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Determinants of compliance with fiscal rules: misplaced efforts or hidden motivations?

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Abstract

The effects of the COVID-19 pandemic led many governments to suspend their fiscal rules to gain additional fiscal space to mitigate the social and economic consequences of the health crisis. As a result, the return and subsequent compliance with fiscal rules have been compromised, and the opportunity to improve them and consider the new global macroeconomic conditions has emerged. Understanding what elements relate to increased compliance with the rules and what has worked and has not can shed light on upcoming reforms. This paper uses an empirical model to investigate Latin American countries' factors influencing numerical compliance with fiscal rules. We associate three groups of specific factors with a greater or lesser probability of compliance with the rule: the macroeconomic and political environment of the countries and the design features of the enforced rules. We find that only changes in the macroeconomic and political context are associated with higher levels of compliance. In contrast, the institutional design of the fiscal rules does not seem to play an essential role in the compliance outcome. This result suggests that adjustments in this direction are not decisive for rule compliance.

Keywords: Fiscal rules, Latin America, Compliance

JEL Codes: E61, E62, E65

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1 Introduction

The crisis derived from the COVID-19 pandemic triggered an unprecedented response from the governments to mitigate its socio-economic consequences. As in many regions, Latin America and the Caribbean faced a slowdown in demand affecting the level of exports, tourism, and FDI (OECD, 2020). Additionally, to contain the contagion, several economies opted for lockdowns which affected the economic activity, leading to a significant contraction in total output, high unemployment rates, and weakened production chains. In addition, tax revenue contracted more than output, and commodity prices plummeted in early 2020, which represented a fall in the income of many countries in the region and compromised the available resources. Because of the shocks crafted by the pandemic on the supply and demand side, the countries' fiscal position weakened, and the deterioration, to a greater or lesser extent, of the fiscal balances was inevitable, as well as the increase in spending or total debt.

As the pandemic unfolded and the real effects on the economy became more precise, the fiscal rules[1], and the long-term commitments established therein turned out to be a very rigid limit to the expected and necessary response from governments. The shock in 2020 was of such magnitude that 70% of the LAC countries that have at least one fiscal rule decided to invoke the escape clause[2] to suspend or modify their objective for at least one fiscal year (Valencia and Ulloa-Suarez, 2022). In 2021 and 2022, despite the prompt recovery of economic growth, several countries maintained this action because the fiscal stimulus or

[1] A fiscal rule is defined as a long-lasting constraint on fiscal policy through numerical limits on budgetary aggregates, which cannot be frequently changed. Numerical targets are usually set on Budget Balance, Debt, Expenditure, or Revenue. See Kopits and Symansky (1998); Schaechter et al. (2012); Eyraud et al. (2018); Davoodi et al. (2022) for details.

[2] Often when countries implement a fiscal rule they are aware that meeting the objectives might not be possible under some circumstances. In these cases, a rule might be suspended or modified for some periods by invoking the escape clause to allow flexibility in its implementation and avoid affecting the fiscal discipline built. Nevertheless, the escape clause can be invoked only under specific scenarios such as recessions or natural disasters.

social assistance programs for households and firms required a longer duration than initially planned.

Although it is expected that most countries will return to their fiscal rules by 2023, the new macroeconomic conditions are not necessarily compatible with the objectives defined before the pandemic. Under this situation, a new possibility is open to recalibrate the rules' objectives and improve some of its design features. This paper investigates what have been the main determinants of compliance with fiscal rules since understanding what elements relate to increased compliance with the rules and what has worked and what has not can shed light on the upcoming reforms. We specifically focus on the numerical compliance of the rules. Although strict compliance may not be necessary to obtain some of its economic effects, an insight into the main drivers of compliance can make design and implementation efforts more efficient.

To investigate the factors influencing compliance with fiscal rules in LAC countries, we use an empirical model where we associate three groups of specific factors with a greater or lesser probability of compliance with the rule. First, we consider the motivations, or reasons, why a country implements a rule in the first place. Descriptive and empirical work on fiscal rules has shown that often countries implement a rule as a fiscal tool to improve the sustainability of public finances and as commitment devices (see Debrun and Kumar (2007); IMF (2009); Eyraud et al. (2018); Barreix et al. (2019)). In this way, changes in the macroeconomic panorama affecting public finance sustainability or accessibility to the country's financing could influence their behavior and, therefore, compliance with the rules.

Another strand of literature has identified that governments prefer rule-based policies because they can protect the fiscal policy from corruption and possible principal-agent problems between political voters and authorities (see Drazen (2004); Hagen (2005); Wren-Lewis

(2013)). Therefore, different configurations of the political environment can lead to different compliance outcomes. Finally, the need for fiscal rules to react to unexpected shocks has been highlighted at the operational level. Specifically, over time, several countries have included some features in the design of the rule to give them a greater degree of flexibility, transparency, and accountability (see Schaechter et al. (2012); Eyraud et al. (2018); Davoodi et al. (2022)). To the extent that the rules' design responds to the countries' needs, it is possible that the compliance record will improve since it would no longer be affected by unforeseen situations. Additionally, the efficiency of governments and the quality of institutions matter for fiscal outcomes. For instance, Bergman and Hutchison (2015) shows that when governments can manage and enforce their fiscal rules, these can effectively reduce the procyclicality of fiscal policy. Considering the dimension of compliance with the fiscal rule allows us to investigate whether they result from strong institutions or are the support of better fiscal performance.

Among the different factors we consider, we find that only changes in the macroeconomic environment, such as a wider output gap or increased inflation, affect the probability of compliance in LAC countries. This result is consistent with the idea that fiscal rules are frequently implemented to guide fiscal policy towards a more sustainable path or build an external reputation based on fiscal discipline. Changes in the macroeconomic environment can influence fiscal efforts to comply with the fiscal rule, mainly when the objectives are defined as a function of specific macroeconomic aggregates (e.g., GDP growth). However, that the government's institutional environment and the rule's design do not play an essential role in the result of compliance is an important point to consider when it comes to the optimal design and framework of fiscal rules. Considering recent reforms to fiscal rules in LAC countries, we observe that often great efforts are aimed at improving its institutional design while the definition of the objectives or restrictions is revised less frequently. Our results suggest that many of these changes do not end up being decisive for rule compliance.

The contribution of this paper to the literature is twofold. First, we estimate the possible determinants of compliance outcomes using numerical compliance rates for LAC countries and the rules implemented between 2000 and 2020. To the best of our knowledge, this is the first paper analyzing what has influenced the countries' compliance behavior for these economies. Second, we propose a framework comparable to previous work on compliance with fiscal rules in other regions. In this way, the determinants of compliance with fiscal rules for the LAC region can be compared with other types of economies where data is available, such as the European Union (see Larch and Santacroce (2020)).

The remainder of the paper is organized as follows. Section 2 presents the literature review. Section 3 presents the methodology for the estimations and descriptive statistics. Section 4 contains the results of estimating the determinants of compliance in LAC countries. Section 5 address some robustness checks, while Section 6 draws some concluding remarks.

2 Literature Review

The number of countries implementing at least one fiscal rule as part of their fiscal policy has increased considerably over time. In the case of LAC, the number of countries with a fiscal rule increased from just one in 2000 to thirteen in 2020, and its economic effects have been extensively studied (see Berganza (2012); Alberola et al. (2018); Barreix et al. (2019)). Since these effects can be observed from the moment the fiscal rule is implemented, on many occasions, the benefits of having a rule are not necessarily linked to its strict compliance. Because of this, numerical compliance with the rules has been studied to a lesser extent, especially in LAC countries.

In this regard, the existing empirical literature has studied compliance with fiscal rules

as a first step of a more general analysis of their influence on fiscal performance[3]. However, the results in the literature are mixed. On the one hand, Cordes et al. (2015) focus on the fiscal performance of expenditure rules (ER), first analyzing how often countries comply with this type of rule and then its effect on fiscal performance. They find that ERs have higher compliance relative to other rules, and it is positively correlated with the type of expenditure target set and the legal basis of the rule. They also find that the presence of ERs is associated with stronger fiscal performance. On the other hand, Skrok et al. (2020) analyzes the performance of fiscal rules across small and large economies, focusing on actual compliance scores and the strength of the fiscal rule framework. They find a significant gap between the presence of a fiscal rule and actual compliance with it and that having a fiscal rule does not guarantee that it will be effective or improve fiscal performance.

Few papers have focused exclusively on the determinants of compliance with fiscal rules in European Union (EU) countries. Frankel and Schreger (2013) studies the behavior of compliance with the supranational deficit rule of 3% derived from the Stability Growth Pact (SGP) using the forecasts of macro-fiscal aggregates of the countries. They find that government forecasts tend to be optimistically biased, affecting countries' compliance behavior and the subsequent accountability in the cases where the rule was breached. At the subnational level, Delgado-Téllez et al. (2017) use economic, institutional, and political factors to understand the determinants of non-compliance in Spanish regions. They find non-compliance is associated with macroeconomic shocks outside the control of subnational governments. The following adjustment requires extensive adjustment efforts, which in time are influenced by the pressure of the general government to comply with national and supranational fiscal rules.

[3]Studying the levels of compliance with fiscal rules is also indicative of efficiency in ruled-based frameworks. A priori, they seek to foster a sustainable path compatible with a given level of expenditure to avoid situations of indebtedness that have implications in the short- and long-run. In this scenario, we would be concerned about the responsible and sustainable management of debt ratios. Nonetheless, having a rule is not enough to ensure that public finances follow this path. Nevertheless, when we investigate actual compliance with the rules, we can approximate this issue from a better perspective.

The closest study to ours is the one by Reuter (2019) who identifies determinants of compliance with various EU numerical fiscal rules considering their institutional framework and the macroeconomic and political environments. The author finds that higher compliance rates are associated with the institutional framework of the fiscal rules as well as with their design characteristics. This result is opposite to ours, where for LAC countries, we observe that the macroeconomic environment plays a significant role in the probability of compliance with the rules. Another article that studies the effects of deviations from the targets set by fiscal rules is Larch and Santacroce (2020). The authors present a database with compliance records for EU countries. Besides, on its technical note, the authors present trends and correlations that offer a deeper understanding of what factors can contribute to compliance with fiscal rules.

To the best of our knowledge, the study by Skrok et al. (2020) is the only one that presents results disaggregated by groups of economies, including LAC. However, the determinants of compliance are studied for a sample that is not exclusively restricted to LAC countries. In this regard, this paper contributes to the literature on the analysis of the compliance behavior for LAC countries and analyses which macroeconomic, political, and institutional factors are associated with higher levels of compliance.

3 Estimation of potential determinants with numerical compliance

3.1 Data and methodology

One of the main problems in studying the determinants of compliance is that the available information to constitute a robust sample is very limited. The dataset proposed by Valencia and Ulloa-Suarez (2022) does an outstanding job in this regard and presents a good overview

of fiscal rules in LAC. More specifically, the authors gather information on whether and how LAC countries have complied or deviated from implemented fiscal rules. Nevertheless, the database shows that LAC countries have implemented fiscal rules for less than twenty years, and no country has implemented at least one rule uninterruptedly over those twenty years. On the other hand, the region has high heterogeneity since countries constrain their macroeconomic aggregates differently. Additionally, the differences in the number of rules they implement and their length lead to small sub-samples to analyze each rule separately. Contrary to the analysis of supra-national rules where most countries implement the same rule simultaneously, and the targets cannot be modified unilaterally, the analysis for LAC countries involves several modifications to their targets. Consequently, another possible problem is reverse causality, where countries adjust the targets of the rules or add features to their design because they met the targets or deviated from them.

In line with the literature, the analysis of countries' compliance with their fiscal rules is ex-post. Even if governments prepare their budgets and economic projections considering what is necessary to comply with their fiscal rules, it is difficult to verify that they only breach their rules in the event of an unexpected shock. Ex-ante analysis cannot be carried out due to the high uncertainty about future macroeconomic developments and also due to the degree of discretion that governments have. Using the dataset by Valencia and Ulloa-Suarez (2022) allows us to avoid this problem, since when the objectives are presented at the beginning of the period (e.g., at the beginning of the fiscal year or of a new government), and there is the legal possibility of adjusting it with the updating of the projections used, they consider the first objective set as a reference to assess compliance.

In addition to the abovementioned dataset, another influential and more general database is the IMF FAD Fiscal Rules Dataset by Davoodi et al. (2022). We use information from both sources to detail the rules that have been implemented in LAC. In this way, Table 1 presents

45 different numerical fiscal rules that are, or have been, implemented across fourteen LAC countries with their major modifications and a simplified description of the rule. In addition, considering all the mentioned caveats, we construct a sample assuming that every change or modification to the target initially set leads to a new and independent rule[4]. For the most part, countries tend to change targets more often than the macroeconomic aggregates they constrain or the level of government to which the rule applies.

Table 1: Summary of implemented fiscal rules in Latin American and the Caribbean, 2000-2020

		From	To	Description
Argentina	ER	2001	2004	Real increase in primary public spending <= real increase in GDP
	ER	2005	2020	Nominal increase in public expenditure <= increase in CPI
	BBR [1]	2001	2005	Deficit <= 7,000 millions in 2001
				Deficit <= 5,450 millions in 2002
				Deficit <= 3,650 millions in 2003
				Deficit <= 3,350 millions in 2004
				Fiscal balance equilibrium in 2005
Bahamas	BBR	2018	-	Reduction of fiscal deficit targets until FY 2020/21, then ceiling for deficit of 0.5% of GDP
	DR	2018	-	Debt-to-GDP <= 57.8% in FY2017/18
				Then reduction of debt-to-GDP until reaching 50% of GDP
Brazil	ER	2017	-	Limits expenditure growth for the current year to the inflation observed in the previous year.
	BBR	2001	-	Primary surplus target of the Central Government in nominal values and as a % of GDP
	GR	2008	-	Credit operations cannot exceed capital spending
Chile	SBR	2001	2007	Structural balance superavit of 1% of GDP
	SBR	2008	2008	Structural balance superavit of 0.5% of GDP
	SBR	2009	2009	Equilibrium in structural balance (0%)
	SBR	2010	2013	Structural balance deficit convergence to 1% of GDP
	SBR [2]	2014	2017	Structural balance convergence to equilibrium (0%)
	SBR [3]	2018	2018	Structural balance deficit <= 1.8 of GDP
		2019	2019	Structural balance deficit <= 1.6 of GDP
	SBR	2020	-	Structural balance deficit <= 3.2 of GDP
Colombia	SBR	2012	-	Decreasing path of the structural balance deficit.
Costa Rica	ER	2020	-	Limit to the growth of current expenditure of the Non-Financial Public Sector.
Ecuador	ER	2003	2009	Limits annual increases of central government primary spending to 3.5% in real terms
	ER	2010	-	Permanent expenses will be financed solely and exclusively with permanent revenue.

[4]While recurrent changes in a fiscal rule's target are incompatible with a rule-based framework to conduct fiscal policy, in all cases, the rules gravitate around restricting fiscal aggregates to guide fiscal policy along a sustainable path. For this reason, despite the many changes in the objectives, we consider the existence of rules throughout the period.

	BBR	2003	2009	Reduction of fiscal deficit targets until FY 2020/21, then deficit can't exceed 0.5% of GDP
	DR	2003	2009	Debt-to-GDP reduction of 16% of GDP until reaching 40% of GDP.
	DR	2010	-	Debt-to-GDP <= 40%
Honduras	ER	2016	-	Limits annual nominal current spending of Central Administration to the 10-year average real GDP growth plus inflation forcast for next year.
	BBR	2016	-	Non Financial Public Sector deficit <= 1% of GDP
Jamaica	BBR	2010	2017	To reach fiscal balance equilibrium by FY2017-18
	BBR	2018	-	Fiscal balance compatible with the debt target.
	DR	2010	-	Reduction of debt-to-GDP to 60% by 2026.
Mexico	BBR	2006	2014	Equilibrium of the central Goverment fiscal balance
	SBR	2015	2016	Limits real Increase of current expenditure to 2%
		2017	-	Limits the real increase in current expenditure to the annual growth rate of potential GDP
Panama	BBR	2009	2011	Equlibrium of the primary fiscal balance
	BBR	2012	-	Deficit targets of the Non Financial Public Sector Adjusted Fiscal Balance
	DR	2009	2011	Reduction of debt-to-GDP of the Non Financial Public Sector to 40% of GDP by 2015.
	DR	2016	-	Debt-to-GDP of the Non Financial Public Sector <= 40%
Paraguay	ER	2013	-	Limits annual increases of current spending of Public Sector to interannual inflation plus 4%
	BBR	2013	-	Central Administration fiscal deficit <= 1.5% of GDP
Peru	ER	2000	2002	Limits real growth of the non-financial spending of the General Government to inflation + 2%
	ER	2003	2015	Limits real growth of the non-financial spending of the General Government to 3%
	ER [4]	2016	2016	Limits real growth of the non-financial spending of the General Government to 6.6%
		2017	2017	Limits real growth of the non-financial spending of the General Government to 3.6%
	ER	2018	-	Limits real growth of the non-financial spending of the General Government to the result of the average of twenty years of real annual growth of the GDP with a margin of +/- 1 pp.
	BBR [5]	2000	2000	Fiscal deficit of the Consolidated Public Sector <= 2% of GDP
		2001	2001	Fiscal deficit of the Consolidated Public Sector <= 1.5% of GDP
	BBR [6]	2003	2013	Fiscal deficit of the Non Financial Public Sector <= 1% of GDP
	BBR [7]	2014	2014	Fiscal deficit of the Non Financial Public Sector <= 0% of GDP
		2015	2016	Fiscal deficit of the Non Financial Public Sector <= 1% of GDP
	BBR [8]	2017	2017	Fiscal deficit of the Non Financial Public Sector <= 2.5% of GDP
		2018	2018	Fiscal deficit of the Non Financial Public Sector = 2.3% of GDP
		2019	2019	Fiscal deficit of the Non Financial Public Sector = 2% of GDP
		2020	2020	Fiscal deficit of the Non Financial Public Sector = 1.5% of GDP
	DR	2016	2016	Gross debt of Non Financial Public Sector <= 25.6% of GDP
		2017	2017	Gross debt of Non Financial Public Sector <= 27% of GDP
		2018	-	Gross debt of Non Financial Public Sector <= 30% of GDP
Uruguay	DR	2006	2019	Limits annual increases of nominal public debt

[1] Targets of deficit were introduced at the same time by Law 25.152 in 1999.

[2] Additional to the target, it was imposed that in 2016-18 the structural deficit should be reduced in approximately 0.25% of GDP each year.

[3] Targets of structural deficit were introduced at the same time by decree 743 of 2018.

[4] Limits to expenditure set at the same time by supreme decree N 291-2016-EF.

[5] Limits of fiscal deficit set at the same time by Fiscal Prudence and Transparency Law (FPTL).

[6] Limits of fiscal deficit set at the same time by Fiscal Responsibility and Transparency Law (FRTL). This Law adds a transitory disposition and sets fiscal deficit targets for 2003 and 2004 of 2% and 1.5% of GDP, respectively.

[7] Limits of fiscal deficit set at the same time by the Law to Strengthen Fiscal Responsibility and Transparency (LSFRT).

[8] Limits of fiscal deficit set at the same time by Fiscal Responsibility and Transparency Framework of the Non-Financial Public Sector (FRTF).

3.2 Econometric framework

Considering the number of fiscal rules implemented by each country, the total years in force, and the major changes and adjustments of the rules mentioned, we obtain a sample with 207 observations for the period between 2000 and 2020. We use the information on numerical compliance from the dataset by Valencia and Ulloa-Suarez (2022) to construct our dependent variable as follows,

$$C_{i,r,t} = \begin{cases} 1 & \text{if country } i \text{ complied with rule } r \text{ at year t} \\ 0 & \text{otherwise} \end{cases} \tag{1}$$

To study the determinants of compliance for LAC, we follow the empirical model proposed by Reuter (2019) for EU countries. This model includes three vectors that group different characteristics that can influence the compliance behavior of countries, such as the design characteristics of fiscal rules; the economic, political, and social environment; and the supranational fiscal framework. The model proposed by Reuter (2019) exclusively studies compliance with fiscal rules in European countries. Unlike the LAC context, most European countries share a supranational fiscal framework. The fact that belonging to the Monetary and Economic Union (EMU) or being part of supranational treaties that seek fiscal coordi-

nation among members, such as the Stability Growth Pact (SGP), significantly affects the fiscal results of the countries. Contrary to LAC countries, they have complete autonomy to design their fiscal rules and flexibility to adjust their objectives when deemed necessary.

The starting point in Reuter (2019) are the reforms to the institutional framework of fiscal rules that, over time, have included more aspects to strengthen implementation and monitoring. Thus, the variables of interest are the characteristics of the fiscal rules that strengthen this institutional framework. Consequently, the author explicitly studies how these variables influence the probability of compliance with fiscal rules. However, the institutional framework in LAC countries is very heterogeneous, and it is not easy to define a specific group of variables of interest. For this reason, in this paper, we use a general model that considers variables that capture the design characteristics of the rule and also another group of variables that captures the macroeconomic and political environment.

Equation 2 describes the empirical model that seeks to explain the possible determinants of compliance for LAC countries. Unlike the model proposed by Reuter (2019), in the LAC context, we do not include the vector that captures the effects of the supranational fiscal framework. For the rest, we consider variables that are similar and adapted to the context of the LAC countries. This choice can also be helpful later in comparing the determinants of compliance with the fiscal rules between the two groups of economies. In this way, the model is described as follows:

$$c_{i,r,t} = \beta_0 + \beta_1 R_{i,r,t} + \beta_2 V_{i,r,t} + \epsilon_{i,r,t} \tag{2}$$

where $R_{i,r,t}$ includes several dummy variables capturing the characteristics of fiscal rule r, of country i in year t constituting the rule-specific vector, while $V_{i,t}$ is the country-specific vector and it covers the economic and political characteristics of country i in year t, and $\epsilon_{i,r,t}$ is the idiosyncratic error term. Because the dependent variable is binary, the estimation

of the model presented in Equation 2 is based on logistic regression. The base estimates do not include fixed effects, especially because all the variables included in the rule-specific vector do not vary much over time. In the robustness section we delve into other reasons why including fixed effects would lead to imprecise estimates with large standard errors.

Although there is information about fiscal rules for all countries that have implemented at least one from 2000 to 2020, not all have information for the predictors included in the model. In this way, the estimates exclude The Bahamas, Honduras, and Paraguay, and the sample is adjusted to 207 observations for the study period. Table 2 summarizes compliance rates for the entire sample and for each specific rule type. We observe that the debt rule presents the highest compliance rate (75%) and the expenditure rule presents the lowest (35%). Besides, the fiscal rule that countries implement most frequently is the fiscal balance rule (37% of the sample).

Table 2: Average compliance rates within categories

	Frequency	Compliance rates
All rules		
Compliant	131	63.29
Non-compliant	76	36.71
Total	207	100 %
Debt rule		
Compliant	41	74.55
Non-compliant	14	25.45
Total	55	26.56%
Deficit rule		
Compliant	49	64.47
Non-compliant	27	35.53
Total	76	36.72%
Expenditure rule		
Compliant	15	34.88
Non-compliant	28	65.12
Total	43	20.78%
Structural Balance Rule		
Compliant	26	78.79
Non-compliant	7	21.21
Total	33	15.94%

3.3 Covariates

The possible determinants of compliance are grouped into characteristics specific to the design of the rules and into characteristics related to the countries' economic, social, and political environment. Data were obtained from various sources such as the IMF FAD Fiscal Rules Dataset (Davoodi et al., 2022), the World Economic Outlook Database (IMF, 2021), various World Bank Indicators, and the dataset by Valencia and Ulloa-Suarez (2022) (see Appendix A). This section presents descriptive statistics of the possible determinants of compliance with fiscal rules.

3.3.1 Rule-specific variables

The rule-specific variables seek to capture different features of the design of fiscal rules. These characteristics refer to how the rule was introduced, the assumptions that support the objectives set, the levels of government it covers, the degree of flexibility it has, and how it is monitored and enforced. Thus, they are binary variables that indicate whether country i included the characteristic in question for some fiscal rule r in some period t. Table 3 is a contingency table showing the percentage of observations that have included a specific design feature of the fiscal rule. The table also shows the compliance rate within each group.

Table 3: Average compliance across groups, rule-specific characteristics

	% from full sample	Compliance rate within the group
Monitoring bodies		
1 - yes	41.06	71.76
0 - no	58.94	57.38
Enforcement bodies		
1 - yes	49.28	59.05
0 - no	50.72	67.65
Coverage		
1 - applies to General Government (GG)	56.04	61.21
0 - applies to Central Government (CG)	43.96	65.93
Legal basis		
1 - statutory	88.61	61.45
0 - constitutional	11.39	69.57
Escape clause		
1 - yes	44.93	58.77
0 - no	55.07	68.82
Independent body sets budget assumptions		
1 - yes	11.59	70.83
0 - no	88.41	62.3
Independent body monitors implementation		
1 - yes	12.56	76.92
0 - no	87.44	61.33
Fiscal Responsability Law		
1 - yes	90.82	63.3
0 - no	9.18	63.16
Stabilization features		
1 - yes	24.64	58.97
0 - no	75.36	76.47
Exclusion of public investment		
1 - yes	26.72	49.3
0 - no	73.28	70.59

3.3.2 Country-specific variables

In addition to the design of fiscal rules, the economic and political environment in which they are implemented can influence compliance. The development of macroeconomic indicators can influence the setting and subsequent compliance of the limits or objectives of fiscal rules in LAC countries since they are frequently revised. Table 4 shows some descriptive statistics

for the included variables, such as gross debt, nominal GDP growth, the output gap, and inflation. Similarly, we included the log of the EMBI to capture the position of countries in financial markets, which can put pressure on the image of their economy they seek to project. In this sense, the rules and their compliance on many occasions can serve as a reaffirmation of budgetary commitments of the governments and reflect fiscal discipline.

The institutional framework in which fiscal rules operate also influences compliance. On the one hand, low-quality institutions can hinder the implementation of the rules and create gaps between their design and operation. We included an indicator of the quality of institutions from the World Bank Governance Indicators, which considers control of corruption, government effectiveness, and regulatory quality. The descriptive statistics of the selected macroeconomic variables included in Table 4 reflect the high volatility that characterizes the economy of the region. In addition, we also observe that heterogeneity in the design and implementation of the rules across countries responds to their different macroeconomic needs. On the other hand, since many Fiscal Responsability Laws mention that rule's targets are set with each change of government[5], binary variables are included to capture the electoral cycle of the countries and their political orientation and thus are excluded from Table 4.

Table 4: Descriptive statistics for country-specific characteristics

Variables	Obs	Mean	Std. Dev.	Min	Max	p1	p99
Output Gap	207	-0.223	2.433	-14.142	7.327	-6.049	5.305
Nominal growth rate	207	6.231	11.627	-62.567	33.221	-23.064	31.177
Inflation	207	4.788	5.341	-1.55	53.548	-0.355	25.869
Gross Debt	207	50.407	32.347	3.879	147.203	4.989	143.895
EMBI TS	207	546.088	773.342	64.785	5773.833	82.595	5046.603
Government quality	207	-0.034	0.59	-0.965	1.461	-0.965	1.412

[5]In most LAC countries, fiscal rules have been implemented using a Fiscal Responsability Law. It may include general economic policy lines, annual objectives, strategies and goals (such as fiscal rules), projections of public finances, a debt anchor, or a sustainable debt trajectory

Further, we included variables capturing the political economy of the rules as country-specific variables because they are often implemented to mitigate the principal-agent and common pool problems (see Hagen (2002)). Both because of the delegation of public spending decisions and its redistributive nature, voters will choose those politicians who best represent their preferences. In this sense, fiscal rules are a good solution to the problem of time-inconsistency in policy choice where the politician faces his discretionary power minimized. Suppose the fiscal policy becomes more predictable due to the existence of rules. In that case, the preferences of the voters will be determined on the basis of the known behavior of compliance with the rules.

As pointed out by Reuter (2019), the preferences of the voters can be an omitted variable leading to biased results. We included two additional political economy variables from the DPI2020 Database of Political Institutions (Scartascini et al., 2020) to control for this. On the one hand, we include the autonomy of subnational governments over fiscal and legislative decisions since the voter's preferences can also be influenced by the administrative decisions of the most immediate levels of government. On the other hand, we include the party orientation with respect to economic policy. The effects of political orientation on economic results have been studied in the literature, focusing on the phenomenon of polarization (see Aaskoven (2020)) and the ideological difference between political parties (see Pettersson-Lidbom (2008)). In this way, we include this variable as a dummy that takes the value of 1 if the party's economic policy orientation is defined as left and 0 if it has another orientation such as center or right.

4 Results

4.1 Rule-specific estimations

We first analyze the estimates of the characteristics of the design of the fiscal rule and then the vector of country-specific characteristics that groups the macroeconomic and political environment variables. The estimation results for the rule-specific characteristics (vector $R_{i,r,t}$) when including as well the vector of country-specific characteristics is showed in Table 5. Column 1 reports the estimation results of the model, while columns 2 to 14 include each variable from vector $R_{i,r,t}$ separately. Following the general-to-specific approach by Hendry[6] (surveyed in Campos et al. (2005)), we exclude the insignificant variables consecutively, and Column 15 presents the coefficients of the final selection of significant variables.

The size of the sample and the high heterogeneity of the countries in LAC do not allow estimating the determinants of compliance with each fiscal rule separately. However, to capture this effect, we include three dummy variables in the model that corresponds to the implemented fiscal rules: expenditure, structural balance, or deficit rule, with the debt rule as the base group. We included these variables as part of the features of fiscal rules, thus in vector $R_{i,r,t}$. Including them in the model allows us to distinguish if there are statistically significant differences between implementing one rule or another.

The reduced model results in Column (15) show that among all the different features the design of the rules includes, only the exclusion of public investment or other priority items from the targets is statistically significant. However, this feature is associated with a lower probability of compliance. Otherwise, the results suggest that regardless of the set of design characteristics of the rules, they do not increase the probability of compliance in LAC coun-

[6]The general model includes all the variables specified in the model (i.e. all variables in the rule and country-specific vectors).

tries. As shown in Table 3 (Section 3.3.1), some design features have been included more often than others, as reflected in the percentage from the sample. However, in many cases, they remain at the same level where half of the sample includes the features and the other half does not. Interestingly, in both cases, the compliance rates within the subgroups remain very similar and above 55%. Therefore, the non-significant levels of the coefficients suggest that at the operational level, the countries respect all the design characteristics included in their fiscal rules in the same way, without one contributing to a higher level of compliance than another[7].

Nevertheless, when the design of the rule excludes some items such as public investment or other priority components from its target (*Exclusion of public investment*), it decreases the probability of compliance. On the one hand, governments seek to align the design of the rules with the country's economic reality. In the case of LAC countries, the high levels of inequality and the significant size of the social needs explain the exclusion of items such as public investment. However, in practice, many governments do not detail the excluded accounts from the ceilings or the rules in their reports, which in turn can result in lower numerical compliance.

Regarding whether the probability of compliance is influenced by the type of rule implemented, we observe that the difference between implementing a debt or a structural balance rule is not statistically significant. In contrast, the odds of complying with expenditure or deficit rules are lower than complying with a debt rule. More precisely, the probability of complying with a deficit or an expenditure rule is around 15% and 35% respectively, lower than the probability of complying with a debt rule. As governments seek to build and maintain a reputation in international capital markets, their ability and willingness to respect

[7]A similar result is found in the European Union fiscal rules framework. Using the fiscal rules index of the European Commission, Larch et al. (2021) find that improvements in the quality of national fiscal rules do not necessarily increase the probability of complying with them.

reduction targets or debt ceilings is central. Unlike the fiscal balance or expenditure rules, whose objectives tend to be more influenced by the government, its link with sustainability is less clear. Indeed, the difference in the effect between the deficit and expenditure rule is explained because the fiscal deficit is a policy variable. In contrast, the part of the public expenditure under the government's control in each period is sizably reduced.

Although the estimation results of the reduced model are not statistically significant, when we look at the general model (Column 1), we observe interesting results in the sign of all the coefficients and significance levels for some variables. Hence, their inclusion increases the probability of compliance with the rules. For instance, when a rule is implemented along with an FRL (*Fiscal Responsibility Law*), it increases the probability of compliance significantly. It often happens that when an FRL is introduced, the aim is to strengthen the fiscal framework. For example, it may include general economic policy lines, annual objectives, strategies and goals (such as fiscal rules), projections of public finances, a debt anchor, or a sustainable debt trajectory. In this way, when the fiscal rule is introduced as part of an FRL, the framework in which it operates contributes to achieving its objectives and, therefore, greater compliance.

On the one hand, we used two separate variables to capture the effect of the existence of strong and independent bodies that monitor compliance and enforce the rules (*monitoring* and *enforcement*, respectively). Surprisingly, the coefficient sign of formal enforcement procedures is negative. The expected effect is that decentralization of the different stages of the fiscal rules (e.g., design, implementation, enforcement, or accountability) is associated with a higher probability of compliance. Under this framework, governments cannot adjust the objectives of the rules to their forecasts or their way of conducting fiscal policy when they realize they may not be able to achieve the targets. To the extent that they have to comply with the rule, it fulfills its purpose of maintaining fiscal discipline over time.

Table 5: Logitic regression for the rule-specific characteristics, $R_{i,r,t}$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Monitoring	0.225	0.116													
	(0.141)	(0.071)													
Enforcement	-0.026		0.107												
	(0.153)		(0.074)												
Coverage	-0.194			-0.067											
	(0.137)			(0.068)											
Legal basis	0.004				-0.058										
	(0.210)				(0.117)										
Escape clause	0.23					0.069									
	(0.215)					(0.072)									
I.B. sets budgetary assumptions	-0.144						-0.059								
	(0.301)						(0.175)								
I.B. monitors implementation	-0.082							-0.049							
	(0.191)							(0.121)							
FRL	0.718***								0.181						
	(0.197)								(0.153)						
Cyclically adjusted components	-0.066									0.167*					
	(0.199)									(0.099)					
Exclusion of public investment	0.022										-0.135				-0.156***
	(0.188)										(0.093)				(0.059)
Deficit rule	-0.429***											-0.002			-0.158**
	(0.118)											(0.064)			(0.062)
Expenditure rule	-0.440***												-0.287***		-0.350***
	(0.103)												(0.069)		(0.068)
Structural balance rule	-0.323*													0.131	
	(0.188)													(0.130)	
Observations	202	207	207	207	202	207	207	207	207	207	207	207	207	207	207

Note: The table shows the estimation of Equation 2. The coefficients indicate average marginal effects and robust standard errors are in parentheses. ***, **, and * denote statistical significance at 10%, 5%, and 1% respectively. All regressions from Columns 1 to 14 include the country-specific variables but are not reported.

However, we also observe that rule enforcement by an independent body from the government is associated with a lower probability of compliance. We also observe this effect when the budgetary assumptions of the rules and the monitoring of their implementation are carried out by independent bodies (*I.B sets budgetary assumptions* and *I.B. monitors implementation*, respectively). This result reflects common practices that exist in the fiscal rules of LAC. First, the law often indicates that the objectives of the rules are outlined with each new government so that governments have a higher power of discretion in designing the objectives, the implementation, and the accountability of the rules. Therefore, when an independent body controls its execution, the probability of compliance is likely to decrease.

Second, on many occasions, the fiscal rules admit exceptions in the objectives. For example, spending on social programs might not be included in the government spending ceiling. In these scenarios, official government reports sometimes do not detail the excluded items and may diverge from the calculations of independent bodies. Another possibility is that the government's projections are more optimistic than independent bodies, leading to different conclusions about compliance with the rule. In any case, these practices can lead to counterproductive effects of including these characteristics in the design and operation of the fiscal rules.

Regarding the legal design, we also include as possible determinants variables such as the level of government to which the rule applies (*coverage*) and, more specifically, whether the rule was implemented statutorily or if it is part of the country's constitution (*legal basis*). On the one hand, in our sample, we find that governments choose to extend their fiscal rule to the general government half of the time, while the other half restrict it to the central government. However, the estimate indicates that extending the rule to the general government is associated with a lower probability of compliance. This result reflects one of the possible problems of monitoring and enforcement of the rule across different levels

of government since the larger it is, the more challenging it is to monitor. On the other hand, the probability of complying with the rule increases when they have a statutory legal basis. This result reflects that when governments take part in setting the rule's objectives, as is the case in most LAC countries, they take more ownership of the rule and show more commitment and willingness to comply with it. Contrary to when the rule comes from the constitution where the framework can be very rigid.

Two additional features have been included in the design of fiscal rules in LAC that seek to allow a certain level of flexibility to respond to unexpected shocks. First, the inclusion of well-defined escape clauses (*escape clause*), although non-significant, is associated with a higher probability of compliance. When countries face an unexpected shock, they may decide to invoke the escape clause that allows them to modify or suspend the rule. To the extent that escape clauses clearly define the processes for their activation and their return path to the initial objective, they offer governments a degree of flexibility to face such shocks without affecting their compliance record.

Second, the region's economies have consistently been characterized as procyclical. At the same time, fiscal rules have also been criticized for their procyclical bias. That is why it is common to see that some countries decide to adjust the rule's objectives for the economic cycle to minimize the possibility of having to resort to higher spending or larger deficits to minimize the costs of the cycle. However, our estimation shows that including this feature (*cyclically adjusted components*) is associated with a lower probability of compliance. This result reflects that, on many occasions, governments tend to be very optimistic with their forecasts. In the case of countries with natural resources (such as copper or oil and that face high volatility in their prices), governments tend to project a higher price, resulting in a reduced fiscal space in the face of an unexpected shock. This situation can lead to a higher probability of breaching the rule.

4.2 Country-specific estimations

Table 6 shows the results of the estimates of the model for the country-specific variables (vector $V_{ir,t}$). As in the previous section, the first column corresponds to the general model, and Columns 2 to 10 show the estimates for each variable from the country-specific variables separately. The last column presents the final selection of significant variables after conducting the general-to-specific approach by Hendry (see Campos et al. (2005)). All the estimations also include the vector of rule-specific variables $R_{i,r,t}$ but are not reported in the table.

The estimates for the country-specific characteristics in Column (11) show that the macroeconomic and political environment are more likely to determine the outcome of compliance with fiscal rules in LAC countries. However, the growth rate of the economy (*nominal growth rate*); percentual changes in the gross debt (*gross debt*) or in the EMBI (*EMBI TS*); and the autonomy in sub-national governments of budgetary decisions (*autonomy*), do not seem to affect the probability of compliance. Neither does the political environment appear to influence the compliance behavior of the governments, captured by the quality of institutions (*government quality*) or the electoral cycle (*legislative elections*).

On the contrary, a widening output gap (*output gap*) seems to decrease the probability of compliance with fiscal rules by the governments. When a country faces an unexpected aggregate demand or supply shock that affects the productive capacity of the economy, governments might decide to intervene, and depending on the size of the shock, they may need to make extra fiscal efforts, exceeding the limits established by the rules, and therefore, facing periods of non-compliance.

Table 6: Logistic regresson for the country-specific characteristics, $V_{ir,t}$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Output gap (-1)	-0.061***	-0.061***									-0.062***
	(0.019)	(0.014)									(0.013)
Nominal growth rate	0.0004		0.0004								
	(0.004)		(0.003)								
Inflation	0.055***			0.048***							0.024***
	(0.015)			(0.013)							(0.008)
Gross debt (log)	-0.041				0.086						
	(0.089)				(0.078)						
EMBI TS (log)	-0.071					-0.006					
	(0.069)					(0.065)					
Government quality	0.258						0.490***				
	(0.182)						(0.171)				
Legislative elections	-0.005							-0.026			
	(0.071)							(0.072)			
Left ideology orientation	-0.145*								-0.173**		-0.165***
	(0.078)								(0.072)		(0.054)
Autonomy	-0.057									0.0401	
	(0.134)									(0.109)	
Observations	202	202	202	202	202	202	202	202	202	202	207

Note: The table shows the estimation of Equation 2. The coefficients indicate average marginal effects and robust standard errors are in parentheses. ***, **, and * denotestatistical significance at 10%, 5%, and 1% respectively.

All regressions from Columns 1 to 14 include the rule-specific variables but are not reported.

Inflation also turns out to be a significant determinant in our estimates, and at higher inflation, we observe that the probability of complying with the rule increases. In the short term, inflationary surprises can ease the debt burden and improve some headline figures, making it easier to comply with the rules. Although inflation can also cause government spending to increase, almost all spending ceilings in LAC countries are adjusted for changes in prices, making the rule unrestrictive of government action if necessary.

Regarding the political environment, the estimations show that only the orientation of the political party concerning economic policy significantly affects the probability of compliance with fiscal rules relative to another type of political orientation. More specifically, the probability of complying with the fiscal rule is lower in political parties that define their economic policy as leftist. Two arguments explain this result. First, the conception of the role and size of the state by the different political orientations, and second, the preferences of the voters and the "fiscal illusion" they might suffer.

Traditionally, left-wing parties have been characterized by their propensity to resort to state intervention and advocate for a bigger state size, while right-wing parties resort to market dynamics. In this sense, an approximation that reflects the size of the state is public spending. Indeed, we observe a higher level of spending when party orientation concerning the economic policy is leftist relative to other types of political orientation[8]. Nevertheless, it is difficult to identify whether higher spending translates into higher social spending or whether it reflects campaign promises or not.

On the other hand, as Drazen (2004) points out, it has been argued that voters suffer from fiscal illusion when considering the size of government and its deficits. In this case, voters may underestimate the size of government spending needed to deliver on its promises and

[8]Comparing average total spending as a percentage of GDP of each group using data from the World Economic Outlook, April 2022.

the budget constraints it faces. In the end, without stipulated sanctions for non-compliance with the fiscal rules and the pressure from voters, parties with a left political orientation are more likely to face more difficulties in respecting the restrictions of the fiscal rules and, consequently, are associated with a lower probability of compliance.

4.3 Additional potential determinants

Building on the results of the previous sections, we consider additional determinants of compliance that focus on aspects closer to the operation of fiscal rules. For example, we consider the two most recurrent combinations of rules, as pointed by Valencia and Ulloa-Suarez (2022), and other variables to account for discretion included in their adjusted index for compliance. These variables include past results of compliance, the persistence in changing the objectives set, their level of discretion, the total number of rules in force, and the number of years since their implementation. Table 7 presents the estimation results for these additional variables. Each column from 1 to 8 presents a separate regression that includes the country-specific and rule-specific variables that are not reported.

We find that combining a budget-balance rule with a debt or an expenditure rule does not increase the probability of compliance relative to countries that have another combination of rules or do not combine them. On the contrary, implementing more than one rule simultaneously is associated with a higher probability of compliance. This result reflects that there is no exact combination that improves compliance, but, as is often observed, combining two or more rules to complement their scope positively influences the compliance outcomes. We also find that past compliance results are good predictors of current compliance. By including the lagged dependent variable and the persistence of compliance in the last two periods[9], we observe a positive and significant effect. Indeed, when a country manages to meet the objective of its fiscal rule in a period, it is more likely that it will continue this

[9]Persistence of Compliance is measured as a dummy variable that takes the value of 1 when compliance is observed in $(t-1)$ **and** $(t-2)$, and takes the value of 0 otherwise.

trajectory, possibly until an unexpected shock deviates it.

Similarly, when we consider the number of years the rules have been in place, we find that it has a negative and significant effect on the probability of compliance. In other words, the older the rule, the lower the probability of compliance. Although the effect is small (around 1%), this may reflect that over time, governments lose ownership of the rule and deviate from the objective since there are also no severe sanctions for non-compliance.

Table 7: Estimation results for additional determinants of compliance with fiscal rules

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Combination ER & BBR	0.023							
	(0.108)							
Combination DR & BBR		0.136						
		(0.107)						
Compliance (-1)			0.144**					
			(0.059)					
Persistence of Compliance				0.149**				
				(0.058)				
Persistence of target					0.074			
					(0.076)			
Well defined target						0.304**		
						(0.120)		
No. of rules in place							0.174**	
							(0.085)	
No. of years since implementation								-0.016**
								(0.007)
Observations	202	202	181	202	202	202	202	202

Note: The coefficients indicate average marginal effects and robust standard errors are in parentheses.
***, **, and * denote statistical significance at 10%, 5%, and 1% respectively.
All regressions include the rule-specific and country-specific variables but are not reported.

Lastly, we look into the behavior of governments concerning the targets initially set in the rules. In theory, fiscal rules are long-term commitments that seek to build fiscal discipline and reduce discretion in fiscal policy. In practice, we observe that these two principles are often violated. On the one hand, on several occasions, the design of the rule admits changes

in its objectives, which can alter the compliance results. On the other hand, the objectives of the rules may be very vaguely defined or subject to other indicators. Our results suggest that persistence in changing the target of the rule[10] does not significantly affect subsequent compliance. On the contrary, we observe a positive and significant effect when the objectives of the rules are well defined. This result reflects that when the objectives are well defined, they are, in turn, easier to communicate and monitor. Therefore, it increases the probability of compliance

5 Robustness

This section runs some robustness tests on the results of the reduced model for the rule- and country-specific variables (Column (15) from Table 2 and Column (11) from Table 6). We mainly consider subsamples from different characteristics since the shape and size of the data constrain other robustness exercises such as different econometric specifications. Nevertheless, we discuss why we do not include fixed effects in our estimates at the end of this section. Furthermore, we find similar results as the baseline when considering different sub-samples.

Table 8 presents the different estimates for the dependent variable that is defined as the compliance of country i, with the rule r, in year t. The first group of sub-samples considers three features that are present (or not) in the design of the rules. We find that, in general, our results are similar to those in the baseline. However, we find two exceptions. The exclusion of public investment from the objective of the fiscal rule does not seem to play a decisive role when the countries do not have escape clauses or when the objectives of the rule are well defined. In the same way, the orientation of the ruling party regarding economic policy does not seem to be relevant in the second case either.

[10]Persistence of target is measured as a dummy variable that takes the value of 1 when the target was changed in $(t-1)$ **and/or** $(t-2)$, and takes the value of 0 otherwise.

On the other hand, by splitting the sample into before and after the Global Financial Crisis, we find that the variables that capture the macroeconomic environment (e.g., output gap and inflation) are only relevant after the crisis hits the global economy. This result also reflects that the increase in fiscal rules since 2009 sought to build a fiscal framework that is more resilient to unexpected shocks.

Table 8: Estimation results based on subsamples

	Baseline	No escape clause	No change in target	Well defined target	Before 2009	After 2009
Output gap (-1)	-0.062***	-0.065***	-0.063***	-0.056***	-0.037	-0.067***
	(0.013)	(0.015)	(0.013)	(0.017)	(0.025)	(0.015)
Inflation	0.025***	0.019***	0.029***	0.015***	0.022	0.033***
	(0.008)	(0.007)	(0.009)	(0.005)	(0.017)	(0.012)
Left ideology orientation	-0.163***	-0.194**	-0.189***	-0.093	-0.136	-0.240***
	(0.054)	(0.088)	(0.055)	(0.061)	(0.088)	(0.062)
Exclusion of public investment	-0.155***	-0.071	-0.193***	-0.085	-0.164*	-0.169**
	(0.059)	(0.093)	(0.059)	(0.066)	(0.089)	(0.076)
Deficit rule	-0.160**	-0.188**	-0.181***	-0.198***	-0.251**	-0.126*
	(0.063)	(0.084)	(0.064)	(0.067)	(0.121)	(0.076)
Expenditure rule	-0.351***	-0.375***	-0.319***	-0.406***	-0.607***	-0.112
	(0.069)	(0.091)	(0.072)	(0.066)	(0.078)	(0.091)
Observations	207	114	189	170	73	134

Note: The coefficients indicate average marginal effects and robust standard errors are in parentheses. ***, **, and * denote statistical significance at 10%, 5%, and 1% respectively.

We now detail the reasons why a different econometric specification might be problematic. There are two main reasons why fixed effects are not considered in the estimates of the sections 4.1 and 4.2. On the one hand, the data is not a panel since a country can have two or more rules in force in the same year. On the other hand, the general model includes many dummy variables, and, to consider fixed effects, it is crucial to have high variability in the controls within each country. Although we observe a high variability between countries, we do not observe such variability within them. Additionally, there are other conditions that

we need to consider to use fixed effects. First, the dependent variable must be measured at least on two occasions for each individual. However, it is not the case in our sample since some countries have implemented a rule for only one period up to 2020. Similarly, we also observe countries with no variability in the dependent variable (i.e., (non)compliance in all the periods). Second, because of the slight variability in the predictors, the fixed estimates will be imprecise and will present large standard errors. However, this condition can be relaxed if more continuous than binary variables are used in the model specification.

6 Conclusion

The empirical analysis proposed on this paper shows that only changes in the macroeconomic and political context are associated with higher levels of compliance. The institutional design of the fiscal rules does not seem to play an important role in the compliance outcome, suggesting that adjustments in this direction do not end up being decisive for rule compliance. It may be the case that countries decide to implement fiscal rules as fiscal commitment devices rather than as an institutional framework for a better functioning of their fiscal policy (e.g., in terms of stabilization and sustainability). In this case, efforts made to improve the design of fiscal rules and their subsequent enforcement may be misplaced if the motivations for their implementation are not clear. This result can shed light on the adjustment of fiscal rules as countries overcome the crisis caused by the COVID-19 pandemic and adjust to new global challenges such as high inflation observed at the end of 2021 and during 2022.

Although we focus on numerical compliance with the rules in this paper, there is an institutional issue worth highlighting. Throughout the countries and the legislation of the fiscal rules, we observe that in their execution, the sanctions for non-compliance (i.e., deviation from the target) are absent. Along with the lack of transparency in data reporting, these issues may explain why the institutional framework of the rules and specific design features

do not play a significant role in compliance outcomes. However, we do not believe that they should not be considered when improving existing frameworks. On the contrary, the estimations suggest that beyond considering each design feature separately, a global analysis of the motivations and implementation of the rules is necessary and can foster a framework in which the institutional aspect contributes significantly to improved compliance results.

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Appendix A — Data description

Table 9: Data description and sources

Variable	Description and possible values	Source
Rule-specific variables		
Monitoring	1 if monitoring mechanism outside the government exists 0 otherwise	IMF Fiscal Rules Dataset
Enforcement	1 if formal enforcement procedure exists, 0 otherwise	IMF Fiscal Rules Dataset
Coverage	1 if fiscal rule covers only the central government 0 if fiscal rule covers the general government	IMF Fiscal Rules Dataset
Legal basis	1 if legal base of the rule is statutory 0 if legal base of the rule is constitutional	IMF Fiscal Rules Dataset
Escape clause	1 if well-specified escape clause is in place 0 otherwise	IMF Fiscal Rules Dataset
I.B. sets budgetary assumptions	1 if the supporting procedure/institution is in place 0 otherwise	IMF Fiscal Rules Dataset
I.B. monitors implementation		
FRL - Fiscal Responsability Law		
Cyclically adjusted components	1 if stabilization features are in place, 0 otherwise	IMF Fiscal Rules Dataset
Exclusion of public investment	1 if rule excludes public investment or other priority item, 0 otherwise	
Country-specific variables		
Output gap	Output gap in percent of potential GDP	WEO 2021
Nominal growth rate	Gross domestic product, current prices (national currency, billions)	WEO 2021
Inflation	Annual percentages of average consumer prices on year-on-year changes.	WEO 2021
Gross debt	Gross debt consists of all liabilities that require payment or payments of interest and/or principal by the debtor to the creditor at a date or dates in the future. This includes debt liabilities in the form of SDRs, currency and deposits, debt securities, loans, insurance, pensions and standardized guarantee schemes, and other accounts payable.	WEO 2021
EMBI TS	J.P. Morgan Emerging Markets Bond Spread (EMBI+)	WB - Global Economic Monitor

Government quality / Quality of institutions	Simple average of the following indicators: (i) Control of corruption: Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. (ii) Government Effectiveness: Reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. (iii) Regulatory Quality: Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Ranges from aprox. -2.5 (weak) to 2.5 (strong) governance performance	WB- Worldwide Governance Indicators
Legislative elections	1 if there was a legislative election in this year 0 otherwise	Database of Political Institutions, 2020 (IADB)
Left ideology orientation	1 if party orientation with respect to economic policy *is defined as left 0 otherwise * coded based on the description of the party in the sources.	Database of Political Institutions, 2020 (IADB)
Autonomy	1 if the state/provinces have authority over taxing, spending, or legislating 0 otherwise	Database of Political Institutions, 2020 (IADB)