3.25%	3.18%	2.50%
2024	18.02%	3.25%	3.18%	2.50%
2025	18.60%	3.25%	3.18%	2.50%
2026-2036	19.17%	3.25%	3.18%	2.50%

Source: IBGE, STN and BCB.

We estimate debt trajectory based on the formula below, where Y_t is nominal GDP in year t , D_t is nominal gross debt in year t , PS_t is nominal primary surplus in year t , i_t is nominal cost of public debt in year t , π_t is inflation in year t , and g_t is real GDP growth from year $t-1$ to year t .

$$\frac{D_t}{Y_t} = \frac{D_{t-1}}{Y_{t-1}} \times \frac{(1 + i_t)}{(1 + \pi_t) \times (1 + g_t)} - \frac{PS_t}{Y_t}$$

Nominal primary surplus results from the difference between primary revenues and primary expenditures. We decompose primary expenditures into mandatory and discretionary

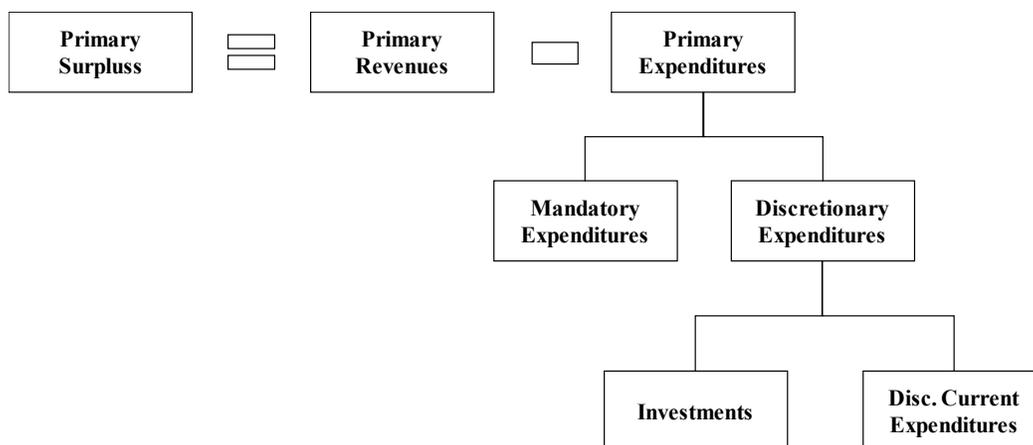
¹⁹ Prisma Fiscal is a survey of market expectations for the main Brazilian fiscal variables, providing a view from private sector analysts on the prospects of the country's fiscal policy outcomes. Prisma Fiscal is managed by the Ministry of Economic Affairs.

expenditures, where discretionary expenditures are the sum of investments and discretionary current expenditures. Figure 2 below illustrates the primary surplus decomposition.

6.2 Simulation Results

Some analysts claim that the fiscal deterioration that Brazil suffered was a result of erosion of revenues due to the 2014-2016 recession followed by a slow recovery. Others attribute it to the high rate of growth of expenditures. The exercise of the hypothetical introduction of an expenditure ceiling in 2010 can shed light on this issue.

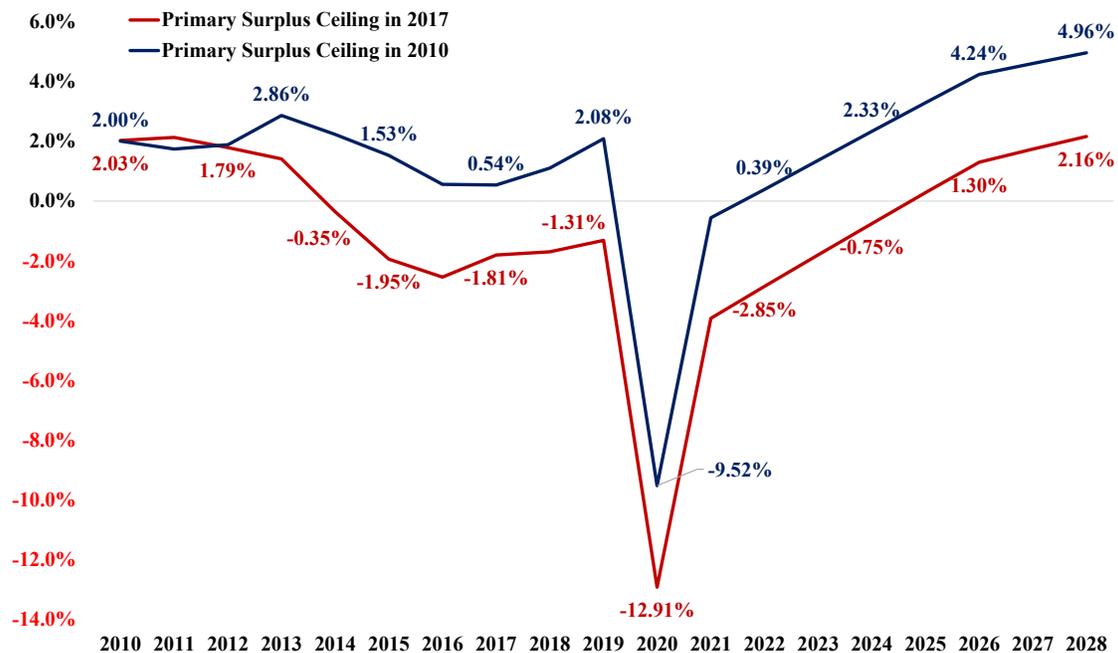
Figure 27. Primary Surplus Decomposition



Source: STN.

Figure 28 shows the primary surplus trajectory i) in the case of an expenditure ceiling was introduced in 2010 and ii) implied by the actual expenditure ceiling rule, approved in 2016 and fully implemented in 2018. In 2011 and 2012, we observe almost no difference in the primary surplus due to the hypothetical expenditure ceiling. Fiscal conditions deteriorated sharply from 2013 on. As the graph shows, had a ceiling been put in place in 2010, the country would have faced a substantially improved fiscal surplus trajectory. The deterioration in 2014-16 would have been considerably attenuated, and a vigorous recovery in the primary surplus would be observed from 2018 on. From the comparison of the two trajectories, it becomes clear that ***the main driver of the fiscal deterioration of the last decade was the high rate of growth of government expenditures***. The reduction in revenues was responsible only for a temporary deterioration of the primary surplus in the years the country faced a sharp output contraction.

Figure 28. Primary Surplus Trajectory in cases of Expenditure Ceiling in 2017 (actual) and 2010 (hypothetical)

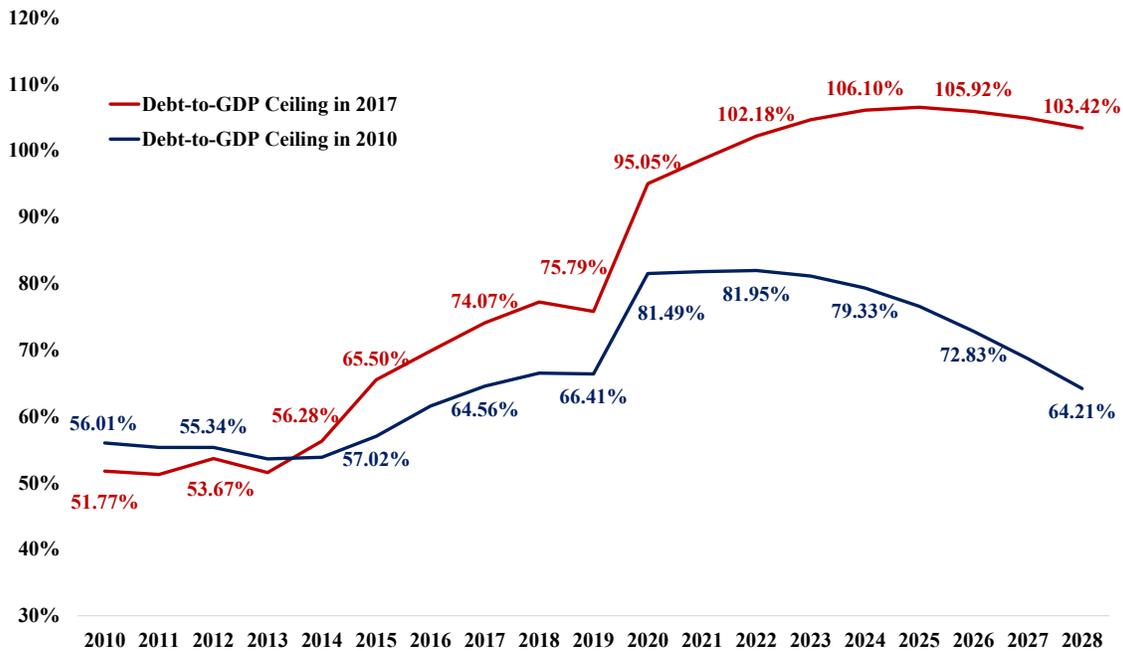


Source: Authors' calculations.

It is noteworthy that, according to the simulations, if a ceiling were imposed in 2010 there would be no year with a primary deficit. Thus, an earlier introduction of an expenditure rule could have prevented the fiscal crisis the country has faced in recent years. Figure 29 reinforces this conclusion by depicting the debt-GDP trajectory under the two policy alternatives. With an expenditure ceiling in place since 2010, the debt-to-GDP ratio would also have risen initially as a consequence of the revenue deterioration due to the 2014-2016 recession. However, the trajectory would have reached a much earlier peak in 2019 and would be descending thereafter.

Overall, a 2010 ceiling would have produced fiscal results in 2021 similar to the ones observed in 2013. It would have prevented the occurrence of primary deficits and engendered a debt-GDP ratio for 2021 20 percentage points lower than pre-COVID-19 market expectations.

Figure 29. Debt-to-GDP Trajectory in Case of an Expenditure Ceiling in 2010



Source: Authors' calculations.

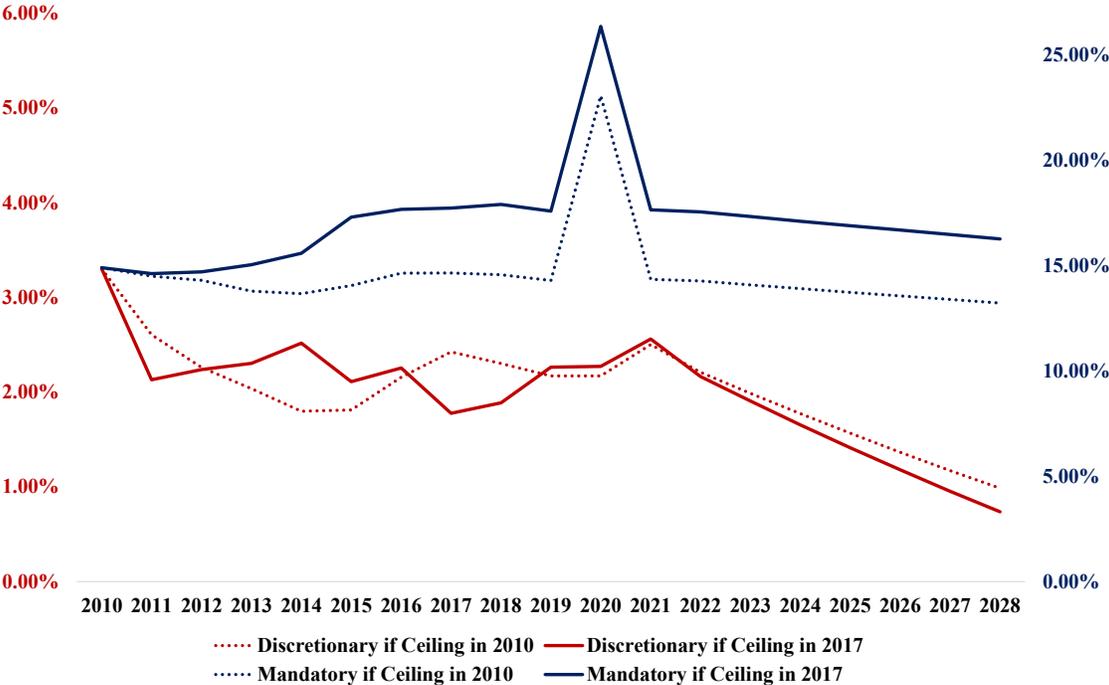
Should the ceiling affect mainly discretionary or mandatory expenditures, the former including investments? In order to answer this question, we analyze the resulting expenditure composition (Figure 30).²⁰ We notice that an earlier ceiling would have substantially curbed mandatory expenditures without essentially changing the trajectory for the discretionary component. Since discretionary expenditures are not subject to the institutional restrictions that characterize mandatory expenditures, they are the first to be trimmed.

The need for reducing expenditures in a context where most were mandatory led to the decrease of discretionary expenditures to very low levels. Consequently, both public investments and discretionary current expenditures were squeezed. Notice that current discretionary expenditures include maintenance expenses that are essential to keep public services functioning adequately, and their compression potentially threatens the provision of public services. Motivated by those considerations, we simulate an expenditure ceiling rule that entails different growth trajectories (depending on the type of expenditure), in order to protect public investment and other

²⁰ We assume that compulsory expenditures continue to grow at a rate that is half of GDP growth, which is premised on fiscal reforms. We discuss such measures throughout the paper.

discretionary expenditures. The rule allows public investments and current discretionary expenditures to increase in real terms at the same pace as GDP, while the remaining expenditures are kept constant again in real terms. We also examine the effect of a counterfactual ceiling implemented in 2010, comparing fiscal outcomes with and without different limits. We start with the latter exercise.

Figure 30. Expenditure Trajectory in Case of an Expenditure Ceiling in 2010



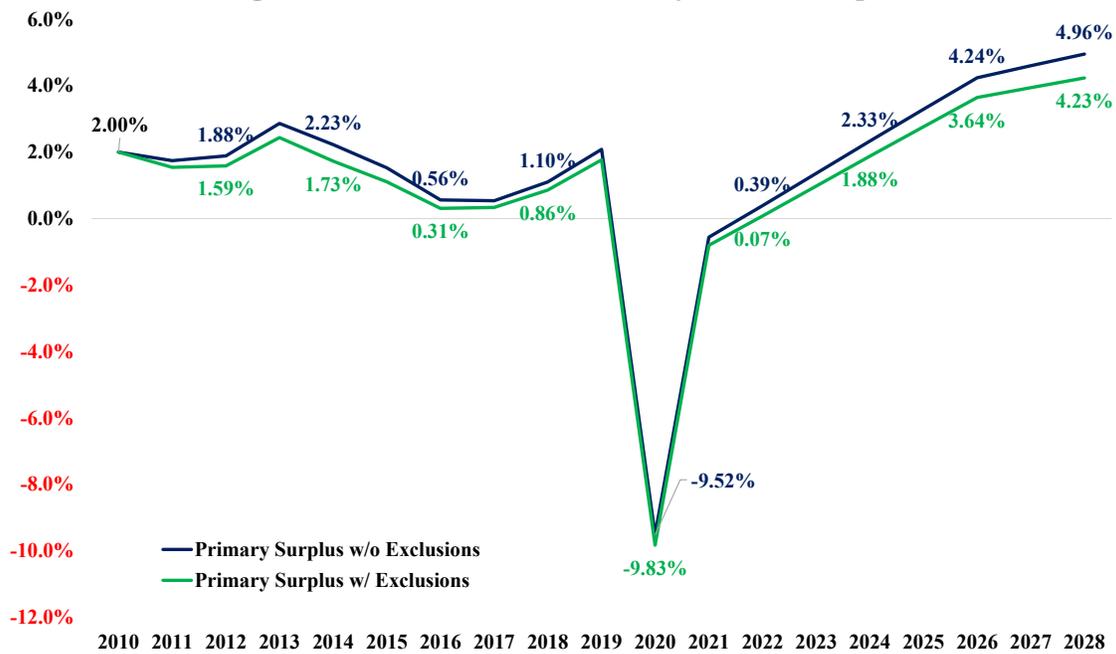
Source: Authors’ calculations.
 Note: Discretionary expenditures in the LHS; mandatory expenditures in the RHS.

Figure 31 shows the primary surplus trajectory in case of an expenditure ceiling in 2010 for two scenarios: i) including looser limits for investments and other discretionary current expenditures,²¹ and ii) excluding them. The two trajectories are qualitatively similar, although, as expected, the primary surplus is always higher when all expenditures have to obey the same limits. Notice that, even if investments and other discretionary expenditures are subject to a higher limit, we still would not observe any single year of primary deficit in the period from 2010 to 2029.

²¹ We also simulate a discretionary current expenditures floor in order to avoid federal public services shutdown. Since this floor is quite low in terms of total primary expenditures (1.11 percent of GDP, according to IFI estimation), we observe no significant changes in either debt or primary surplus trajectories.

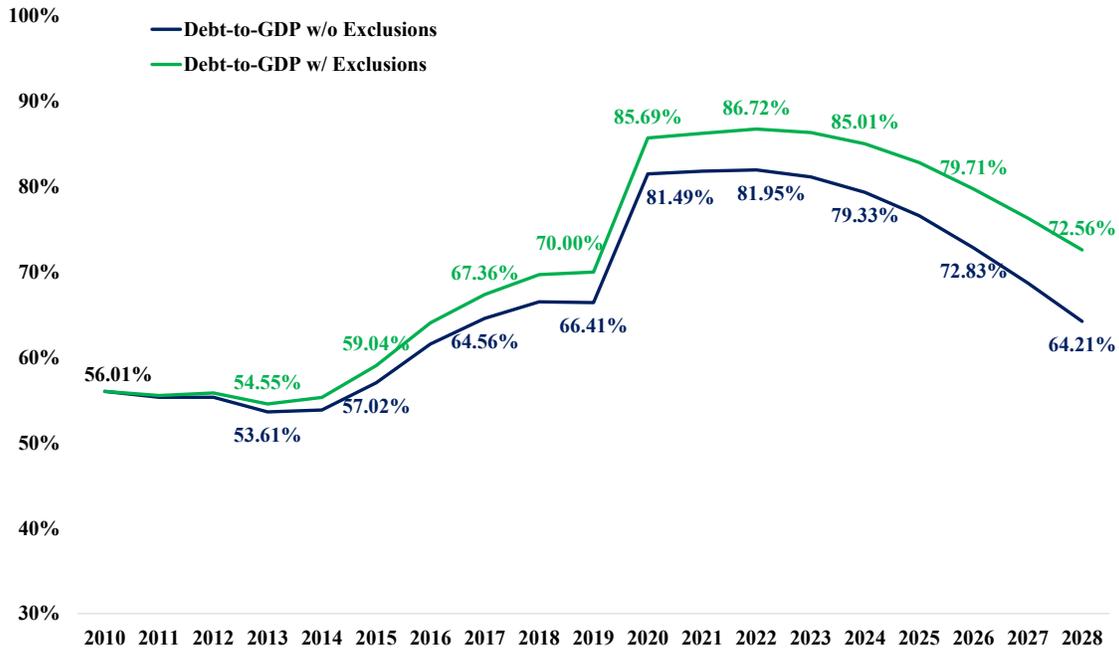
In Figure 32 we compare the debt-GDP ratio under both rules. The simulation shows that both generate sustainable paths, with debt-DGP ratios reaching a peak in 2019 and starting a descending trajectory thereafter. However, the levels are always higher for the rule with different limits. It takes two to three years more for the debt-GDP ratio to return to pre-crisis conditions when we allow investment and other discretionary current expenditures to grow at the same rate as GDP.

Figure 31. Primary Surplus Trajectory in Case of an Expenditure Ceiling in 2010 Excluding Investments and Discretionary Current Expenditures



Source: Authors' calculations.

**Figure 32. Debt-to-GDP Trajectory in Case of an Expenditure Ceiling in 2010
Excluding Investments and Discretionary Current Expenditures**

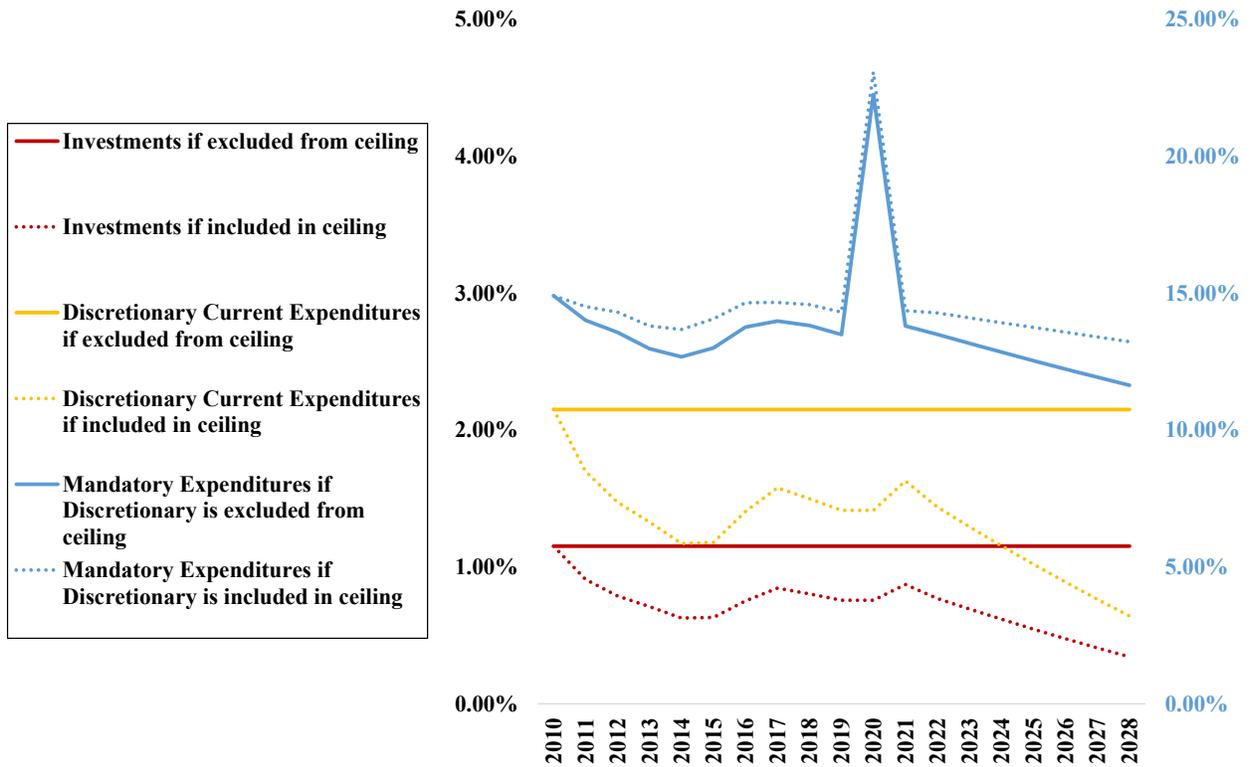


Source: Authors' calculations.

Now we turn to the effect of imposing a looser ceiling for discretionary expenditure on the expenditure composition. As shown in Figure 33, in this setting both public investment and other mandatory expenditures are constant as a share of the GDP. The share of mandatory expenditures will decrease faster, since their real value is kept constant as discretionary expenditures are allowed to grow at the same rate as the GDP.

In Figure 34 we plot the expenditure composition for the 2018 ceiling under the current rule (dotted line), and with an alternative with a looser limit for investment and other discretionary expenditures. As the ceiling rule starts in 2018, until 2017 the graph shows actual values. For 2018 we depict realized expenditures under the current rule and counterfactual values for the alternative policy. Values for 2019 onwards are simulated under the two policies. It is clear that if mandatory expenditures continue to increase, the government will face a shutdown under the current rule. In the alternative policy, in order to keep the already low level of discretionary expenditures as a constant proportion of the GDP, mandatory expenditures would need to be frozen in real terms, implying a faster rate of decrease as a fraction of GDP.

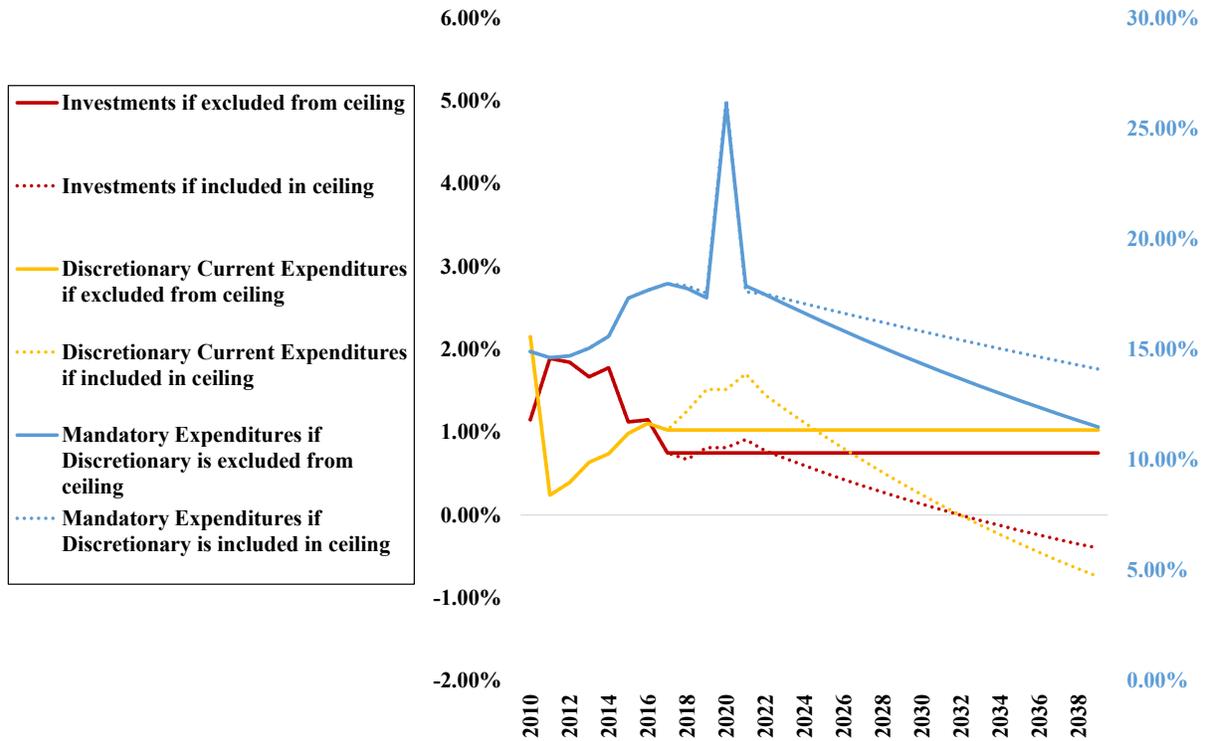
**Figure 33. Expenditures Trajectory in Case of an Expenditure Ceiling in 2010
Excluding Investments and Discretionary Current Expenditures**



Source: Authors' calculations.

Our final exercise is to simulate public debt and primary surplus trajectory if one of the two proposals of fiscal rules improvements discussed in Congress is approved. We compare the implications of FEP and PEC 438. While FEP aims to solve fiscal constraints tackling government expenditures, PEC 438 introduces changes in the fiscal framework on revenue and expenditure.

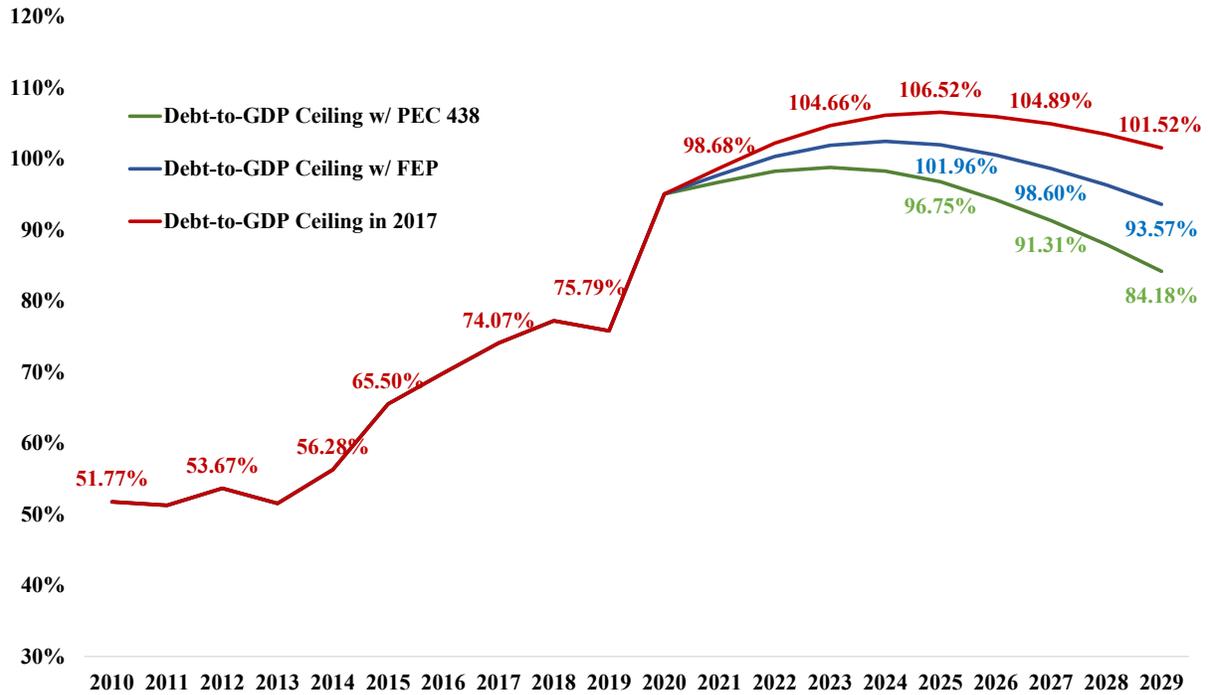
**Figure 34. Expenditures Trajectory in Case of an Expenditure Ceiling in 2017
Excluding Investments and Discretionary Current Expenditures**



Source: Authors' calculations.

Figure 35 shows how effective both proposals would be if they are approved. Interestingly, PEC 438 shows a faster convergence of public debt to levels prior to the 2015 fiscal crisis. If PEC 438 is approved, we would have in 2026 the same debt-to-GDP ratio as in 2029 with the approval of FEP. For a 10-year horizon forecast, PEC 438 anticipates in three years the debt convergence in comparison to FEP.

Figure 35. Debt-to-GDP Trajectory in Case Either Fiscal Emergency Plan or PEC 438 Is Approved by Congress

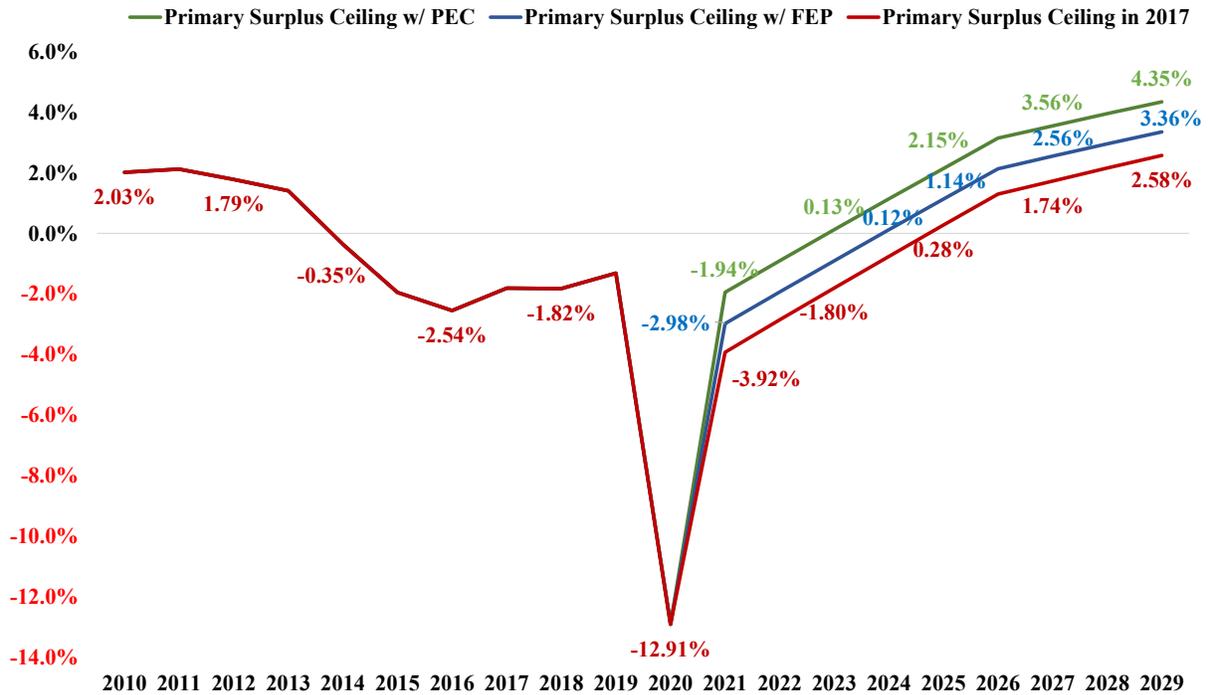


Source: Authors' calculations.

We also analyze the effects from those two proposals for the primary balance (Figure 36). Although both PEC 438 and FEP substantially improve primary results because of embedded triggers, FEP's impact on the primary balance is almost one percentage point (in terms of GDP) lower than that of PEC 438. This is the main reason why we observe a difference on debt-to-GDP trajectories when comparing both proposals.

A final note: since our simulator is not a microfounded general equilibrium model, one should be careful when interpreting these results, since variables kept constant for different rules could be differentially impacted by them. An even more important caveat is that to the extent compulsory expenditures protected by law represent a large part of total expenditures, so that controlling expenditures is not feasible without substantial institutional changes. Thus, the simulations are only indicative of what would be obtained with legal, institutional and policy changes.

Figure 36. Primary Surplus Trajectory in Case Either Fiscal Emergency Plan or PEC 438 Is Approved by Congress



Source: Authors' calculations.

7. The Impact of the COVID-19 Crisis on Brazil's Fiscal Prospects

The corona virus crisis arrived unexpectedly in March 2020 causing a first order disruption in the economy, with radical fiscal consequences in terms of results and the country's fiscal framework. Since this crisis is still unfolding, this section describes in brief the most relevant initiatives and their fiscal impact, and it simulates alternative post-crisis fiscal scenarios.²²

7.1 Relief Measures

Since March 2020, federal and subnational governments have taken actions to attenuate the negative effects of coronavirus on the economy. At the federal level, government offered a

²² These projections were superseded by the higher-than-expected GDP and inflation rates during the second half of 2020, which led to a lower than projected debt-to-GDP ratio. Inflation persistence in the first semester of 2021 will reduce expenditure ceiling effectiveness as the fiscal anchor in the coming years. In the absence of a credible fiscal program, there is a considerable risk that the country will edge towards insolvency over the medium term.

stimulus package of 4,288 billion reais.²³ This package includes R\$ 306 billion in cash for workers and the most vulnerable population, R\$ 190 billion to enhance state and municipal fiscal conditions, R\$ 232 billion in credit measures, and R\$ 40 billion in healthcare to fight the COVID-19.

Overall, those measures imply an additional R\$ 526 billion in the projected primary deficit for 2020, or approximately 7.2 percent of GDP. Adding this to the already deteriorated situation of fiscal accounts and considering the effect of the sizeable 2020 recession on government revenues, it is likely the country will face a primary deficit projected by IFI of 12.7 percent of GDP, over five times that of the 2015 fiscal crisis.

A fiscal shock of such magnitude requires either exceptions to or the abandonment of the current fiscal framework. Government and Congress have chosen the first alternative. Thus:

- Congress approved a declaration of state of public calamity, which exempts the government from meeting the primary balance target in 2020 and allows it to surpass the expenditure ceiling set for 2020.
- A constitutional amendment for excluding expenses incurred by COVID-19 from the federal government budget was approved by Congress, easing of FRL restrictions. Thus, there will be no need for Congressional approval of supplementary credits—required for violating the golden rule. Additionally, the Central Bank of Brazil will be able to buy and sell federal bonds, and BB- private bonds in the secondary market.
- A complementary law for assistance to states and municipalities by the federal government was also approved. Under this legislation, the federal government provided a lump-sum transfer to subnational entities to compensate for their tax revenues loss during the peak of the pandemic in 2020. The government also approved an interruption of debt service payment by states and municipalities, and it simplified contractual terms for credit operations with federal guarantee.

²³ As of July 30, 2020.

7.2 Effects on Debt and Deficit Trajectories

In order to analyze the implications of the current crisis on fiscal variables and debt sustainability, we use our fiscal simulator considering the projected economic impact of coronavirus on key macroeconomic variables and on fiscal policy.

Table 22 shows the primary revenues, real cost of debt, inflation, and real GDP growth for 2019, and our projections for 2020-2036. For 2020, we take the real GDP growth from the Focus Report and compute the real cost of debt based on its current nominal cost and expected inflation. We consider two types of government debt: Treasury bonds and central bank debt. The real cost of the latter is calculated on the basis of the average SELIC rate projected for 2020 discounted by average expected inflation of 2020, with both numbers based on the Focus Report. For the Treasury borrowing, we use the average nominal cost of public bonds (as reported by STF in March of 2020) discounted by expected inflation for the horizon of the debt's average maturity from the Focus Report. Finally, we average the real cost of those two types of debt according to their share in total debt. From 2021-2036, we project the average real cost of government debt by assuming a constant real cost of Treasury borrowing equal to that observed in 2020, and the real cost of central bank borrowing based on long-term forecasts for SELIC and inflation from the Focus Report.

Table 22. Macroeconomic Variables Projections after COVID-19

Year	Primary Revenues	Inflation	Real Cost of Debt	Real GDP Growth
2019	18.56%	4.31%	4.13%	1.10%
2020	15.72%	2.01%	2.90%	-5.05%
2021	16.30%	3.00%	3.18%	3.50%
2022	16.87%	3.40%	3.18%	2.50%
2023	17.45%	3.25%	3.18%	2.50%
2024	18.02%	3.25%	3.18%	2.50%
2025	18.60%	3.25%	3.18%	2.50%
2026-2036	19.17%	3.25%	3.18%	2.50%

Source: IBGE, STN and BCB.

Note: All variables are shown as percentage of GDP.

We assume that real GDP growth will rebound in 2021, and then the economy will grow at 2.5 percent over the long run, coinciding with the market consensus reported by FOCUS. Primary revenues follow from IFI projections until 2025, and then we set them at the level of pre-coronavirus projection—19.17 percent of GDP for 2026-2036. Primary expenditures forecast for 2020 is obtained from IFI. From then on, we project four alternative scenarios.

In the first, the corona crisis has only a temporary impact in the expenditure trajectory. More precisely, we allow for one-time additional expenditures in 2020, to contain the health and economic impacts of COVID-19. The total government expenditures in 2020 surpass the expenditure ceiling, but this limit was waived by Congress for the year with approval of a state of fiscal calamity. In 2021, the expenditure ceiling would be in place again and limit expenditures growth until 2036, when the ceiling rule ends. Thus, the expenditure ceiling will be set from 2021 onwards according to the same value (in real terms) set by the 2016 constitutional amendment.

In the second scenario, we assume that R\$300 billion in additional expenditures will become permanent and added to the ceiling from 2021 onwards. This is equivalent to maintaining a program of R\$ 300 monthly transfers to the poorest population. Under this scenario, the ceiling will be reset in 2021 with the addition of those extra expenditures to 2016 ceiling, which would require a constitutional amendment. Thus, 43 percent of the additional expected expenses of 2020 will be included in this new ceiling threshold.

The third and fourth scenarios are combinations of first and second scenarios with one additional feature. In 2026, the expenditure ceiling indexation rule can be modified with a complementary law proposed by the executive. We assume that the indexation will be changed in 2026 and that real expenditures will grow at 50 percent of the GDP growth from 2027 onwards.

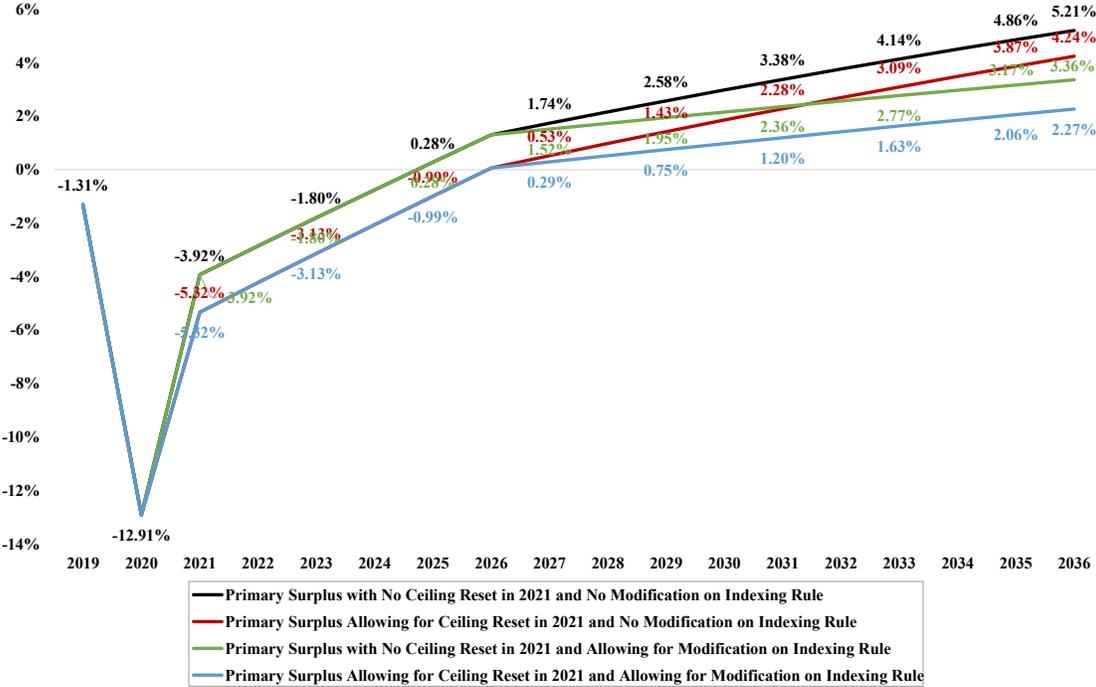
Figure 37 presents the primary surplus path, while Figure 38 shows the simulation results for the debt-to-GDP trajectory. In case of only an expenditure ceiling waiver in 2020 (first scenario), we observe six years of consecutive deficits, until we move back to primary surpluses. In this scenario, debt-to-GDP will not be back to the 2019 levels during the remainder expenditure ceiling period (Figure 37). That is, the fiscal conditions we observed before the coronavirus crisis will—in a scenario with only a one-year waiver of the expenditure ceiling, but no further change—not return for 17 years.

When we allow for a rule reset (second scenario), projected fiscal outcomes are far worse. Consecutive primary deficits persist for 13 years, moving the debt-to-GDP ratio from its current

75.8 percent to 143.2 percent. Furthermore, in 2036, when the expenditure ceiling rule ends, public debt as a proportion of GDP will exceed by 40 percent what is likely to be observed by end 2020, and only then will it start a downward trajectory (Figure 38).

Finally, by allowing a modification on expenditure ceiling indexing rule, we observe in both the third and fourth scenarios a worsening in fiscal conditions, with public debt ending more than 10 percentage points higher than if the indexing rule remains the same. For the case of a ceiling reset in 2021, and a modification of indexing rule in 2027, we see no primary surplus for the remaining 17 years of the expenditure ceiling.

Figure 37. Primary Surplus Trajectory for Each Fiscal Scenario

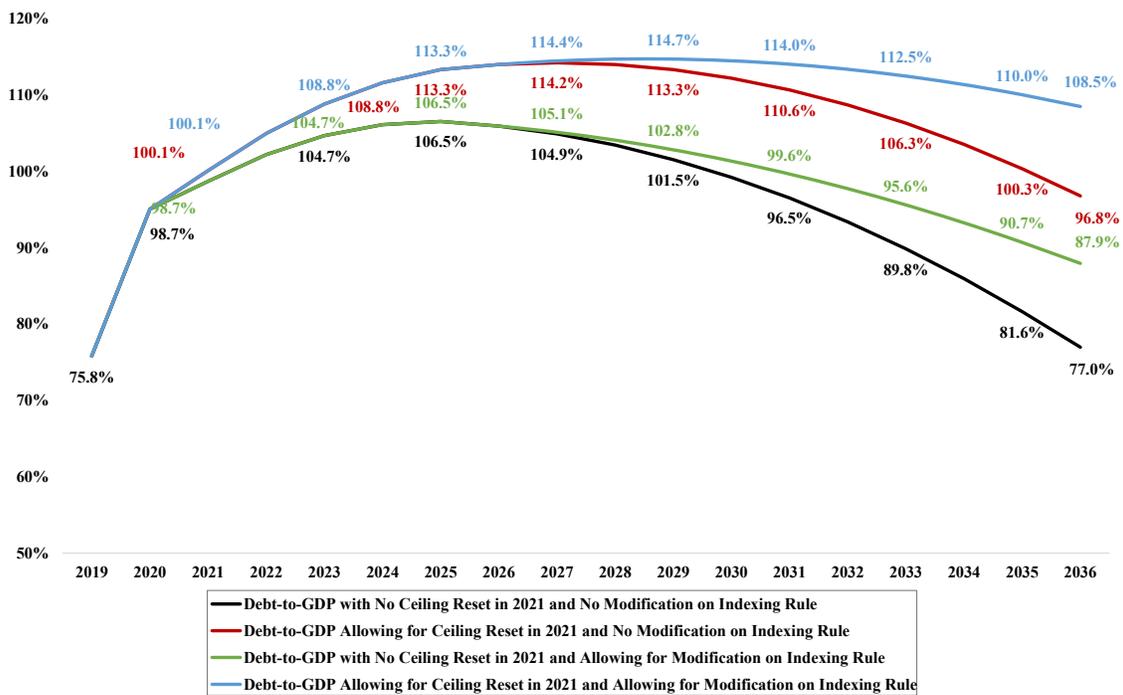


Source: Authors’ simulation.

In sum, the COVID-19 health and economic crises have led to a very significant deterioration of Brazil’s fiscal condition. Moreover, those twin crises are likely to bring to a head the conflict between those who still believe in the importance of maintaining the sole binding federal-level fiscal rule—the expenditure ceiling—and those who think it is better to abandon this rule for being untenable. Our simulations show that, even under the best of circumstances, it will not be before the middle of this decade that the debt to GDP trajectory points down, after reaching

levels 30 percentage points above its pre-crisis number. Most likely it will take a substantial increase in taxes to partially offset transitory COVID-19-related expenditures that are politically prone to become permanent. Still, tax reform and the possible increase in the tax burden will require politically difficult choices in view of the impact on wealth and income distribution on the one hand, and economic efficiency, on the other. More generally, the country will face the urgency of reforms in the context of a divisive political climate and increased polarization, with the ever-present risk of populism leading to a long road of economic decline.

Figure 38. Debt-to-GDP Trajectory for Each Fiscal Scenario



Source: Authors' simulation.

8. Lessons from Empirical Exercises and Interviews

In this section we provide lessons learned regarding fiscal rules and their relationship to public sector investment which were derived from the empirical analysis, simulations, and interview discussions for both the Federal (national) and state level. We further discuss which conclusions can be arrived at regarding this critically important nexus of public policy.

Before presenting lessons specific to federal or subnational levels, there is a general point. Even if reforms could ensure greater fiscal space for discretionary expenditures and investments within them, the historical record points to the difficulties of ensuring efficiency in allocation and quality in execution. During the period (second Lula term and first for Dilma) when resources for public investment were made available both due to an enlarged fiscal space at the time of the commodity boom, and the public investment exemption from being accounted for in the primary deficit targets, the quality of public investment deteriorated significantly. The so-called Program to Accelerate Growth (PAC) led to gross misallocation and waste of public resources. There are over 14,500 projects laid to waste in the form of skeletons deteriorating under the weather. Two causes led to the PAC investment program's poor results. The first is the perverse political economy that dominates public sector investment decisions, or those investments financed by the public sector, not infrequently captured by interest groups which siphon off resources through outright theft and cost padding. The second cause is the very weak governance of public sector investment undertaken directly or financed by government banks. Governance here encompasses two concepts: adequate planning processes, and the ability to properly design and contract the execution of projects, both sorely missing at the federal and subnational levels. Arguably, these governance failures play into the hands of politicians and public sector agencies interested in trading influence or decisions for money.

8.1 Federal Level

First, the observed reduction in public investment has been a result of the fiscal crisis and the political difficulties in curbing the increase in mandatory expenditures. This in fact applies to both the federal and state governments. As discussed extensively in this paper, the concept that public investment has been squeezed out due to current (or past) fiscal rules does not seem to reflect Brazilian reality. Public investment has been falling in response to growing fiscal fragility both at the national and subnational levels, the reason being that other non-discretionary expenditures grow without regard to the economic cycle and even the programmatic objectives of governments. Expenditures which are constitutionally mandated take precedence, and those have been growing in real terms over and above GDP growth and governments' capacity to raise revenue. This is the fundamental reason why discretionary expenditures in general, and investments in particular, have been the de facto adjustment variables—and declining over the years.

Second, the fiscal rule aimed at protecting investment—the Golden Rule—was inscribed in the 1988 Constitution as a means to ensure that government debt would not be used to pad expenditures other than investment, but it did not fulfill this objective due to numerous loopholes. The 2000 Fiscal Responsibility Law, in turn, represented at the time a major advance in fiscal management and is still an important piece of legislation. Nonetheless, the law cannot be construed as a binding fiscal rule. This is due not only to certain design flaws or omissions, but also and more importantly to judicial interpretation of its clauses and the systematic weakening of the legislation’s ability to provide the executive with the power to effectively manage its fiscal accounts and control expenditures.

Third, there is only one effective fiscal anchor at the national level: the 2016 constitutional amendment imposing a 20-year expenditure ceiling, which has been effective in curbing expenditures, including those of the judiciary and legislature, while making the trade-off between mandatory expenditures and public investment (and other discretionary) allocations, more apparent to politicians and society as a whole. This fiscal rule has been the object of systematic criticism by political parties, economic interests and analysts who fail to understand that in its absence, the country would face far more adverse conditions to finance its debt and resume a sustainable growth trajectory. With the COVID crisis, and short of a credible fiscal anchor, as the simulations presented here show (see Sections 6 and 7), the problem is potentially one of solvency in the context of an explosive debt trajectory.

Fourth, the main culprit in the country’s fiscal deterioration was the fast increase of mandatory expenditures. This is suggested both by the narrative analysis and interviews, and also supported by our counterfactual analysis. In this exercise, the path of primary surplus is dominated by the high rate of growth of expenditures, and not from revenue erosion from the 2014-16 recession and the ensuing slow recovery. At the same time, the debt-GDP trajectory shows a stark difference between the observed outcome and simulated outcome had the expenditure ceiling been instated in 2010 rather than 2017: by 2028, the debt-GDP ratio would have been 10 percentage points lower. At the same time, the simulations point to the importance of the ceiling in constraining mandatory expenditures while providing room for discretionary expenditures. The latter have been squeezed due to the fast increase in mandatory expenditures and the need for fiscal consolidation.

Fifth, reforms aiming at curbing mandatory expenses are absolutely necessary if the Federal (and state) governments are to recover their investment capacity. In 2019 an important federal-level Social Security Reform law was approved, with a focus on retirement benefits and pensions. Prior to the Covid crisis there were important discussions on proposed public sector administrative reforms, the PEC 438 (from representative Pedro Paulo), the Fiscal Emergency Plan (PEC 186, which allows for firing of federal employees, and adjustment in their wages and hours if the Golden Rule is threatened) and the proposed change in Federation's Pact (PEC 188, which defines the rules regarding revenues and commitments between the national and subnational levels). PEC 438 in particular proposes reinstating the Golden Rule as a powerful adjustment mechanism, triggering both transitory and permanent fiscal adjustment measures to ensure the strict observation of the Golden Rule. Our simulations reinforce the importance of fiscal reforms under consideration in Congress, particularly PECs 438 and 188, which would have materially improved the primary surplus and debt-to-GDP ratios paths during this decade had they been approved in 2020.

Sixth, a modification of the expenditure ceiling rule with looser limits for investment would not affect debt sustainability in a significant way, but revoking the current rule could open the door to abandonment of fiscal discipline. According to our counterfactual simulations, if in 2010 an expenditure ceiling had been imposed with looser limits on discretionary spending (two different sub-ceilings, namely keeping mandatory expenditures constant in real terms and having discretionary expenditures grow at the same rate as GDP), both the primary surplus and debt to GDP ratios dynamics would not differ significantly from those resulting from following the current rule. However, its implementation would require an even stricter adjustment of compulsory expenditures, which might prove challenging. In addition, such rules could face perverse incentives to classify current expenditures as investment.

Finally, the COVID crisis has made debt dynamics far more difficult to manage, in view of the need to accommodate the additional expenditures needed to compensate in part for the loss of jobs and income by families, and the necessary support for micro, small and medium enterprises. One may wonder to what extent all the extraordinary expenses will end up increasing government expenditures for many years to come. Two extreme cases would be the one where all extraordinary expenses affect the primary surplus only this year and the hypothesis that they become permanently incorporated in the government budget. If this were a one-time expenditure shock, it would lead to an increase of a little more than 10 percent in the debt to GDP ratio in 2021 and,

after an unpronounced hump, the trajectory would start a downward trend beginning in 2025. However, if the expenditure ceiling is reset to accommodate the one-time additional expenditures and thereafter growing with inflation, the debt to GDP ratio will follow a path that would reach slightly over 140 percent of GDP by the end of the decade, and it will only start to fall in the next decade.

8.2 Subnational Level

First, existing fiscal rules do not fully constrain states' fiscal behavior, even though it seems they might have worked in the early 2000s. As the federal government became less concerned with fiscal sustainability at the beginning of this decade, subnationals had a lesser incentive to comply with fiscal rules. Both the Fiscal Responsibility Law, the expenditure ceiling rule embedded in the 2016 debt renegotiation, and other fiscal rules approved at the level of states assemblies were systematically disobeyed or went unobserved. In most cases, rules were bypassed by successive modifications of accounting standards by State Court of Accounts, which excluded from personnel expenditures materially relevant items, including pensions and numerous pecuniary benefits that increased the remuneration of civil servants. For this reason, several states went above the FRL personnel expenditures limit (60 percent of net revenues), when calculated according to the STN accounting rules (see Figure 4 and case studies in Section 4.2). The violation of fiscal rules was systematic, implying that they did not exert the constraining effect on current expenditures they were supposed to have.

Second, the only (de facto) fiscal rule at state level is the one that conditions federal government guarantee on states' financial indicators. States' expenditures seem to be endogenous, limited by revenues and ability to incur further debt, which is ultimately regulated by the Treasury evaluation of payment capacity the so-called CAPAG. Thus, CAPAG functions as the only (de facto) fiscal rule at the state level, as evidenced by cross-sectional analysis. It is noteworthy that substantial deterioration of states' fiscal accounts occurred exactly when the Treasury loosened evaluation criteria and gave widespread guarantees for states to take up more debt irrespectively of their ratings (see Section 5.1 and Figure 14), financing a sizeable expansion in spending.²⁴

²⁴ Although they could not be classified as a fiscal rule, due to their discretionary nature, the limits that the CMN (National Monetary Council) has imposed since 2018 on financial institutions lending to subnational governments effectively restricts states indebtedness.

Third, fiscal adjustments tend to take place when there is no remaining fiscal space (though there is no assurance fiscal adjustments are permanent). All states that underwent a process of fiscal consolidation did so when the fiscal situation became critical. Noteworthy in this regard is the case of Espírito Santo, where two fiscal adjustments were undertaken by the same governor in two different mandates, after inheriting fiscal accounts in complete disarray. Recently social security and administrative reforms were approved in Goiás and Rio Grande do Sul, states which are in dire fiscal situations. In normal times the pressure for increasing the remuneration and the number of public servants would tend to prevail.

Fourth, investments tend to be squeezed when fiscal conditions are tight, irrespective of the fiscal rule, with lower investment rate (to revenues) being associated with worse CAPAG credit ratings. In this situation, state investments tend to rely on targeted transfers from the Federal Government. Thus, as the cross-state regressions show, states with weaker fiscal conditions—having avoided fiscal consolidation—invest less. However, a rise in state indebtedness is no assurance of a corresponding increase in investments, as there is suggestive evidence that increases in investments on the basis of federal-guaranteed debt were compensated by reductions in investments funded by the states, which reallocated the freed-up resources for other uses.

Fifth, the large and increasing proportion of personnel expenses to net current revenues is the main fiscal burden for states. With the exception of a few states, indebtedness—and the related debt service—is not among the most relevant fiscal problems they face. The disequilibrium flow generated by increasing personnel expenses leads to growing indebtedness and arrears. In fact, the secretaries of finance and planning interviewed argued that personnel expenditures are bringing states to the brink of fiscal insolvency, and even before that, to an inability to invest. This is corroborated by the cross-state regressions, in which the wage bill as a proportion of revenues is negatively related to the investment rate.

Sixth, our simulations with subnational fiscal rules indicated that restricting states' wage bill to a limit of 50 percent would have opened enough fiscal space to enable a substantial increase in public investment, while preventing an increase in indebtedness. The experience of the state of Espírito Santo shows that the necessary adjustment to reach 50 percent is achievable in relatively few years—depending on decisive political leadership, effective communication and technical proficiency within the state bureaucracy. The 60 percent wage bill limit, if enforced, would improve on the current situation, but it would still leave insufficient fiscal space for any

considerable improvement in investment. The proposed new rule would not be effective without being legally binding and enforceable. It would also require a mechanism of adjustment triggered when the ratio of wage bill to net revenues approach the limit. The ineffectiveness of the current FRL 60 percent rule is due in part due to the absence of such a mechanism. In addition, the ratios may consider in the denominator a measure of structural net revenues in order to take into account the economic cycle, thus avoiding a procyclical effect of the rule.

Seventh, an enforceable wage bill limit would require a unified accounting standard for all levels of governments. In order to improve enforcement and reduce leeway in interpretation, new legislation should detail the accounting standards to which the law applies. The lack of enforcement of current laws and rules constitutes a formidable obstacle to fiscal discipline. It must be underlined that not only lower courts, but often the Supreme Court interpretation of fiscal laws ultimately weaken states' bargaining position with government employees, retirees and pensioners, while loosening binding fiscal constraints. These judicial interpretations thus end up undercutting officials responsible for state finances. Common state-level fiscal rules, introduced by the Fiscal Responsibility Law (FRL) in 2000, were differentially applied as states' Account Courts adopt their own accounting standards generally aiming at loosening the FRL criterion. In order to reduce judiciary discretion, it is necessary to include in a new constitutional amendment a detailed description of unified accounting standards to be employed by the three levels of government. In particular, it is necessary to ensure that, in the new standard, all personnel expenditures are accounted for. This must include the salaries and related items of outsourced employees and a myriad of items that remunerate government employees allocated on purpose in the group of discretionary current expenditures.

Eighth, in order to facilitate the fiscal adjustment of subnational entities, the new law should itemize and specify the adjustment mechanisms when the prudential margin of 95 percent of the limit (47.5 percent) is reached. They would provide for the reduction of personnel expenditures by activating the following measures applied to all public employees: i) a promotion freeze; ii) a standstill on increases in nominal remuneration; iii) a freeze on the creation of new positions and of career restructuring that implies an increase in spending; iv) a general hiring freeze; v) a proportional reduction of up to 25 percent of hours worked and a corresponding reduction in remuneration; and vi) a 20 percent reduction of personnel outside the public employees' career structure. In addition, new legislation must also include social pension reforms

at the subnational level, since personnel expenditures is largely increasing due to lenient retirement rules for public employees.

Ninth, in order to prevent the judicial overturn of some of those measures, it is fundamental that they be part of a constitutional amendment. The recent history of the Federal government of conditioning fiscal support on states undertaking reforms reveals a significant problem of moral hazard. It is known that the Federal government either lacks enforcement powers or the political will to “play hardball” with the states, as most recently witnessed with the state of Rio de Janeiro, which has not obeyed the rules underlying the new Fiscal Recovery Regime (RRF) and ignored eventual penalties due to the lack of credible threats from the RRF supervisory commission. The judiciary, for its part, tends towards a relative lenient view of the budget constraint, which might be construed as resulting from a conflict of interest, insofar as it strongly resists adjusting its own expenditures. Still, it is very difficult—if not impossible—to undertake the major fiscal consolidation of the coming years without relying on a level of cooperation from the judiciary. From this perspective, creating venues for informed discussion with Supreme Court members of the economic consequences of existing laws and practices, and the urgent need to curb the growth of expenditures is a priority not always sufficiently understood.

Tenth, PEC 438 goes in the right direction by unifying states’ accounting rules and providing incentives for their fiscal adjustment. Further, the proposed Federation’s Pact (PEC 188) also advances measures to unify accounting procedures across subnational entities and strengthen fiscal adjustment mechanism with automatic triggers. Moreover, expenses from legislative and judiciary will be constrained by the same rule as the executive, countering current practices of legislative and judiciary institutions that feel authorized to disregard budget limitations by invoking the separation of powers.

Finally, well-designed new legislation, norms and other fiscal rules, while not always a binding constraint, are clearly necessary and should be introduced whenever necessary to provide for fiscal sustainability. Even if not fully binding, they function as a signal to the public sector and society at large, and they serve to support decisions by secretaries of finance to defray or deny requests to increase expenditures. Though necessary, such rules have proven insufficient if voters—and civil society at large—are not convinced of the importance of balance and integrity in public accounts. This attitude comes as a result of a change in culture, the perception that government “for the people” is one whose actions respect fiscal inter-temporal constraints, avert

the political cycle merry-go-round, and grounds the allocation of public sector expenditures on clear rationale—namely, projects and activities which command the highest social rates of return. Ultimately, it is such a culture of responsibility that will ensure that states—and the country—avert bouts of populism and that will create an environment in which institutions reflect the political commitment of society towards the public good.

9. Concluding Remarks

This paper explored the relationship between fiscal rules and public investment in Brazil. Low levels of fiscal discipline—and often, fiscal disarray—have led to a small and shrinking share of public investment in GDP, revenues, and expenditures. Most fiscal rules limiting personnel expenditures, in particular, have gone unobserved—at both the national and subnational levels—insofar as the legislation is systematically weakened by judicial decisions and (state) audit courts. At the end of the day, such rules become unenforceable. In fact, the paper shows that the only rules that work are—at the national level—the 2018 expenditure ceiling, and—at the state level—the National Treasury CAPAG ratings that regulate loan guarantees by the federal government to individual states.

Ultimately, this is a problem of political economy. The interests driving real growth in personnel expenditures have been dominant for the last three decades, and only under extreme conditions, at the “edge of the economic precipice,” does fiscal adjustment take place. New and better rules, which allow for more fiscal space for public investment, will need to endogenize the low probability of enforcement under normal conditions. The recent history shows that relieving fiscal constraints is a recipe for entrenched interests to grab additional pieces of the budget.

We propose to improve the Brazilian fiscal framework by reforming and strengthening the subnational personnel expenditure limit of the FRL. In our assessment, that modification would improve subnationals’ fiscal condition, opening fiscal space for significant gains in public investment and debt reduction. In order to increase the likelihood of enforcement, the new rule should be part of a constitutional amendment.

Finally, the public investment challenge in Brazil goes beyond ensuring availability of fiscal resources. As the last decade-and-half clearly demonstrated, one needs to ensure better allocation and use of resources to justify a major increase in public investment, in view of the low levels of governance in the investment process. Significant waste and corruption accompanied the

last effort by government to carry out a major public investment program centered on social and economic infrastructure. Clearly, this should not be repeated.

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Appendix

A1. Federal-Only Fiscal Rules in Detail

A1.1. The Golden Rule

In the calculus of current deficit, the golden rule methodology allows the deduction of the following types of government financial revenues (see Couri et al., 2018 for more details): i) central bank financial results; ii) repayment of federal government loans; iii) payments of interest and amortization of subnationals' debt to the Treasury; iv) remuneration of the Treasury single account (Conta Única do Tesouro). On the capital expenditures side, it allows the inclusion of items other than investment: i) capitalization of state enterprises; ii) student loans; and iii) funding of regional funds. Another issue is the timing of accounting. Debt issuances exceeding capital expenditures are not immediately accounted for if they are not used to pay expenditures in the same year.

A1.2. The Primary Balance Target

Significant changes to the FRL with respect to the primary balance target have been introduced since the financial crisis:

- a. A sovereign wealth fund was established in 2008 to be used as a countercyclical instrument. So far it has been used to accumulate part of the fiscal overperformance (such as in 2008) and to bring the budget balance towards the target (in 2015).
- b. The government was allowed to exclude part of the investment spending from the calculation of the budget target.
- c. An additional modification of the target resulted from the exclusion of Petrobras from the fiscal targets starting in 2009.

A1.3. The Federal Government Expenditure Ceiling

Appendix Table 1 illustrates how the ceiling is calculated, in this case for 2020, while Appendix Table 2 notes the reallocation of resources from the executive branch to the judiciary and legislative branches, as well as the prosecution office, which was allowed under the law until 2020 and reflects the relative power of the different branches of government at a time when resources are clearly very scarce.

Appendix Table 1. Expenditure Ceiling Appraisal For 2020

<i>Values expressed as current Reais</i>	
A. Expenditure Ceiling for 2019	1.407.052.612.991
B. Inflation Rate	3.37%
C. Expenditure Ceiling for 2020[A x (1 + B)]	1.454.470.286.049

Source: Minister of Economy

Source: Ministry of Economy.

Appendix Table 2. 2019/2020 Expenditure Ceiling: Expenses by Public Entity Power

Power	<i>Values expressed as current thousands of Reais</i>					
	2019			2019		
	<i>Approved</i>	<i>Revised</i>	<i>Difference</i>	<i>Approved</i>	<i>Revised</i>	<i>Difference</i>
Expenditure Ceiling	1.407.053	1.407.053	0	1.454.470	1.454.470	0
Executive	1.346.576	1.343.213	3.363	1.391.955	1.391.955	0
Others	60.477	63.840	-3.363	62.515	62.515	0
<i>Judiciary</i>	<i>41.517</i>	<i>44.447</i>	<i>-2.930</i>	<i>42.917</i>	<i>42.917</i>	<i>0</i>
<i>Legislative</i>	<i>12.160</i>	<i>12.419</i>	<i>-259</i>	<i>12.570</i>	<i>12.570</i>	<i>0</i>
<i>Prosecution Service</i>	<i>6.800</i>	<i>6.974</i>	<i>-174</i>	<i>7.028</i>	<i>7.028</i>	<i>0</i>

Source: Minister of Economy

Source: Ministry of Economy.

A2. Subnational Fiscal Rules in Detail

A2.1 The 1997 Bailout

An important change in the states' fiscal framework was introduced during the states' debt restructuring contracts, established by Law 9496 of September 1997. The bilateral contracts between the federal government and each state—signed between December 1997 and June 1998—involved the replacement of securitized debts and state debts to banks with debt to the federal treasury (see Bevilaqua, 2002).

Twenty percent of the debt had to be amortized before December 1998 with the proceeds of privatization of state assets. The remaining part was structured as long-term debt (up to 30 years), with annual interest rates of 6 percent plus inflation. Additionally, the proportion of debt service that exceeded 13 to 15 percent of net revenues was automatically capitalized.

This involved a substantial subsidy from the federal government, which was financed itself with real interest rates well above those charged to the states. As a counterpart, each state

committed to an adjustment program outlined to reduce its debt to net revenue to less than 100 percent within a period which depended on the state. The programs involved targets for privatization of state assets and primary balances, as well as controlling payroll and investment expenses. If a state failed to comply with the targets, the interest rates on its debt would be increased to market rates, and its debt service limit would be increased by 4 percentage points.

An additional relevant aspect of the Law 9646 is that states could not access any more the credit market. This restriction on states indebtedness was further strengthened by CMN Resolution 2827/99. Thus, their indebtedness would necessarily decrease. In fact, the states' fiscal situation improved substantially during the following decade.

A2.2. The Subnational Borrowing Limits

National Monetary Council Resolutions authorize the Central Bank to control the supply of domestic bank credit to subnational governments. Under Resolution 2,827, outstanding loans to the public sector (the three levels, including state-owned companies) may not exceed 45 percent of any bank's net worth. There are also limits set by the Senate for annual borrowing of States and Municipalities.²⁵

In 2019, National Treasury Secretariat has established annual limits for subnationals in order to contract federal-guaranteed credit operations. Each tranche limit depends on the state or municipality's CAPAG rating and current debt level. Appendix Table 3 presents a summary of this specific fiscal rule.

Appendix Table 3. Federal-Guaranteed Annual Limit Borrowing

Values expressed as a share of net current revenues

CAPAG	Debt Level		
	<i>Lower than 60%</i>	<i>Between 60% and 150%</i>	<i>Greater than 150%</i>
<i>A</i>	12%	-	-
<i>B</i>	8%	6%	4%
<i>C</i>	0%	0%	0%
<i>D</i>	0%	0%	0%

Source: STN

Source: STN.

²⁵ For a detailed description, see Barros (2018).

The CAPAG rating is determined based on three fiscal variables: a debt ratio (debt-to-revenues), a current savings indicator (expenditures-to-revenues) and a liquidity index (financial expense-to-cash). For each fiscal variable within a specific range, a partial CAPAG rating is established, as presented in Appendix Table 3.1.

Appendix Table 3.1. Partial CAPAG Ratings for Each CAPAG Determinant

Partial CAPAG	Debt Ratio (DR)	Current Savings (CS)	Liquidity Index (LI)
A	DR < 60%	CS < 90%	LI < 1
B	60% ≤ DR < 150%	90% ≤ CS < 95%	-
C	DR ≥ 150%	CS ≥ 95%	LI ≥ 1

Source: STN, adapted from IFI.

CAPAG is computed as a weighted average between the three fiscal variables above. Appendix Table 3.2 shows CAPAG rating according to the possible combinations of each individual partial CAPAG rating from Appendix Table 3.2.

Appendix Table 3.2. Resulting CAPAG from Partial CAPAG Ratings

Partial CAPAG Ratings			Resulting CAPAG
Debt Ratio (DR)	Current Savings (CS)	Liquidity Index (LI)	
A	A	A	A
B	A	A	B
C	A	A	B
A	B	A	B
B	B	A	B
C	B	A	B
C	C	C	D
<i>any other combination of DR, CS and LI -----></i>			C

Source: STN, adapted from IFI.

A2.3. The Wage Bill Rules

Within each level of government, the law further specifies limits for all branches of federal, state, or municipal government, as described in Appendix Table 4.

Appendix Table 4. Wage Bill Rules: Spending on Personnel

Values expressed as a share of net current revenues

Government Level	Power	Limit		
		Maximum	Prudential	Alert
Federal <i>50% overall limit</i>	Legislative	2,50	2,38	2,25
	Judiciary	6,00	5,70	5,40
	Executive	40,90	38,36	36,81
	Prosecutor's Office	0,60	0,57	0,54
State <i>60% overall limit</i>	Legislative	3,00	2,85	2,71
	Judiciary	6,00	5,70	5,42
	Executive	49,00	46,55	44,22
	Prosecutor's Office	2,00	1,90	1,81
Municipal <i>60% overall limit</i>	Legislative	6,00	5,70	5,42
	Executive	54,00	51,30	48,74

Source: FRL

A2.4. The 2016 Debt Renegotiation Program

Law 156 of December 2016 established DRP terms. Debt service payments received a 24-month grace period, and the repayment schedules were extended for another 20 years. Participating states were required to freeze current expenditures in real terms for the next two years.

A2.5. The Fiscal Recovery Regime (FRR)

In order to qualify for the program, the state must be above the following triggers:²⁶

- 70% ratio of personnel expenses, interest, and amortization over net current revenue.
- 100% debt over net current revenue.
- liabilities exceeding available cash.

²⁶ Notice that the first two are insolvency criteria – the first for the flow and the second for the stock – while the third concerns liquidity.

The state commits to a three-year fiscal adjustment plan that can be extended for another three years. The fiscal adjustment plan should involve privatizing state enterprises, suspending wage increases and new hiring, reducing tax expenditures, and reforming the state pension scheme along the lines adopted by the federal government.

A2.6. The Mansueto Plan

There are eight pre-defined fiscal measures recommended by Mansueto Plan, as listed below.

- i. Authorize privatizations.
- ii. Implement a ten percent reduction in tax benefits.
- iii. Review of servants' legal regime, including employee benefits reduction.
- iv. Cap the annual growth of current expenditure to inflation.
- v. Exclude non-Constitution tax linkage to revenues.
- vi. Adopt the single account model.
- vii. Good regulatory practices in the provision of piped gas services.
- viii. Concession of sanitation service.

Regarding credit operations, the Union can partially anticipate the benefits of fiscal adjustments in the form of federal guaranteed loans. This mechanism links the benefits of a fiscal sustainable path to reduced temporary cost of fiscal adjustments.

Finally, the project provides authorization for the National Treasury Secretariat to participate in debt management and subnational fiscal policy discussion groups within the OECD. The groups are the Network on Fiscal Relations across Levels of Government and the Working Party on Public Debt Management.

The executive also plans to submit an administrative reform proposal focused on new rules regarding public careers for new entrants, deemed necessary to curb long-term wage bill growth. The former is a fiscal adjustment measure slowing down mandatory wage bill spending growth. The latter has no short-term fiscal impact, since it is designed to keep the current tax burden level. However, the tax reform rearranges the relationship between the federal government and subnational public entities.

A2.7. PEC 438

PEC 438 eliminates the spiral effect of the Supreme Court ministry's salary increase to other judiciary members and undertakes the following additional measures:

- a) The re-evaluation of tax benefits in PEC 438 must be done every three years, instead of the four-year period proposed in the “Mais Brasil” Plan.
- b) PEC 438 sets a prudential level for the golden rule that triggers fiscal measures that prevent non-compliance with the rule.
- c) PEC 438 allows additional fiscal measures in case of an emergency: suspension of salary allowance as a fiscal measure, 20 percent reduction in advertisement spending, reduction of tax benefits by at least 10 percent in comparison to previous year, supplementary social security contribution of three percentage points of employees, retirees and pensioners, both civil and military, for 12 months.
- d) A spending review plan.

Overall, PEC 438 introduces mechanisms of fiscal adjustment both at revenue and expenditure side. On the other hand, “Mais Brasil” Plan focuses only on expenditure control for addressing deteriorated fiscal conditions.

A2.8. Mais Brazil Plan

The Fiscal Emergency Plan aims at reducing spending for the three levels of government (municipal, state, and federal) in case of fiscal emergency. There are permanent and transitory measures. Permanent measures focus on fiscal flexibility to adjust public expenditures whenever required. Transitory measures relax certain rules for two years in order to allow faster adjustment to the entity’s fiscal account.

At the federal level, failure to comply with the golden rule triggers the fiscal adjustment measures for two consecutive years. At subnational level, the adjustment measures are activated when current expenses exceed 95 percent of current revenues in a 12-month rolling window. The measures are reversed once expenses fall back to a level short of the limit. At the subnational level, fiscal compliance is checked bimonthly.

A list of the fiscal measures is shown in Appendix Table 5. If a subnational entity does not comply with the fiscal measures, this entity cannot raise federal guaranteed debt. One fourth of all economy generated by the implementation of those fiscal measures can be used in public investments in infrastructure—an explicit connection between the fiscal rule and public investment.

A list of the fiscal measures is shown in Appendix Table 5. If a subnational entity does not comply with the fiscal measures, this entity cannot raise federal guaranteed debt. One fourth of all savings generated by the implementation of those fiscal measures can be used in public investments in infrastructure—an explicit connection between the fiscal rule and public investment.

The public funds revision, if approved, will eliminate earmarking of public funds and channel at least part of the resources toward reducing public debt. Any new resources added to remaining public funds will be directed to inequality reduction and infrastructure development. A complementary law will be required for the creation of any new public fund.

Appendix Table 5 – Fiscal Emergency Plan: Fiscal Measures in Case of Non-Compliance

#	Fiscal Restrictive Measures
1	Cannot promote public employees
2	Cannot increase total remuneration of public employees
3	Cannot create new job positions
4	Cannot restructure public career in any way that implies spending increase
5	Cannot initiate entrance examinations for hiring career civil servants
6	Cannot introduce tax benefits of any kind
7	Cannot introduce mandatory expenditures
8	Cannot adopt measures in which mandatory expenditures increase by more than inflation
9	May reduce working hours of public employees in 25%, with the respective wage reduction
10	Mandatory reduction in at least 20% of personnel expenditures for employees who are not in the civil servant career

Source: Constitutional Amendment Proposal nº 186.

The Federation’s Pact comprises several measures to strengthen the current system, including decentralizing tax revenues to local and regional governments. Most fiscal restrictive measures embedded in the Fiscal Emergency Plan are also included in the Federation’s Pact. The main difference is the trigger at federal level for not complying with the golden rule. In the Federation’s Pact, fiscal adjustment measures are activated once the Congress authorizes the golden rule violation. Furthermore, fiscal measures are taken for one year, and they can be extended for one additional year if necessary. One further measure is included at the federal level: during the period of fiscal recovery, there will be no transfer of funds from the Fundo de Amparo ao Trabalhador (FAT, workers fund reserve) to Banco Nacional de Desenvolvimento Social (BNDES, the Brazilian development bank).

The Federation’s Pact also advances in other fiscal dimensions. It establishes a cap of 2 percent of GDP on tax benefits (starting in 2026, with a four-year mandatory pros and cons re-evaluation), unifies health and education expenditure floors (allowing public managers to

redistribute at any proportion between both), and proposes standard accounting procedures for public entities in all three levels. For example, the social security wage bill will have to be included in the calculation of the total wage bill when computing the wage bill limits imposed by the Fiscal Responsibility Law.

The Federation’s Pact also has two institutional impacts. First, it introduces a new council, responsible for coordinating and monitoring national and subnational fiscal policy and sustainability. It is composed of the president of Brazil, the president of the House of Representatives, the president of the Senate, the president of the judiciary, the president of the Federal Court of Accounts, three Governors and three Mayors. Second, the Federation’s Pact dissolves municipalities with less than 5,000 inhabitants and own tax revenues accounting for less than 10 percent of their total revenue. Additional measures of the Federation’s Pact are shown in Appendix Table 6.

Appendix Table 6. The Federation’s Pact: Further Measures

#	List of Fiscal Measures
1	Voluntary transfer of royalties and special interests to all states and municipalities
2	The federal government will only guarantee international organizations' credit operations of subnationals*
3	Credit operation between entities of the Federation is prohibited*
4	Federal government is prohibited from bailing out financially distressed subnationals*
5	The portion of FAT earmarked for BNDES will be 14% of funds, instead of the current 40% level
6	Public revenue will be unlinked to any entity, fund or expense, with few exceptions
7	Integration of tax rules (FRL, Golden Rule and Expenditure Ceiling) will be applied in all levels of government
8	Federal and state governments will close court dispute over Kandir Law

* indicates measure starts to be enforced in 2026

Source: Constitutional Amendment Proposal n° 188.

A3. Supplementary Fiscal Statistics for States

An alternative perspective on the same phenomenon in Figure 9 is provided by Appendix Table 7, which shows the amount of revenues minus actual expenses as a proportion of net current revenues for both 2018 and 2019 (accumulated result until August). Although not a rule, there is a discernable pattern of improved fiscal outcomes for most states as they emerge from the last electoral cycle or more generally, present better results in 2019 compared to 2018.

Although debt service generally does not pressure excessively the states budgets after a series of restructurings, there are four states for which the amount of debt is very significant—at or above 200 percent of net revenues: Rio de Janeiro, Rio Grande do Sul, Minas Gerais and São

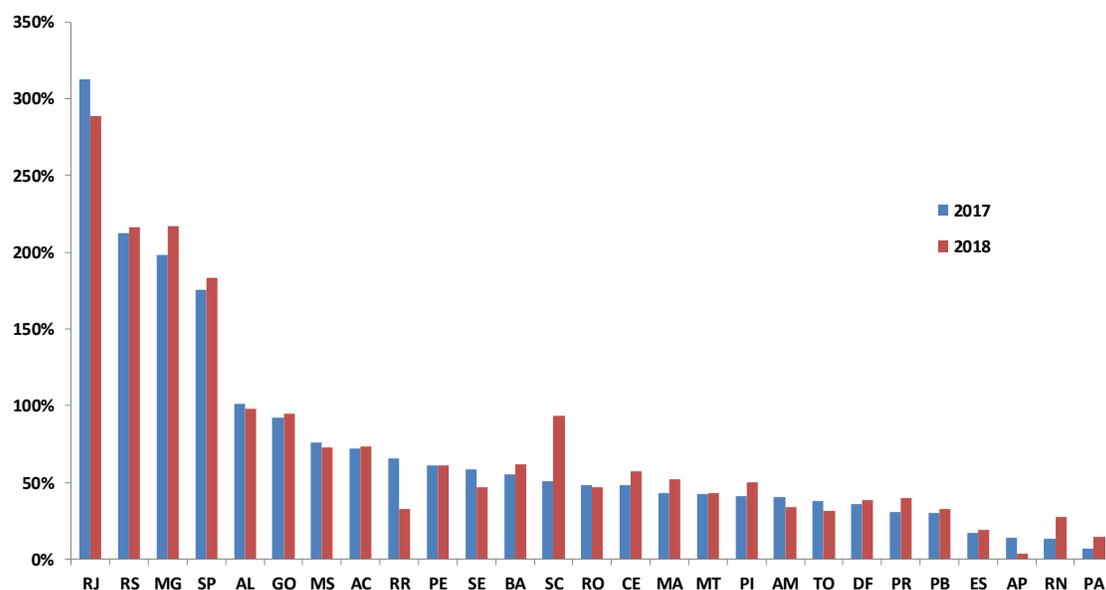
Paulo. With the exception of São Paulo, the others are either under the Fiscal Recovery Regime (Rio de Janeiro) or close to being under it,²⁷ with some states not paying the Union on the basis of a court injunction. See Appendix Figure 1 for each state's debt relative to revenue.

Appendix Table 7. Budget Result

FU	2018 (in R\$ millions)	% of NCR 2018	2019 (in R\$ millions)	% of NCR 2019	FU2	2018 (in R\$ millions) ³	% of NCR 2018 ⁴	2019 (in R\$ millions) ⁵	% of NCR 2019 ⁶	FU3	2018 (in R\$ millions) ⁸	% of NCR 2018 ⁹	2019 (in R\$ millions) ¹⁰	% of NCR 2019 ¹¹
AC	445.01	14%	345.83	10%	MA	72.27	1%	852.47	9%	RJ	9,070.09	23%	5,155.88	14%
AL	312.59	6%	877.51	16%	MG	-2077.75	-6%	3,073.28	7%	RN	964.18	13%	578.29	9%
AM	1355.5	16%	869.84	9%	MS	707.22	10%	315.81	4%	RO	745.06	16%	1,020.68	21%
AP	495.14	16%	1403.28	39%	MT	429	5%	1,202.3	12%	RR*	191.35	9%	-	-
BA	148.34	1%	1,119.12	5%	PA	719.21	6%	1,912.79	14%	RS	-2388.04	-10%	-2934.23	-12%
CE	378.37	3%	1,664.71	12%	PB	440.78	7%	630.65	10%	SC	-234.07	-2%	1,155.8	7%
DF	1,523.67	11%	1,999.3	14%	PE	817.89	5%	961.63	6%	SE	162.53	3%	54.88	1%
ES	1,140.28	13%	2776.55	28%	PI	-80.37	-1%	586.99	10%	SP	9,369.95	9%	9,427.12	9%
GO	-1176.54	-9%	-665.58	-4%	PR	3,195.48	13%	3,041.31	12%	TO	-413.91	-9%	7.56	0%

Source: STN.

Appendix Figure 1. Debt over Net Current Revenues



Source: STN.

Appendix Table 8 calculates for each and for all states the difference between actual personnel expenditures in 2018 and simulated expenditures in that year if states had abided by the Alert Limit of 54 percent of net current revenues set by the Fiscal Responsibility Law. If a modicum of fiscal discipline had been followed, a total of R\$ 43.276 billion would have been

²⁷ Rio Grande do Sul and Minas Gerais are negotiating with the Treasury to participate in the Fiscal Recovery Regime.

saved, or 0.628 percent of GDP. To put this number in perspective, the whole public sector in Brazil invested 0.65 percent of GDP in infrastructure in 2018, including national and subnational state enterprises.

Appendix Table 8. Potential Savings from Compliance with FRL Wage Bill Alert

FU	Net Personnel Expenses Incurred	54% of NCR	Potential savings
AC	3,192	2,617	575
AL	4,701	4,306	395
AM	7,398	7,347	51
AP	2,727	2,622	106
BA	19,745	17,944	1,801
CE	10,798	10,361	437
DF	10,235	10,995	-
ES	7,096	7,326	-
GO	13,957	11,503	2,453
MA	8,215	7,367	848
MG	43,951	30,377	13,574
MS	6,822	5,797	1,025
MT	10,829	8,222	2,607
PA	10,743	10,147	597
PB	6,023	5,180	843
PE	13,528	12,499	1,029
PI	5,628	4,662	966
PR	22,183	20,194	1,989
RJ	35,988	30,997	4,991
RN	6,199	5,039	1,160
RO	3,711	3,750	-
RR	2,080	1,939	141
RS	26,032	21,020	5,011
SC	13,427	12,237	1,190
SE	4,306	3,937	369
SP	82,686	82,352	334
TO	5,696	3,883	1,813

Source: STN