An estimate of the impact of budgetary institutions on the fiscal balance of South American countries: 1975-2017

Uma estimativa do impacto das instituições orçamentárias sobre o equilíbrio fiscal dos países da América do Sul: 1975-2017

Una estimación del Impacto de las instituciones presupuestarias en el equilibrio fiscal de los países de América del Sur: 1975-2017

Marcelo Vilela de Carvalho Costa
ORCID: https://orcid.org/0000-0003-0471-1320
Universidade Estadual de Maringá, Brazil
E-mail: marcelovccosta@hotmail.com
Marcos Roberto Vasconcelos
ORCID: https://orcid.org/0000-0003-1476-4899
Universidade Estadual de Maringá, Brazil
E-mail: mrvasconcelos@uem.br

Abstract
Understanding the factors that influence a country's fiscal performance is imperative to achieve a balanced and sustainable fiscal policy in the long term. Thus, with this work, the proposal is to answer this question by analyzing the impact of institutions and fiscal rules on the primary result for a sample of South American countries. For this purpose, methodological procedures of bibliographic research and the application of an econometric model were used. The result reveals the impact of fiscal institutions and rules, as well as other economic variables and control policies. The conclusion is that fiscal institutions contribute to the achievement of positive primary results, while fiscal rules have no impact on this variable, revealing that for the countries examined here, the path to be followed is to improve their budget process through fiscal institutions.
Keywords: Fiscal policy; Fiscal institutions; South America countries; Economic.

Resumo
Entender os fatores que influenciam o desempenho fiscal de um país se revela imperativo para alcançar uma política fiscal equilibrada e sustentável no longo prazo. Assim, com esse trabalho a proposta é responder essa questão analisando o impacto das instituições e regras fiscais sobre o resultado primário para uma amostra de países da América do Sul. Para tal objetivo foi utilizado a aplicação de modelo econométrico. O resultado revela o impacto das instituições e regras fiscais, e ainda de outras variáveis econômicas e políticas de controle. A conclusão é de que as instituições fiscais contribuem para a obtenção de resultados primários positivos, enquanto as regras fiscais não apresentam impacto sobre tal variável, revelando que para os países aqui examinados o caminho a ser seguido é aperfeiçoar seu processo orçamentário por meio de instituições fiscais.
Palavras-chave: Política fiscal; Instituições fiscais; Países da América do Sul; Economia.

Resumen
Comprender los factores que influyen en el desempeño fiscal de un país es imperativo para lograr una política fiscal equilibrada y sostenible en el largo plazo. Así, con este trabajo se propone dar respuesta a esta pregunta analizando el impacto de las instituciones y las reglas fiscales sobre el resultado primario para una muestra de países de América del Sur, para lo cual se utilizó la aplicación de un modelo econométrico. El resultado revela el impacto de las instituciones y reglas fiscales, así como otras variables económicas y políticas de control. La conclusión es que las instituciones fiscales contribuyen al logro de resultados primarios positivos, mientras que las reglas fiscales no inciden en esta variable, revelando que, para los países aquí examinados, el camino a seguir es mejorar su proceso presupuestario a través de las instituciones fiscales.
Palabras clave: la política fiscal; Instituciones tributarias; Países de América del Sur; Economía.

1. Introduction

Until the 1980s, the economic theory could not explain a phenomenon recurrently observed in developed and developing economies: persistent and significant fiscal deficits in the 1970s and 1980s (Poterba & Von Hagen, 1990). If throughout history and the development of societies, the convention was consolidated that for the proper functioning of national States it was necessary to collect and manage resources, so these same States were not always able to gather the amount required for the provision of services such as national defense, infrastructure, education, health, among other public services. Recourse to monetary or public debt issuance was the solution found.

Thus, the fiscal policy, which determines both the collection and the use of resources by the government, has become a fundamental role for the functioning of the public power. And with that, the fiscal health of the public authorities assumed a crucial role, since the absence of sufficient resources or poorly managed resources could result in economic and social ills and even the loss of national sovereignty, given a scenario of growing public debt. In other words, there was recognition of the problems generated by a fragile fiscal situation.

The understanding also emerged that a fiscal deficit in the present represents only a greater fiscal burden for future generations. Recognizing this, the economic recommendation was to promote the intertemporal smoothing of the tax burden, making the fiscal results oscillate from deficit phases, in periods of war or economic recession, to surplus phases in periods of economic growth (Barro, 1979).

But, as pointed out, this was not observed from the 1970s onwards. Buchanan and Wagner (1977) tried to explain the phenomenon by assuming a lack of understanding of the fiscal dynamics by public managers and voters themselves, who would give more weight to the benefits in the short-term than the long-term costs caused by the fiscal imbalance. Authors such as Persson and Svensson (1989) and Alesina and Drazen (1991) used game theory tools to explain reasons for persistent public deficits. From this analytical framework emerged the importance and recommendation of the use of fiscal rules and budget institutions. Thus, from the 1990s onwards, several countries started to adopt fiscal institutions or rules to achieve better fiscal results (Schimidt-Hebbl & Soto, 2018). It is in this context, for example, that Brazil adopted, in 2000, its Fiscal Responsibility Law (Maciel, et al., 2021).

When observing the importance of the fiscal balance of the public sector, especially in the sustainability of the public debt, the South American region has been the object of many studies and discussions concerning this topic. It can be explained: in the second half of the 20th century, several countries presented recurring crises related to fiscal policy, such as fiscal deficits (financed by monetary or debt issuance) that contributed to hyperinflation and excessive external indebtedness that influenced the balance of payments crisis.

Thus, this study seeks to understand how the fiscal performance of the main countries in South America, that is, Argentina, Bolivia, Brazil, Chile, Colombia, Paraguay, Peru, and Uruguay (five countries in South America were not considered in this work, Venezuela, Ecuador, Guyana, French Guiana, and Suriname, due to a lack of information or unreliable available data), has been influenced by their fiscal rules and institutions, seeking ways for them to reach solutions to improve their performance, and efficiently provide public services. For this, it was necessary to understand the elaboration of the fiscal policy of each country, that is, the budget process and the institutions and rules that coordinate and restrict it for the period 1975 to 2017.

In addition to this introduction and final considerations, this work is organized as follows. Section 2 reviews the literature that seeks to understand how the institutions and rules that coordinate and constrain the budget affect a country's fiscal performance. To this end, the concepts of institutions, fiscal institutions, and fiscal rules, their importance for fiscal policy, and how other variables (economic, political, electoral, and social) affect fiscal performance are explained. The third section presents the databases and variables used. Section 4 presents the econometric model, the justifications for using such a

model, and the database adjustments. Econometric robustness tests are also presented to test and confirm the adequacy of the econometric model used and resolve any limitations in the database. Finally, in section 5, the regression is estimated, and the results of the survey are displayed, with the analysis of these to understand the causes of fiscal performance for the examined South American countries.

2. Institutions, Rules, and Fiscal Policy

As North (2018) puts it, institutions are rules that organize the functioning of society. Such rules can be both formal and informal and arise to bring stability and predictability to human life, solving the problem of cooperation that arises when there are many individuals involved with heterogeneous characteristics. Institutional changes, according to North (2018), tend to occur gradually, and its being affected by a game of forces between organizations within society to improve the results of the institutional game to implement the change. Acemoglu and Robinson (2012) follow the same line, stating that political and economic institutions are the result of politics, which consists of the game of forces between interest groups, with the group (or coalitions) with the greatest influence establishing the rule of the game, creating winners and losers. Thus, according to these authors, institutional change is difficult and gradual because of the friction between the dominant group and the rest of society, with the former seeking to maintain or change society for its benefit. They also open spaces for the so-called "attrition wars," which, as shown by Alesina and Drazen (1991), explains the persistence of fiscal deficits.

In this sense, fiscal (or budgetary) institutions serve to delineate and determine fiscal policies resulting from prevailing political and economic forces. Thus, they are all the rules and regulations according to which budgets are written, approved, and implemented (Alesina & Perotti, 1999; Blanco, et al. 2020). But in the literature on fiscal institutions (Alesina & Perotti, 1999; Von Hagen, 2002; Wyplosz, 2013) there is no consensus on the definition of fiscal institutions. Some works define institutions as restrictions, as North (2018) does in his work, and authors who follow the line of Wyplosz (2013) and Von Hagen (2002), who point out the difference between institutions and fiscal rules, despite both restrictions on budgeting and fiscal policy.

In the present work, fiscal institutions and rules are analyzed from the perspective given by Wyplosz (2013) and Von Hagen (2002), in which fiscal rules and institutions are restrictions of a different nature. In this context, fiscal institutions are defined as restrictions on budgeting and fiscal policy, having the characteristic of being qualitative and procedural restrictions. Fiscal rules, on the other hand, can be defined, according to Wyplosz (2013), as rules that, despite having different forms, impose numerical restrictions on either the fiscal result, public spending, or revenue. Or, as Von Hagen (2002) explains, fiscal rules are pre-budget constraints (ex-ante), such as balanced budget requirements and referendum requirements for tax increases. Thus, fiscal rules can be defined as ex-ante restrictions on budgeting and fiscal policy, usually being quantitative restrictions.

An important characteristic of fiscal institutions is that they would perform better than rules because they do not suffer from temporal inconsistency. Another characteristic of fiscal institutions is that they can be modified, implying differences in the level of indebtedness, deficit, and taxation (Wyplosz, 2013; Von Hagen, 2002; Alesina & Perotti, 1999).

Von Hagen (2002) and Hallerberg and Von Hagen (1999) point out that the level of centralization of fiscal institutions (budgetary process), whether at the executive or legislative level or distinct stages of the budget approval process, impacts the fiscal result, showing that the greater the level of centralization (either in the executive or the legislature) the greater the fiscal discipline, the smaller deficits, and the lower level of indebtedness. This centralization can occur, as Von Hagen (2002) shows, in the form of delegation or contract, in which delegation consists in the centralization of decision-making power on fiscal issues in an individual (usually the finance minister), having the authority to decide impasses and cut expenses. On the other

hand, the form of contract, according to Von Hagen (2002), consists of an agreement between the parties that are members of a coalition about fiscal targets to be achieved, which in the case of non-compliance entails a punishment (fall of the cabinet).

Other forms that institutions could have would be the constitution of a technical council (or independent fiscal institution) with fixed mandates that would have the power to either advise or decide on fiscal matters, the latter being the power that has little acceptance by governments and the population due to the absence of democratic representation (Wyplosz, 2013). Such an institution would depend, as shown by Hallerberg, Strauch, and Von Hagen (2009), and Von Hagen (2002), on political institutions, including electoral systems and ideological divergences in society (Wyplosz, 2013).

Several studies show that fiscal rules result in lower deficits and debt-to-GDP ratios for US states (Strauch, 1998; Von Hagen, 2002; Eichengreen 1990). However, if the debts of public entities outside the budget are considered (Von Hagen, 1991 apud Von Hagen, 2002), quantitative fiscal rules (e.g., numerical deficit limit) do not affect the proportion of debt. The relationship between debt reduction as a proportion of GDP and the deficit given by the existence of fiscal rules in place does not occur when including public entities outside the budget, as fiscal rules, despite being effective in the budget, do not cover what is outside the budget, which is reinforced by the problem of commitment on the part of politicians (government), who use mechanisms outside the budget to circumvent fiscal rules. Kiewiet and Szakalay (1996) and Von Hagen (2002) show that more fiscally restricted state governments result in higher levels of municipal indebtedness than elsewhere, which is because with no alternatives to indebtedness (due to fiscal restriction) politicians use other tax authorities (municipal rather than state) to achieve their goals and circumvent tax rules. Eichengreen and Von Hagen (1996) also state that countries with subnational governments with greater restrictions on indebtedness result in higher levels of central government indebtedness. Thus, part of the effectiveness of the fiscal rule is lost, according to Von Hagen (2002), as politicians look for ways to circumvent the rules by means outside the budget.

Furthermore, as Wyplosz (2013) suggests, fiscal rules can easily be changed by governments if they are not defined in constitutional norms. It is common for governments to circumvent fiscal rules (Von Hagen, 2002) in other ways, or even disrespect or revoke them. Wyplosz (2013) shows how governments that follow fiscal rules are governments that are already committed to fiscal responsibility, that is, those that least need to comply with the rules are those that comply with the rules.

Finally, the importance of fiscal institutions and rules is due to their impact on the fiscal performance of a State, which may encourage fiscal health and stability together with the provision of public goods needed by the population or may encourage instability within the fiscal framework. The lack of fiscal health, with chronic levels of fiscal deficits and public debt, as explained by Hallerberg and Von Hagen (1999), results, on average, in higher interest rates, lower economic growth, currency depreciation, and restriction of spending on goods and public services.

These effects on fiscal performance come from the control that fiscal institutions and rules exert over budgeting, restricting the government's scope of action (procedurally or quantitatively) and creating incentives for satisfactory performance. In this line, Von Hagen (2002) presents those fiscal rules and institutions are important because they restrict the discretion of politicians and have the capacity to reduce the effects of the problem of the common goods. The common pool problem, as Von Hagen (2002) points out, arises from the fact that those who pay and those who receive distributive policies are not the same people, with the result that the group that benefits pay only a fraction of the benefit received. The advantages of tax rules, according to this author, are their simplicity and transparency, as it facilitates their acceptance and understanding by society.

3. Databases and Variables Used

The databases used for this study were: World Bank Open Data (2019), Ipeadata (2019), Federal Reserve Economic Data (2019), Fiscal Rules Dataset (2019), Fiscal Monitor (2019), The Database of Political Institutions (Cruz, Scartascini and

Keefer, 2017), INDEC (2019), Indexmundi (2019) and the database used in the work of Binder et al. (2013). These different databases were used to obtain information on nine variables: primary result, real GDP growth, inflation, economic opening index, military head of government dummy, control dummy of all relevant legislative houses, dummy of fiscal, tax, and legislative autonomy for subnational governments, fragmentation index for the Lower House, a dummy for fiscal institutions (delegation model) and a dummy for fiscal rules (expenditure, fiscal result, and debt rule). These variables studied were obtained for eight countries in South America (Argentina, Bolivia, Brazil, Chile, Colombia, Paraguay, Peru, and Uruguay) for the period 1975-2017.

To determine the fiscal rules, data from the Fiscal Rules Dataset (IMF, 2019) were used for the period from 1985 to 2015, and for the years 2016 and 2017, the works of Lledó et al (2017) and the Organization for Cooperation and Economic Development (2019) were used. It should be explained that as fiscal rules came to be adopted by the countries studied at the end of the 20th century and beginning of the 21st century, as indicated by the Fiscal Rules Dataset (IMF, 2019), it was assumed that for the period before 1985 none of the countries studied had fiscal rules in force.

To determine the fiscal institutions presents in the countries studied, the works of Blöndal and Curristine (2005), Blöndal, Goretti and Kristensen (2003), Ayala and Perotti (2000), Abuelafia et al (2005), Diaz (2007), Molinas and Perez-Liñán (2005), Hallerberg, Scartascini and Stein (2009), and Vammalle and Rivadeneira (2019).

Regarding the variables presented above, within the database examined in this work, RP is the annual primary result concerning GDP (%), D are the binary variables that represent the countries studied, following the order respectively: Bolivia, Brazil, Chile, Colombia, Paraguay, Peru, and Uruguay (ranging from D_2i to D_8i) in relation to Argentina. Whereas CR represents the real growth of the annual GDP (%), IN is the annual inflation (% per year), IA expresses the index of economic opening (trade balance of goods and services divided by GDP, in %), M is a binary dummy that indicates the presence of military government (1 when present, 0 when not), CTL is a dummy that represents control of all relevant legislative houses by Congress (1 when control and 0 when not), AUT is a dummy that represents whether the subnational governments of a country have tax, fiscal and legislative autonomy (where 1 indicates that there is and 0 that there is not), FRAG is the fragmentation index that measures the probability of two deputies drawn from the same legislature randomly being from different parties, thus measuring the degree of fragmentation in the Lower House (ranging from 0 when there is only 1 party to 1). Perotti and Kontopoulos (1999) define fragmentation as "the degree to which policymakers internalize the cost of a dollar of aggregate spending". This demonstration already reveals that fragmentation is closely related to the problem of the common goods applied to fiscal policy, as the problem of the common goods occurs when individuals internalize only a small part of the cost of the total use of goods (aggregate budget expenditure) while fully internalizing individual benefits. Regarding fiscal rules, RG is a binary dummy that indicates the presence of fiscal rules that regulate government spending in that country (one indicating the existence, zero indicating no), RRF for fiscal rules that regulate the fiscal result, and RD for rules that regulate public debt.

The dummy MD represents the present fiscal institution, using the concept of fiscal institution by Von Hagen (2002), in which there are two types of fiscal institutions: delegation and contract. As for the countries analyzed the only form of fiscal institution found was the delegation model, or the absence of fiscal institutions (delegation or contract), MD represents the presence (1) or absence of the delegation model (0).

The expected signs for the coefficients of the variables in the estimated regression are shown in Chart 1:

Chart 1: Expected sign for model variables.

Variables	Expected Signal	Explanation
CR	Positive	Economic growth generates an increase in economic activity, which consequently results in higher taxes and allows better primary results.
IN	Positive	Because of the inverse Oliveira-Tanzi effect, inflation allows tax gains to the government, helping to increase the primary result.
IA	Positive	According to Fabrizio and Mody (2006), the literature has indicated that economic opening has a positive result on the primary result.
M	Positive	The presence of a military government leads to a centralization of the budget, which, according to Von Hagen (2002), would have a positive impact on the primary result.
CTL	Positive	The control of all legislative houses by the government would reduce the number of agents in the decision-making process, reducing the problem of common goods and having a positive impact on the primary result.
AUT	Negative	The autonomy of subnational governments results in fiscal decentralization, which according to Von Hagen (2002) harms fiscal performance.
FRAG	Negative	Increased fragmentation in the Lower House increases the number of individuals deciding on the budget, leading to a worsening of the commons problem and a negative impact on the primary outcome.
RG	Positive	As Von Hagen (2002) and Wyplosz (2013) indicate, fiscal rules are expected to generate fiscal control and a positive impact on the primary result.
RRF	Positive	As Von Hagen (2002) and Wyplosz (2013) point out, fiscal rules are expected to generate fiscal control and a positive impact on the primary result.
RD	Positive	As Von Hagen (2002) and Wyplosz (2013) suggest, fiscal rules are expected to generate fiscal control and a positive impact on the primary result.
MD	Positive	As Von Hagen (2002) indicates, the delegation of decision-making power to a single individual (the finance minister) centralizes the budget process, reducing the problem of common goods and resulting in a positive impact on the primary result.

Source: Author's elaboration.

In synthesis, the Chart 1 shows that the variables economic growth (CR), inflation (IN), the opening index (IA), military as head of government (M), Control of All Legislative Houses (CTL), spending fiscal rule (RG), fiscal result fiscal rule (RRF), and debt fiscal rule (RD) are expected to have a positive impact in the annual primary result concerning GDP (RP). In the other hand, the Autonomy of Subnational Entities (AUT) and the fragmentation index (FRAG) are expected to have a positive impact in the annual primary result concerning GDP (RP). After the synthesis of the expected signs for the variables tested here, the applied methodology is presented below.

4. Methodology

The methodology used in the present study is a mix of a document method and quantitative method, as indicated by Pereira et al. (2018) and Ludke and Andre (1986). The document method for research, based in Ludke and Andre (1986), was used in the research of articles and other texts that supplied the knowledge needed to understand the fiscal, economic e political

conditions of the countries analyzed. In turn, the quantitative method utilized consist in the use of statistical analysis (in this case an econometric model) to process and examine data with the objective of assessing the hypothesis, as indicated by Pereira et al. (2018).

The econometric model used for this study was the fixed effects model for panel data, following the work of Fabrizio and Mody (2006). The Fixed Effects Model is a panel data model in which each individual (represented here by Argentina, Bolivia, Brazil, Chile, Colombia, Paraguay, Peru, and Uruguay) has a specific intercept, so that the heterogeneity between the individuals, which cannot be observed, can be analyzed using dummy variables. Thus, the model analyzes both variations between countries and variations between different periods. The model has the following configuration:

$$Y = \alpha_1 + \alpha_2 D_{1i} + \ldots + \alpha_k D_{ki} + \beta_1 x_{it} + \ldots + \beta_k x_{kt} + u_{it} \tag{1}$$

where D corresponds to the intercepts of each individual, being 1 when the data refer to the individual and 0 when not, x is the independent variables, α_1 is the intercept, β is the parameters, and u_{it} is the error term.

This model has the advantage of capturing heterogeneity between individuals that would not otherwise be captured, in addition to allowing the analysis of variables that change both between individuals and over time. And it is because of these advantages that this model was chosen for the present study.

As North (2018) and Acemoglu and Robinson (2012) show in their work, institutions have a rigidity that makes them difficult to change, because of the costs of changing them and only generate advantages for certain groups, who only give up these advantages when the costs outweigh the benefits for those who hold the most power. Thus, institutions, including fiscal ones, tend to remain constant over time.

Considering that institutions vary little within the same country, it is necessary to analyze different countries with different fiscal institutions to understand their impact. But as each country has its cultural and institutional peculiarities, often so informal that they cannot be quantified, this makes it necessary to measure this difference to assess the real impact of fiscal institutions. And to achieve this impact, the fixed-effect model proves to be the best to achieve this goal.

Thus, the model to be estimated in this work is:

$$RP = \alpha_1 + \alpha_2 D_{2i} + \ldots + \alpha_8 D_{8i} + \beta_1 CR_{it} + \beta_2 IN_{it} + \beta_3 IA_{it} + \beta_4 M_{it} + \beta_5 CTL_{it} + \beta_6 AUT_{it} + \beta_7 FRAG_{it} + \beta_8 RG_{it} + \beta_9 RRF_{it} + \beta_{10} RD_{it} + \beta_{11} MD_{it} + u_{it} \tag{2}$$

For this study, some changes were necessary to be made in the variables, as a large part of the countries studied had periods of military dictatorship and closed congress, so there is no available data for several variables related to the legislature in these periods. To solve this issue it was considered that, when there was a military dictatorship, the government has control over the relevant legislative houses (since the military government has the power to close the Congress and use force), that the subnational government units do not they have fiscal, tax and legislative autonomy, as the military government has the power to command and dismantle with the use of violence, and the fragmentation index for the lower chamber assumes the value of 0, as the government has absolute control of the congress, which it would be equivalent to the congress being all occupied by government deputies.

This correction criterion was used in two ways. For countries that present values for the variables related to the congress, such as the Brazilian case, the correction was made since despite appearing to be democratic normality with the congress in operation, the Executive commanded by the military had absolute powers, making the actions of the Congress invalid. The second way was for countries where Congress was closed, where gaps were filled in accordance with the

correction criteria mentioned above.

A specific case that required correction was that of Uruguay, as despite not having the presence of a military head of government (variable M equal to 1), there was a dictatorship in Uruguay in the period 1973-1985 but headed by a civilian government supported by the military. Thus, the variable M for the period in the series that corresponds to the civil-military dictatorship will assume value 1, and for the Congress variables, the same corrections were applied as for other countries in the series that had military governments.

Another change was in the AUT variable (dummy representing whether a country's subnational governments have tax, fiscal and legislative autonomy) from subnational governments. For countries that lack this variable (Bolivia, Paraguay, Peru, and Uruguay) in the Political Institutions database, texts on fiscal institutions and rules of these countries were used, and as these documents indicate that these countries do not give this autonomy to subnational governments, the AUT variable takes on a zero (0) value.

5. Discussion and Analysis of Econometrics Results

For the present study, to develop the econometric model described in section 4, several tests were conducted based on Gujarati and Porter (2015) to indicate whether the fixed effects model is the best model to be used and whether there are problems with multicollinearity, autocorrelation, and heteroscedasticity, and in the existence of these problems, corrections be made.

The tests used to identify whether the fixed effects model is the best for this study were the Chow tests, to decide between the stacked OLS model and the fixed effects model, and the Hausman test to decide between the fixed effects model or random-effects model. Below are the test results in tables 1 and 2:

Table 1 - Chow Test.

Chow test	
Estimated F	Prob > F
F(7, 321) = 20,70	0,0000

Source: Own elaboration based on research data.

As shown in the Table 1, The Chow test indicates that between the stacked OLS and the fixed-effects model, the fixed-effects model is preferable, with a statistical significance of 1%.

Table 2 - Hausman Test.

Hausman test	
Estimated chi2	Prob > chi2
chi2 (10) = 23,03	0,0106

Source: Own elaboration based on research data.

The Hausman test, as presented in the Table 2, indicates that between the random effects model and the fixed effects model, the fixed effects model is preferable with a statistical significance of 5%. Thus, the tests confirm the choice of the fixed effects model for estimating the regression.

To identify the problems of multicollinearity, autocorrelation, and heteroscedasticity, the VIF (Variance Inflation Factor), the Wooldridge test, and the Wald test were calculated in tables 3, 4, and 5, respectively. The results are presented

below:

Table 3 - Calculation of Variance Inflation Factors (VIF).

Variable	VIF	1/VIF
FRAG	3,77	0,265092
RG	3,27	0,306261
M	3,19	0,313006
AUT	3,01	0,331991
RD	2,09	0,478243
MD	1,92	0,519785
RRF	1,9	0,526913
IA	1,64	0,608843
CTL	1,54	0,650857
IN	1,05	0,950962
CR	1,04	0,95749

Source: Own elaboration based on research data.

As none of the estimated values (VIF) for the variables, show in the table 3, is greater than 10, there is an indicative of no problematic level of multicollinearity, as indicated by Gujarati and Porter (2015).

Table 4 - Wooldridge Test.

Wooldridge Test	
Estimated F	Prob > F
F (1,7) = 20,265	0,0028

Source: Own elaboration based on research data.

In the Table 4 the Wooldridge test indicates the presence of autocorrelation in the regression, with a statistical significance of 1%.

Table 5 - Wald Test.

Wald Test	
Estimated chi2	Prob > chi2
chi2 (8) = 1674,98	0,0000

Source: Own elaboration based on research data.

Furthermore, the Wald test presented in table 5 indicates the presence of heteroscedasticity in the regression with a statistical significance of 1%. To correct the problems of autocorrelation and heteroscedasticity, the Prais-Winsten regression was estimated with corrected heteroskedastic panel standard errors. After the adjustments are made, the results of the estimated regression are shown in Table 6.

Table 6 - Estimated Regression Results.

Variables	Regression with Prais-Wisten correction
R²	0,0687
Wald chi²	34,6 prob = 0,0003
CR	0,0447952 (0,0279521)
IN	0,0004414 (0,0002325)*
IA	0,0449541 (0,0150692)***
M	0,6456006 (0,8141884)
CTL	-0,0017561 (0,0008502)**
AUT	2,437733 (0,9042915)***
FRAG	-0,6801386 (1,399934)
RG	**0,7071892** (0,77682)
RRF	0,4695301 (0,8261775)
RD	-0,3131505 (1,047301)
MD	1,862243 (0,6618543)***
Constant	-4,273483 (1,229871)***

Note: *, ** and *** indicating statistical significance of 10%, 5% and 1%, respectively. Source: Own elaboration based on research data.

The results of the estimated regression in the Table 6 indicates that most variables showed the expected sign as presented in chart 1, except for Control of All Legislative Houses (CTL), Autonomy of Subnational Entities (AUT), and Debt Rules. However, of all the variables, only inflation (IN), the opening index (IA), Control of All Legislative Houses (CTL), Autonomy of Subnational Entities (AUT), and the Delegation Model (MD) showed statistical significance.

Moreover, the economic growth (CR) has no impact on the primary result, indicating that such growth, even though it generates higher revenues, does not result in better fiscal performance. Inflation, on the other hand, has a positive and significant impact on the primary result, confirming what is indicated in the literature that the governments studied benefited from inflation (via monetary issuance) and the inverse Oliveira-Tanzi effect to generate positive primary results.

The impact of the opening index on the primary result is statistically significant and positive. This relationship is in line with the relationship shown in the work by Fabrizio and Mody (2006), according to which the greater the economic opening of a country, the greater the fiscal responsibility. An explanation for this is that, with greater economic opening, countries come to depend on foreign capital flows, and if the government does not introduce responsible fiscal policies, foreign

capital leaves the country, resulting in difficulties in the balance of payments, in exchange, and in inflation. Thus, economic opening would generate greater market control over the government.

It was expected that the presence of the military in power (military dictatorship) would have a positive impact since, without Congress or subnational entities, fiscal policy would be centralized in the Executive. However, the regression result indicates that the presence of a military man as head of government does not affect the primary result, indicating that despite the centralization of fiscal policy, the ability to develop fiscally irresponsible policies is the same as that of democratic regimes.

It was also expected that the control of all legislative houses would have a positive impact on the primary result by reducing fragmentation and allowing fiscal adjustments more easily, but this result was not confirmed. This can be explained by the fact that the control of the relevant legislative houses both allows the government to apply measures of fiscal adjustment and responsibility, as well as to apply measures of expansion and fiscal irresponsibility.

As explained in the work by Von Hagen (2002), fiscal decentralization is expected to result in higher deficits and worse fiscal performance, by increasing fragmentation and the commons problem, applying to fiscal decentralization with subnational governments. However, contrary to theory, when subnational states have fiscal, tax, and legislative autonomy, there is an average increase, for the countries studied, of 2.44% of GDP in the primary result. Rodden's (2002) work provides an explanation for this result, in which he states that in federalism subnational governments have representation in Congress (usually in the upper chamber), and this generates a strong power of control over the central government by subnational governments, resulting in tighter central government fiscal policy (better fiscal performance).

Regarding fiscal rules, their impact on the primary result is not statistically significant. Despite going against the literature, which states that fiscal rules are important for fiscal responsibility, it also provides an answer for this result. As the literature shows (Von Hagen, 2002), fiscal rules are difficult to apply and impose fiscal discipline, as the government that establishes and enforces them is already a government willing to be fiscally responsible. But as the government is the one who enforces the rule, in the end it can revoke the fiscal rule, making it ineffective. Another aspect is that the government can breach it using loopholes in the rule, since, as it is a contract, it has a temporal inconsistency (Wyploszs, 2013), making it difficult to sustain and apply.

Regarding fiscal institutions, the statistical results indicate that, at a significance level of 1%, the presence of the delegation model for the countries studied results in an average increase of 1.86% in the primary result. This result corroborates the thesis of Von Hagen (2002) that, by the delegation model, generating greater budget centralization, there is a reduction in the common goods problem and an improvement in fiscal performance.

One of the important results of this work is that for the South American countries studied, fiscal institutions are more effective than rules in achieving higher primary results, which reinforces the advantages of institutions over rules presented by Wyplosz (2013), in which institutions do not present the problem of temporal inconsistency like fiscal rules, and they do not present the problem of being circumvented like fiscal rules, since institutions consist of the decision-making process itself.

6. Conclusions

In this work, we sought to understand how fiscal institutions and rules, together with other variables, affect the fiscal performance of South American countries (Argentina, Bolivia Brazil, Chile, Colombia, Paraguay, Peru, Uruguay) for the period 1975 to 2017.

It is possible to reach some conclusions with the results obtained. The first is that economic growth does not affect fiscal performance for the countries and periods analyzed. This indicates that regardless of the state of the economy (robust growth or recession), it is up to the government to apply responsible measures to achieve good fiscal performance.

Regarding inflation, this positively impacted fiscal performance, confirming the economic literature that in the period studied, the countries studied took advantage of inflation (through the inflation tax and the inverted Oliveira-Tanzi effect) to generate positive fiscal results. However, the cost of using this tool proved to be remarkably high for the population of these countries, and controlling this inflation was an arduous task. Thus, it is concluded that such an instrument should not be used to obtain good fiscal performance.

Another important conclusion is obtained when analyzing economic opening, which has positive impacts on fiscal performance. This influence reveals that the market, with the presence of economic opening, influences the government's fiscal policy. This is possible because the threat of capital flight from the country, (and the exchange and external problems in sequence), forces governments to be more responsible. Thus, governments can use trade liberalization as a control tool to achieve greater fiscal responsibility.

When analyzing the effect that military governments, a major feature of the period studied, had on the fiscal performance of the countries analyzed, the results indicate that they do not impact the primary result. This contradicts the expected effect based on the literature (given the concept of centralization by Von Hagen, 2002). Thus, it is possible to conclude that, for the countries analyzed, both dictatorial and democratic governments have the same propensity for both fiscal responsibility and irresponsibility.

Regarding the control of all legislative houses, the results indicate that, given the negative impact of this variable on the primary result, it is important that the Legislative remains independent and overseeing the government because when controlled by the Executive, the tendency is to be fiscally irresponsible.

The autonomy of subnational entities contradicted the expectations given in the literature, presenting the positive impact between its existence for the primary result. Based on this, it is possible to conclude that decentralization, in this case, is something to be pursued, as sub-national entities with their representation in the central government and their political power exercise benign control over the national government, encouraging fiscal responsibility.

Another political variable that also contradicted what was indicated in the literature was the fragmentation index, which, instead of having a negative impact, showed statistical insignificance. This result indicates that reducing fragmentation in Congress, a topic so discussed in the media, would not have the effect of improving the health of public finances and that fiscal policy does not depend on how many parties are in Congress.

Finally, the null impact of fiscal rules and the positive impact of fiscal institutions confirm Wyplosz's (2013) thesis that there is a superiority in the effectiveness of institutions over rules. This factor is crucial when looking at the history that the countries studied spent a great deal of time and effort in the period 1975-2017 to implement fiscal rules, but little was discussed and elaborated on the budget process (institutions).

Thus, it is crucial that the countries studied seek to invest their resources and efforts in improving institutions rather than rules, improving their budget process with new institutions or reformulating them. Only in this way will they be able to get out of their history of economic problems whose fiscal causes left painful marks in their histories in the period 1975-2017.

As future research, it is intended to conduct a more in-depth study of the causes that explain the difference between the expected impact and the estimated impact of the variables in which this difference was observed (such as CTL, AUT and RD) or presented statistical insignificance (CR, M, FRAG, RG, RRF, RD). It will also examine whether other fiscal institutions, in addition to delegation and contracting models, can impact the fiscal balance of the public sector, including across a broader sample of countries.

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remaining inaccuracies.

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