

Article

Determinants of compliance with personnel expenses and primary result in Brazilian States: an analysis from 2017 to 2022

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This scientific article evaluates the determinants of fiscal management represented by compliance with the thresholds of the Fiscal Responsibility Law and the primary result target. The study adopted an econometric approach, using binary variables regarding the Brazilian states' compliance with the total personnel expenditure target and the primary result target. Social and accounting data and the manager's characteristics were used to analyze the determining factors. In addition, a multiple regression analysis for panel data was conducted, examining the period from 2017 to 2022. In the model for total personnel expenditure, transfers from the federal government to the states and tax revenue favor non-compliance with the thresholds of the Fiscal Responsibility Law. On the other hand, for the primary result target, transfers, accounts payable, payment capacity, and the managers' education level and age favor compliance with the target.

Keywords: fiscal management; fiscal responsibility law; primary result; multiple regression.

Determinantes do cumprimento das despesas com pessoal e do resultado primário nos estados brasileiros: uma análise de 2017 a 2022

O artigo científico avalia os determinantes da gestão fiscal representada pelo cumprimento dos limites da Lei de Responsabilidade Fiscal (LRF) e o cumprimento da meta do resultado primário. Para atender aos objetivos propostos, fez-se uma abordagem econométrica, na qual se utilizou a variável binária para cumprimento da meta de despesa total com pessoal e do resultado primário por parte das unidades federativas brasileiras. Para a análise dos fatores determinantes, usaram-se dados sociais e contábeis, características do gestor e uma análise de regressão múltipla para dados em painel, examinando o período de 2017 a 2022. No modelo para a despesa total com pessoal, as transferências da União para os estados e a receita tributária favorecem o não cumprimento dos limites da LRF. Por outro lado, para a meta do resultado primário, as transferências, os restos a pagar, a capacidade de pagamento, a escolaridade e a idade do gestor favorecem o cumprimento da meta.

Palavras-chave: gestão fiscal; lei de responsabilidade fiscal; resultado primário; regressão múltipla.

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Determinantes del cumplimiento de los gastos de personal y el resultado primario en los estados brasileños, un análisis de 2017 a 2022

Este artículo científico evalúa los determinantes de la gestión fiscal representados por el cumplimiento de los límites de la Ley de Responsabilidad Fiscal (LRF) y el cumplimiento de la meta de resultado primario. Para alcanzar los objetivos propuestos, se adoptó un enfoque econométrico, utilizando la variable binaria para el cumplimiento de la meta de gasto total en personal y la variable binaria para el cumplimiento de la meta de resultado primario por las unidades federales brasileñas. Además, se utilizaron datos sociales y contables y características de los gestores para analizar los factores determinantes, así como un análisis de regresión múltiple para datos de panel, examinando el período de 2017 a 2022. En el modelo para el gasto total de personal, las transferencias del gobierno federal a los estados y los ingresos fiscales favorecen el incumplimiento de los límites de la LRF. Por otro lado, para la meta de resultado primario, las transferencias, las deudas impagadas, la capacidad de pago, el nivel educativo y la edad del gestor favorecen el cumplimiento de la meta.

Palabras clave: gestión fiscal; ley de responsabilidad fiscal; resultado primario; regresión múltiple.

1. INTRODUCTION

Public management requires a stable and balanced financial condition to carry out its functions (Lima & Diniz, 2016). The strategies outlined by public managers are essential tools for using public resources to meet the demands of the population (Alonso et al., 2015). To assist fulfilling its objectives, public management uses the budget, an instrument that can help the Executive Branch achieve quality management through programming, execution, and control (Giacomoni, 2012).

Fiscal responsibility is an important factor of directional alignment for conducting Executive Branch actions. Improvements in fiscal management standards are associated with better social control tools within public management, providing higher socioeconomic development (Silva & Crisóstomo, 2019). Considered a landmark in Brazilian public management, in 2000 the Fiscal Responsibility Law (LRF) was passed, which brought public finance rules oriented to responsibility in fiscal management, with the parameters of transparency and public accounts' balance, in other words, fiscal balance (Leite et al., 2018).

The lack of planning and control of public spending can become a problem, preventing cost reduction of public organizations and decreasing management approval (Leite et al., 2018; Souza, 2010). In order to improve the performance of public management, the theory of new public management (NPM) advocates the adoption of monitoring techniques for performance and results, control, and measurements (Speklé & Verbeeten, 2014). Therefore, performance and result indices act as instruments for quality assessment, improving public management.

Hence, this paper analyzes the determinants for complying with fiscal management, from a state perspective. In particular, we used two indicators: the primary result of Brazilian states and total personnel expenditure (DTP). To meet the proposed goal, we used multiple regression for panel data, examining the period 2017-2022, social and accounting information, and the characteristics of state managers.

Fiscal management indicators were chosen because they are included in the states' fiscal management report (RGF), regarding DTP (Secretaria do Tesouro Nacional [STN], 2022a), and in the summary report on budget execution (RREO), in the case of primary result (STN, 2022b), showing the fiscal health situation of municipalities, states, and the Union, which are obliged to publish them periodically. RREO and RGF are required by the 1988 Federal Constitution, and their preparation and publication rules are established by LRF.

This study is appropriate because, even with the coexistence of laws and rules that recommend fiscal balance, there are no guarantees that managers will be able to achieve the expected results. In 2022, six states (22%) did not reach the limits imposed by LRF, and 10 (37%) did not reach the primary result determined by the Budget Directives Law (LDO).

Understanding how expenditures and revenues affect the fiscal balance of state public accounts, specifically for DTP and primary result, is a current and relevant topic. As paper contributions, we highlight the relationship between primary result, DTP, and accounting and social variables, as well as the attributes of state managers. Hence, we draw attention to the variables that can improve public management of financial resources intended for society.

The research contributes to the literature when compared to recent studies, such as those by Donaduzzi (2021) and Silva et al. (2020), since it does not use a single indicator, but two: primary result and DTP. In addition, it covers a recent data panel, from 2017 to 2022, with 26 states and the Federal District, and also adds characteristics of state managers, which, although not a factor determined by the government, are important for explaining the profile of the manager who makes good use of public finance.

This study is divided in five sections, including this introduction. The following sections present the theoretical framework, which addresses fiscal management in Brazil, LRF, and primary result. Next, we present the methodology used, consisting of multiple regression analysis, the results, discussion and implications, and final remarks.

2. LITERATURE REVIEW

2.1 Fiscal management in Brazil

For Sawhney (2018), fiscal management is a set of activities and procedures used to manage the relationship between public revenues and expenditures, through the budget. The author defines it as a crucial instrument in a country's economic climate, directly related to its political and economic strategies.

Silva and Crisóstomo (2019) consider that fiscal management, in addition to being a factor that fosters the efficiency of public management, helps to improve socio-economic development. From this perspective, revenue collection to finance expenses with goods and services that meet population needs is an indicator of fiscal capacity (Freitas & Teixeira, 2020).

Discussions on public finance often focus on fiscal balance. It is a major challenge for public management, as it requires efforts in fundraising and efficiency in use, so that fiscal rules do not necessarily ensure improved budget results (Leite et al., 2018). Nevertheless, seeking fiscal balance can be a key component for improving public management in developing countries, as in the case of Brazil (Alsharari & Youssef, 2017).

The fiscal situation of Brazilian public institutions shows little compliance with the instruments and legal provisions that address fiscal responsibility (Bartoluzzio & Anjos, 2020). Therefore, in order to improve it in national public management, instruments such as budget and management and accounting systems are adopted.

Mendonça and Peçanha (2021) analyzed information from 5,568 Brazilian municipalities through panel data, between 2006 and 2015, providing empirical evidence about the effect of fiscal management

performance on the country's economic development. Their results indicate that improving fiscal management is an important strategy for stimulating economic development. They used an index that enabled considering a variable performance of Brazilian municipalities over time.

In Brazil, one of the landmarks of fiscal management was the enactment of LRF, which seeks to keep fiscal balance and control the public debt of municipalities, states, and the Union (Lei Complementar nº 101/2000). Hence, fiscal management encourages directly the quality of public management and the efficiency in using financial resources, so that the population can benefit from high-quality public services.

2.2 Fiscal responsibility law

The development of principles and standards for public management is essential for controlling public expenses and keeping a sustainable public debt (Cruz et al., 2018). Although many laws were created and implemented to monitor the public debt of Brazilian federative entities, most of them have failed, because they could not eliminate the sources of financial imbalance.

In this regard, given the need to implement stricter budgetary rules to establish fiscal balance, Complementary Law no. 101/2000, better known as LRF, was enacted (Macedo & Corbari, 2009). LRF was created to establish strict planning and control, imposing penalties and limits, in order to ensure the preservation of financial balance and fiscal situation, while encouraging the correct application of public resources, resulting in a balanced administrative legacy for future managers (Nascimento & Debus, 2002).

The main purpose of LRF is to restrain public deficit and the indebtedness of federative entities, by balancing revenues and expenditures and meeting fiscal management targets (Macedo & Corbari, 2009). These targets regard resource collection and public spending, and can be assessed by financial indicators. LRF is considered a budgetary institution that disciplines public spending.

The limits for indebtedness and personnel expenses are LRF highlights to control public spending. The law assigned new budgetary and financial control functions to public accounting, adding a managerial aspect to it. The emergence of the law increased interest in accounting information, not only from public managers, but from society in general, which began to follow and monitor government accounts through the instruments provided by LRF (Rogers & Sena, 2007). As an example, considering DTP and the state domain, the percentage of spending should not exceed 60% of net current revenue (Lei Complementar nº 101/2000).

Freitas and Teixeira (2020) observe that public choice theory warns about the need for legal mechanisms to guide public management, in order to avoid managers' opportunistic actions. Therefore, LRF enactment renewed commitment to fiscal austerity, seeking the rational and transparent use of public resources in government budgetary planning (Vargas, 2012).

On the other hand, if the rules set by LRF are not followed, certain sanctions can be imposed on managers. Depending on the infringement, transfer of funds from federal or state governments, which would allow building low-income housing, schools, and sanitation works, may be interrupted. In other cases, the creation of new positions, new hires, increase in extra hours, and contracting credit operations can be suspended (Lei Complementar nº 101/2000).

2.3 Primary result

Establishing the fiscal result goal is the first stage of budget preparation, included in the annex of LDO fiscal targets, and seeks to reduce public debt constantly (Piscitelli & Timbó, 2014). LDO sets fiscal targets for the states by defining values for primary and nominal results, according to the Manual of Fiscal Statements (Manual de Demonstrativos Fiscais [MDF] 2022). The primary result goals established in LDO seek to promote balance in public resource management, to ensure the intertemporal solvency of public debt (Rosa, 2013).

In order to achieve LDO goals, managers control and plan expenditures and revenues, trying to ensure account balance and reduce the stock of federal public debt (MDF, 2022). Primary result is the gross surplus calculated from the difference between primary revenues and expenses, used for paying interest on public debt, in addition to being an instrument for controlling states' indebtedness (Paganotto et al., 2017).

Primary result, according to the National Treasury Office (STN, 2022c), enables assessing the government's capacity to honor its commitments and shows the level of sustainability of its fiscal policy. Hence, primary result can be considered one of the most important indicators of the financial health of federal bodies, regarding fiscal results. LRF highlights the importance of primary result in controlling states' indebtedness and bringing debts back to the limits established by law in case of overtaking (Caldeira et al., 2016).

Following the instructions for completing MDF (2022), STN states that primary result is an indicator of the level of states' budget spending, and shows if these expenses are compatible with state revenue; that is, primary result shows whether primary revenues are able to cover primary expenditures (MDF, 2022). Depending on its conduction, primary result can be positive (surplus) or negative (deficit). In the case of a primary surplus, the resources are used to pay off public debt; otherwise, if there is a primary deficit, it will be added to the public debt stock (Riani, 2016).

The government has less control over public revenue than over expenditure, since the latter comes from federative entities' spending. In the event of a revenue shortfall, managers must cut discretionary expenses in order to meet current fiscal targets (STN, 2022a). Andrade (2017) points out that the amounts resulting from primary result are used to reduce public indebtedness, and that expense reduction and the increase in public sector revenues help to reduce their funding, thus reducing the stock of public debt. Therefore, primary result represents managers' fiscal effort to minimize the stock of public debt, and allows evaluating public accounts' organization (Piccini, 2017).

Hence, it is necessary to understand the determining factors of primary result and of DTP, since they are essential instruments of fiscal management, hence important for public management. Identifying these key variables contributes directly to a proper assessment and planning of the necessary actions to improve state public management, to the benefit of society in general.

3. METHODOLOGY

3.1 Database

To assess the determinants of compliance with fiscal management from a state perspective, this study used accounting and social information and data on the characteristics of state managers (governors).

We collected information on the 26 states and the Federal District, between 2017 and 2022, totaling 162 observations.

Demographic data were obtained from the Brazilian Institute of Geography and Statistics (IBGE), and include population size. As for accounting information, tax revenue, and unpaid debts at state level, we found them in the Accounting and Fiscal Information System (Siconfi) of the Brazilian Public Sector (Setor Público Brasileiro, 2022). Union transfers to states and their payment capacity, in turn, are available on STN website (STN, 2022d). Box 1 describes the variables and their sources.

BOX 1 DESCRIPTION OF VARIABLES AND SOURCES OF DATA

Variable	Description	Studies
Fiscal management: total personnel expenditures (DTP)	0 – If it does not meet LRF limits ($\geq 49\%$ of personnel expenses at the executive level). 1 – If it meets LRF limits ($< 49\%$ of personnel expenses at the executive level).	Gadelha (2011); Silva et al. (2020)
Fiscal management: primary result	0 – If the processed state primary result did not reach the goal set by LDO ($<$ than the goal). 1 – If the processed state primary result reached the goal set by LDO ($\geq$ than the goal).	Donaduzzi (2021); Gobetti and Orair (2017)
Population density	Ratio of absolute population and occupied area.	Barreto and Mendonça (2010); Brocco et al. (2018)
Ln (Rtrib.)	Natural logarithm of tax revenue.	Barreto and Mendonça (2010); Gadelha (2011)
Ln (Rp)	Natural logarithm of unpaid debts.	Carvalho and Piscitelli (2014); Gobetti and Orair (2010)
Ln (Trans.)	Natural logarithm of Union transfers to the states.	Barreto and Mendonça (2010); Magalhães et al. (2019)
Capag	Payment capacity A – 1; B – 2; C – 3; D – 4. Eligible body (A or B) or non-eligible body (C or D) to get Union's guarantee for raising new loans.	Siqueira (2020)
Manager gender	1 – Male and 0 – Female	Avelino et al. (2014)
Manager education	1 – High School; 2 – Undergraduate incomplete; 3 – Undergraduate completed.	Silva and Almeida (2012); Silva and Queiroz (2018)
Manager age	Governors' age in the analyzed period.	Silva and Almeida (2012); Silva and Queiroz (2018)

Source: Elaborated by the authors.

Finally, education level, gender, and age of state managers were found on the website of the Superior Electoral Court (Tribunal Superior Eleitoral [TSE], 2022). For the descriptive analysis and inclusion in the empirical model, some items were scaled using the size of the territory, such as the population and cut-off of the accounting variables, which were analyzed through their natural logarithm.

3.2 Empirical model

In the panel data model, the same cross-sectional unit - states and the Federal District - is monitored over time, meaning that these data have a spatial and a temporal dimension (Gujarati & Porter, 2011). Therefore, these data can be represented as follows:

$$Y_{it} = \alpha + X_{it}\beta + v_i + z_t + \varepsilon_{it} \quad (1)$$

In the above equation, Y_{it} shows the dependent variable (DTP or primary result), X_{it} represents each explanatory variable in the model (population density, tax revenue, processed unpaid debts, Union transfers to the states, payment capacity, managers' education level, gender, and age), ε_{it} is the error term, v_i represents the characteristics of the units (states) that do not vary over time, and z_t are attributes that vary over time (Gujarati & Porter, 2011).

Hence, we can write the expressions that assess the determinants for complying with fiscal management, for panel data models:

$$\begin{aligned} \text{total personnel expenditure}_{i,t} = & \beta_0 + \beta_1 DPOP_{i,t} + \beta_2 \ln Rtrib_{i,t} + \beta_3 \ln Rp_{i,t} + \beta_4 \ln Trans_{i,t} + \beta_5 Capag_{i,t} \\ & + \beta_6 ESC_{i,t}^{manager} + \beta_8 Idade_{i,t}^{manager} + \varepsilon_{i,t} \quad (2) \\ \text{primary result}_{i,t} = & \beta_0 + \beta_1 DPOP_{i,t} + \beta_2 \ln Rtrib_{i,t} + \beta_3 \ln Rp_{i,t} + \beta_4 \ln Trans_{i,t} + \beta_5 Capag_{i,t} \\ & + \beta_6 ESC_{i,t}^{manager} + \beta_8 Idade_{i,t}^{manager} + \varepsilon_{i,t} \quad (3) \end{aligned}$$

In the equations above, “total personnel expenditure” and “primary result” are the variables explained in each analysis. Therefore, two different models were estimated: one for the LRF limits goal (2), and another for the primary result goal (3). The subscript i for the database represents the observed state, being $i=1, \dots, 27$, while the subscript t corresponds to the observed year $t = 2017, \dots, 2022$. Thus, the data consisting of 162 observations form a balanced panel.

Panel data analysis provides two classic models: fixed effects (EF) and random effects (EA). The former is more appropriate when the intercept varies between individuals (states analyzed), but does not change over time ($t = 2017, \dots, 2012$). On the other hand, the latter is suitable when the intercept of each unit analyzed has no correlation with the explanatory variables (Gujarati & Porter, 2011).

To decide between the models, we applied the Hausman test (Greene, 2002), which compares the calculated estimates from the fixed effects model (β_{EF}) with the parameters obtained from the random effects model (β_{EA}). The test hypotheses are:

H_0 : *lack of correlation between effects and regressors (β_{EA} are consistent);*

H_1 : *correlation between effects and regressors (β_{EF} are consistent).*

According to statistics result (p-value), if the null hypothesis is not accepted, the random effects model becomes less suitable, and it is better to choose the fixed effects model.

4. RESULTS

The research results are discussed in three subsections. The first focuses on the descriptive statistics analysis, the second presents the results of the models estimated for DTP and primary result, and the third discusses the main findings of the study.

4.1 Descriptive statistics

Table 1 shows the database descriptive statistics, from 2017 to 2022. DTP analysis reveals that the sample value that appears most frequently is number 1, that is, most states respect LRF limits. However, some federative entities should pay more attention to fiscal management responsibility. For the year 2022, the states of Rio de Janeiro, Acre, Santa Catarina, Minas Gerais, Roraima, and Tocantins did not comply with LRF limits – in other words, they spent more than 49% of revenue on personal expenses in the Executive branch.

The balance sheet for primary result shows that the most repeated number is 1; therefore, most states have reached the primary result goal. On the other hand, again for the year 2022, only Acre, Amazonas, Distrito Federal, Mato Grosso do Sul, Pernambuco, Piauí, Rio Grande do Sul, Rondônia, Roraima, and Santa Catarina did not reach the target set by LDO.

Regarding social measures, the average population density is 76.35 inhabitants per square kilometer, and the Federal District is the most densely populated, with 543.33 inhab. /km², and Roraima the least, with only 2.33 inhab. /km².

TABLE 1 DESCRIPTIVE STATISTICS (2017-2022)

Variables	Mean	Std. deviation	Mode	Minimum	Maximum
Total personnel expenditure	0.85	0.35	1	0	1
Primary result	0.82	0.42	1	0	1
DPOP	76.35	119.7	-	2.33	543.33
Tax revenue (R\$ million)	2,191.94	3,400.37	-	89.96	21,036.54
Unpaid debts (R\$ million)	4,141.04	8,517.62	-	4.70	58,855.70
Transfers (R\$ million)	6,375.04	4,543.68	-	1,581.01	34,015.04
Payment capacity	2.38	0.87	2	0	4
Gender	0.95	0.21	1	0	1
Education	2.87	0.45	3	1	3
Age	54.54	8.95	56	33	73

Source: Elaborated by the authors.

As for accounting measures, states' average tax revenue was R\$ 2.19 million, and São Paulo collected the most, around R\$ 21.03 million – ten times higher than state average – compared to R\$ 89.96 million for Roraima. As for unpaid debts, the average committed expenditure per state was R\$ 4.14 million, with Minas Gerais showing the highest amount – R\$ 58.85 million – and Santa Catarina the lowest: R\$ 4.7 million.

Regarding Union transfers to federative entities, Rio de Janeiro received the largest amount – R\$ 34 million – while Mato Grosso do Sul received only R\$ 1.5 million. In terms of payment capacity in 2022, Espírito Santo, Mato Grosso, Mato Grosso do Sul, Pará, Paraíba, Rondônia, and Roraima presented low credit risk to the National Treasury, while Minas Gerais and Rio Grande do Sul showed a high risk.

Concerning the profile of state managers, most governors are male and have an Undergraduate degree, with an average age of 55 – the youngest is from Rio Grande do Sul, and the oldest from Sergipe.

To check the relationship between the explanatory variables, we built the correlation matrix of Table 2, where there is not a high correlation ($\rho > 0,8$ ou $\rho < -0,8$) between the independent variables. Hence, none of them was excluded from the model.

TABLE 2 CORRELATION MATRIX BETWEEN THE EXPLANATORY VARIABLES

	DPOP	Ln (Rtrib)	Ln (Rp)	Ln (Trans)	Capag	Grnder	Education	Age
DPOP	1,00							
Ln (Rtrib)	0,08	1,00						
Ln (Rp)	0,23*	0,33*	1,00					
Ln (Trans)	0,09	0,10	0,07	1,00				
Capag	0,20*	0,12	0,34*	-0,01	1,00			
Gender	0,05	0,21*	-0,05	0,08	-0,03	1,00		
Education	0,12	0,02	0,06	0,18*	-0,16*	-0,06	1,00	
Age	-0,03	-0,07	0,03	-0,03	-0,08	-0,16*	-0,10	1,00

*sig. < 0.05.

Source: Elaborated by the authors.

5. MODEL ESTIMATES

5.1. Factors associated to complying with LRF

When presenting model results, we display the econometric estimates for the dependent variable DTP in Table 3. Initially, the overall significance (Prob. > F) of the models was only valid for the fixed effects estimator. Even so, using the Hausman test, the model that best fits the data set is the fixed effects model, considering a 5% significance level.

TABLE 3 MODELS OF PANEL DATA WITH DIFFERENT ESTIMATORS FOR PERSONNEL EXPENSES (2017-2022)

Variables	Random effects	Fixed effects
Population density	0,0003 (0,0003)	-0,0062 (0,0108)
Ln (Trans)	-0,0732 (0,0599)	-0,1413** (0,0813)
Ln (Rtrib.)	-0,0157** (0,0092)	-0,0237* (0,0093)
Ln (Rp)	0,0157 (0,0191)	0,0208 (0,0212)

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Variáveis	Efeitos aleatórios	Efeitos fixos
Capag	-0,0190 (0,0368)	-0,0357 (0,0413)
Gender	-0,0818 (0,1388)	-0,2338 (0,1512)
Education	-0,0032 (0,0792)	-0,0411 (0,1042)
Age	0,0004 (0,0033)	0,0006 (0,0039)
Constant	2,5748** (1,4267)	4,9370* (2,0795)
R ²	0,0002	0,0097
Probability > F	0,57	0,04
Hausman test	17,68*	
Observations	162	

Note: Standard errors in brackets. *sig. < 0.05; **sig. < 0.10.

Source: Elaborated by the authors.

In general, two variables were significant: the natural logarithms of transfers and tax revenue. With regard to Union transfers to states, those that received the largest amounts had more difficulty meeting the limits imposed by LRF, that is, they have DPTs higher than the value established by the law – a detailed breakdown of the results is shown in section 6.

A similar reasoning can be proposed for tax revenue. Those units with higher state collection tend not to reach the limits set by LRF. In terms of magnitude, state tax revenue seems to affect DTP more than transfers, showing that this variable is relevant for explaining how federative entities can fail to comply with the limits imposed by LRF.

5.2 Factors associated to complying with primary result

In the second model, which assesses the determinants of compliance with the primary result target, the overall estimates of regressions were significant (Prob. > F), as shown in Table 4. After analyzing the results of the Hausman test, the model that best fits the data was the fixed effects model.

The first significant variable was Union transfers to states. The positive sign shows that those receiving a larger volume of transfers had less difficulties in achieving the primary result target. Another relevant variable was unpaid debts, and the positive sign indicates that states with higher committed expenses are more likely to achieve the primary result target.

TABLE 4 MODELS OF PANEL DATA WITH DIFFERENT ESTIMATORS FOR PRIMARY RESULT (2017-2022)

Variables	Random effects	Fixed effects
Population density	0,00003 (0,0002)	-0,0066 (0,1524)
Ln (Trans)	0,1454** (0,0569)	0,2908** (0,1142)
Ln (Rtrib.)	-0,0173 (0,0115)	-0,0090 (0,0130)
Ln (Rp)	0,0644* (0,0217)	0,1052* (0,0298)
Capag	-0,0189 (0,0409)	0,0974*** (0,0580)
Gender	0,0427 (0,1555)	0,1497 (0,2123)
Education	0,0929 (0,0746)	0,3442** (0,1464)
Age	0,0050 (0,0036)	0,0106*** (0,0055)
Constant	-3,9722* (0,0036)	-9,1333* (2,9200)
R ²	0,1334	0,0035
Prob. > F	0,0027	0,0015
Hausman test	17,16**	
Observations	162	

Note: Standard errors in brackets. *sig. < 0.01; **sig. < 0.05; ***sig. < 0.10.

Source: Elaborated by the authors.

Along the same lines as previous results, the payment capacity indicator showed a positive sign, suggesting that states with better fiscal health are more likely to achieve the primary result goal. Finally, with regard to manager characteristics, education has a positive impact on the primary result target. In other words, more qualified managers contribute to improving the variable concerned. As for age, older managers or older people have a positive influence on primary result; therefore, more experienced managers contribute to achieving the planned goal.

6. DISCUSSION AND IMPLICATIONS FOR STATE FISCAL MANAGEMENT

In our findings, there are indications that states receiving a larger volume of Union transfers are unable to meet the limits imposed by LRF, in line with Barreto and Mendonça results (2010). In that study, which addressed 720 northeastern municipalities between 1998 and 2008, an increase in federal transfers led to growing personnel costs and, consequently, reduced managers' ability to comply with the established legal limits.

That is a plausible explanation, since municipalities and states depend on the transfer of these resources to keep the public machine. But this led to controversy with the 2022 Demographic Census, since transfers from the Municipal Participation Fund (FPM) or the State Participation Fund (FPE) are linked to population size and *per capita* income (STN, 2022c). These data indicate that the population of some localities may suffer a reduction in the number of public managers, thus losing a significant part of the resources and having more difficulty to settle expenses.

Similarly, the collection of tax revenue in the form of taxes, fees, compulsory loans, and special contributions affects DTP, since the higher the collection, the more financial resources will be available to pay for or increase DTP. Therefore, states are in a situation of not complying with LRF limits. This result is the same achieved by Barreto and Mendonça (2010).

For the regression with the goal of states' primary result, the variable 'Union transfers to federative entities' was statistically significant for explaining the dependent variable. This result shows the importance of transferring federal resources to states, and how they can improve the health of their public finance, as in the case of FPE transfer.

Another caveat regards the relationship between primary result, current revenue, and government transfers. According to Siconfi (Sistema de Informações Contábeis e Fiscais [Siconfi], 2022) data, more than 4,340 Brazilian municipalities had at least 80% of their current revenue coming from federal and state transfers, and only 42 managed to raise more than their current revenue, through municipal taxes. This strengthens the dependence and importance of transfers for keeping primary result.

In the two regressions made, the "transfer" variable was significant. The primary result, deficit or surplus, is achieved when there is an increase in transfers, just like the personnel index (LRF) is disobeyed when extended. In some states, the target was deficit or surplus; hence, achieving the primary result target is not the same as saying that there was an increase in revenue.

With regard to the other accounting variable, 'unpaid debts', it is statistically significant and explains the dependent variable: the primary result target. Therefore, states that have higher committed and liquidated expenses manage financial resources better; therefore, they tend to achieve the primary result target.

Carvalho and Piscitelli (2014) propose that governments can delay the payment of expenses to increase primary result, which does not mean that municipalities and states have reached the target. Hence, governments can pretend to have met their fiscal targets, so that economic agents do not change their decisions to adapt to the new context. On the other hand, in this study we suggest a complementary approach: that states with higher committed and liquidated expenses are more likely to achieve good fiscal results.

By analyzing the influence of states' payment capacity, we concluded that those showing less credit risk tend to meet or beat the primary result target. Therefore, we can establish the relationship that states with lower credit risk and that can obtain new loans can leverage primary surplus. In turn,

Siqueira (2020) made the reverse analysis, according to which better performances in the relation between revenues and expenses increase the chances of states resorting to financing, which makes sense, since it shows that their fiscal health is a key factor for raising new loans.

Regarding the factors linked to managers' characteristics, the results lead to the conclusion that education and age were statistically significant for the explained variable: the primary result target. As for the education factor, the estimated coefficient indicates that states whose governors have a higher level of education tend to achieve the primary result target; that is, there is a 'diploma effect', since managers with a specialization, master, or doctorate degree increase the chance of achieving the target set by the primary result.

The result confirms Malheiro (2018), who carried out a quantitative municipal analysis for the year 2016, with the purpose of assessing how effective is management in Brazilian cities, based on an effectiveness index. Among the factors that explain how effective is municipal management, a higher level of education increases this possibility.

As for managers' age, the estimated coefficient for the variable indicates that states ruled by older governors tend to achieve the primary result target more easily. This result is in line with the findings of Silva and Queiroz (2018), who observed that mayor's age and inefficiency in municipal public management are negatively related, i.e. more experienced managers showed good resource management.

Based on this result, we confirm that the experience or maturity of governors is a key factor for meeting the primary result target. In addition, the manager's experience, especially in politics, is important for strengthening party alliances, which can improve the fiscal management environment.

In short, despite more than two decades of LDO and LRF, these laws alone are unable to guarantee the primary result target and control over personnel expenses. Even so, these instruments are important to the Union, states, the Federal District, and the municipalities, as they regulate public finance, which is very necessary for keeping the population well-being.

7. FINAL REMARKS

National public finance is the subject of numerous studies in Brazil, because municipalities, states, and the federal government have to deal with the balance between revenues and expenditures in the face of several economic, financial, and social issues.

Contributing to this topic, this study examined the determinants of compliance with fiscal management in Brazilian states and the Federal District, from 2017 to 2022. We addressed specifically LRF for analyzing DTP. Under LDO, we worked on the primary result goal.

The research focused on a literature review that gathered previous studies in a comprehensive way, with underlying theories that confirm the results observed empirically.

To this end, we estimated two regressions for panel data: one with LRF limits and the other with the primary result target. Evidence showed that the variables which hinder complying with DTP are Union transfers to states and tax revenue. On the other hand, many municipalities and states depend on these transfers to settle their expenses; therefore, it would not be interesting, for example, to reduce transfers, but rather analyze some expenses that could be decreased or eliminated.

Applying the primary result target is another important instrument for regulating public accounts. Concerning this model, its significant variables were Union transfers to the states, unpaid debts,

payment capacity, education, and age. We draw attention to the need for increasing the amount transferred by the federal government to the states and the volume of unpaid debts processed, in order to achieve the primary result target.

Future studies are necessary, considering the impacts of the new revenue distribution resulting from the recently approved tax reform, and the due observation of transition rules, which will undoubtedly bring significant changes to this scenario.

Another important result regards governors' education level and age, since more qualified and experienced managers tend to achieve the primary result target. On the other hand, these are characteristics that cannot be controlled by the government, since the population chooses its representatives. Managers with the profile described above tend to achieve the primary result set by LDO. However, the studies that supported our study addressed these variables in municipalities, not in states. Therefore, in future studies, these attributes should be more appropriately selected, due to the size and complexity of a state government, in addition to observing the pre-established requirements of the electoral legislation.

We strengthen the relevance of LRF as an expenditure indexer and LDO as an indexer for the balance of state public accounts. Public policy makers and managers can take a closer look at Union transfers to states, tax revenue, unpaid debts, and payment capacity as indicators of complying or not with DTP and the achievement of the primary result target.

The results make clear the need for fiscal policies that comply with legal definitions. Although the variables studied – personnel expenditures from the perspective of LRF – and the goal set in LDO are defined by law, they are not met by entities. As explanatory factors, in common was the increase in government transfers, from which we can expect an analysis to be carried out in future studies: to identify the fiscal policies of states that increased their revenue (transfers) and have met the personnel index (LRF), despite the fact that these transfers contributed to achieving the primary result.

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DATA AVAILABILITY

The dataset supporting the results of this study is not publicly available.