Constitution of Provisions and Its Impact on the Public Debt of Brazilian Capitals and States and the Federal District

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Abstract

This work aimed to evaluate the impact of the recognition of provisions and the implementation of NBC TSP 03 on the consolidated public debt of Brazilian subnational entities. The sample included the 26 capitals, the 26 states and the Federal District, based on data extracted from SICONFI, in the period from 2014 to 2023. The research was developed with the structuring of panel data, to verify whether the explanatory variables of this study influence the amount of public debt consolidated in period *t* and in *t+1*. The results showed that the implementation of NBC TSP 03 is one of the factors that explains the rise in public debt of subnational entities, both in period *t* and in *t+1*. It was also found that the Constitution of Provisions did not show statistical significance but was statistically negative in the case of capitals.

Keywords: public debt, provisions, accounting standards, local governments

1. Introduction

The public debt of Brazilian states, capitals, and the Federal District is a crucial aspect of fiscal policy and overall economic stability. According to Adam (2015), with the global deterioration of fiscal sustainability, the importance of contingent liabilities has increased in the analysis of public debt sustainability. Governments may accumulate significant obligations in the form of contingent liabilities, which are neither recorded nor analyzed in financial statements. These liabilities arise from events that may or may not occur(Gómez, 2023).

Thus, as stated by Almeida-Santos and Scarpin (2013), the topic of provisions and contingent liabilities has gained significant prominence in discussions on public debt, both in academic and political spheres. Ensuring their proper measurement and disclosure can contribute to an efficient fiscal policy, providing society with a true understanding of public indebtedness.

Albuquerque and Bizerra (2011) assert that accounting has undergone changes aimed at the universalization of its guiding standards and regulations. According to Prieto and Martins (2015), in Brazil, the issuance of Ministry of Finance Ordinance No. 184/08 marked the beginning of the convergence process toward international accounting standards. This ordinance introduced guidelines based on standards issued by the International Federation of Accountants (IFAC), known as the International Public Sector Accounting Standards (IPSAS).

Brazil embarked on the path of convergence with the first Brazilian public sector accounting standards (NBC TSP), establishing a new conceptual framework for Public Sector Accounting. The primary focus was to seek uniformity in accounting procedures and practices while considering the diversity and complexity of the Brazilian administrative structure (Lima, 2017; Costa, 2023).

Continuing this convergence process, in 2016, the Federal Accounting Council (CFC) issued NBC TSP 03. This standard defines and identifies the circumstances under which provisions and contingent liabilities should be recognized, as well as their measurement and disclosure in the financial statements and explanatory notes of the Brazilian public sector (CFC, 2016).

Therefore, the objective of this research is to evaluate the impact of provision recognition and the implementation of NBC TSP 03 on the consolidated public debt of Brazilian capitals, states, and the Federal District.

Previous studies at the national level, particularly in the private sector, have focused on assessing the level of disclosure of provisions and contingent liabilities in companies listed on B3, the Brazilian stock exchange (Oliveira, Beneti & Varela, 2011; Suave, Codesso, Pinto, Vicente & Lunkes, 2011). In the public sector, research has also

concentrated on identifying the determinants that lead public entities to disclose provisions and contingent liabilities (Almeida-Santos & Scarpin, 2013; Fran ça, Nossa, Monte-Mor & Teixeira, 2016; Pereira, 2019; Santos & Cincera, 2021). This research differs from previous studies by analyzing the relationship between provision recognition, the implementation of NBC TSP 03, and public indebtedness in subnational entities, addressing a gap in existing literature.

It is expected that, in the post-implementation period, Brazilian capitals, states, and the Federal District will show higher levels of indebtedness due to the increased accounting recognition of provisions compared to the pre-implementation period.

This study is justified by the fact that, with the convergence to international accounting standards, there is a greater likelihood of recording and disclosing provisions and contingent liabilities by public entities. Consequently, this may impact on the indebtedness levels of these entities.

This study fills a critical gap in the literature by being the first to empirically assess the impact of provision recognition and NBC TSP 03 implementation on the consolidated public debt of Brazilian subnational entities. Unlike previous studies that focused on federal-level data or qualitative assessments, this research uses a panel data approach with a broad temporal scope (2014–2023), providing robust empirical evidence on how these factors influence subnational debt.

2. Literature Review

2.1 Regulatory Framework

As mentioned earlier, the regulatory framework for public sector accounting in Brazil has undergone significant changes in recent years, with the convergence to international accounting standards. Diniz, Silva, Santos, and Martins (2015) define the IPSAS as pronouncements aimed at establishing a comprehensive list of financial statements that should be prepared. Their primary objective is to provide guidance and harmonization for public sector accounting on a global scale, encompassing the widest possible number of countries and ensuring efficiency, quality, and transparency in financial reporting (Costa, 2023).

The IPSAS were developed and adapted from the International Financial Reporting Standards (IFRS) (Brusca & Mart ńez, 2016; Tawiah, 2022), with contributions from various countries, professional accounting organizations, and international institutions. In Brazil, the process of convergence to international public sector accounting standards is led by the Federal Accounting Council (CFC) and the National Treasury Secretariat (STN). This process seeks to align the country's accounting, financial, and statistical systems with local regulations and norms, promoting characteristics such as disclosure, measurement, comparability, integrity, and timeliness of information (Lima, 2017; Islah et al., 2022).

In September 2016, the CFC issued the NBC TSP – Conceptual Framework, recognized as the first fully converged standard with the International Public Sector Accounting Standards (IPSAS). This development reinforced the adoption of IPSAS, as prior Brazilian accounting regulations had a unique structure with aspects not found in international standards, despite being aligned with IPSAS principles (Lima & Lima, 2019).

Thus, the NBC TSP standards, published by the Federal Accounting Council (CFC), are based on IPSAS. Meanwhile, the National Treasury Secretariat (STN) publishes the Public Sector Accounting Manual (MCASP), which is based on NBC TSP standards and establishes deadlines for adopting the procedures through the issuance and publication of regulations.

According to Melo, Prieto, and Andrade (2014), the convergence process significantly supports the Fiscal Responsibility Law (LRF) in terms of fiscal management. Convergence enhances transparency by ensuring that financial information is disclosed and understood by society while also strengthening government accountability. Additionally, it contributes to managerial accounting in the public sector, providing valuable information for decision-making (Amalia, 2023).

Regarding provisions and contingent liabilities, the International Federation of Accountants (IFAC), through the International Public Sector Accounting Standards Board (IPSASB), developed IPSAS 19 to facilitate the disclosure and recognition of these liabilities in the public sector. In Brazil, this standard was adopted through NBC TSP 03, issued in 2016.

In September 2015, the STN, in compliance with Article 13 of STN Ordinance No. 634/2013, issued Ordinance No. 548/2015, which establishes new deadlines for the adoption of patrimonial accounting procedures by the federal government, states, the Federal District, and municipalities (STN, 2015). These regulations are outlined in the Implementation Plan for Patrimonial Accounting Procedures (PIPCP), annexed to the ordinance.

Continuing the convergence process of public sector accounting with international standards, the PIPCP established new deadlines for the mandatory recognition, measurement, and disclosure of provisions on an accrual basis, as well as the disclosure of contingent liabilities in control accounts and explanatory notes (Fran ça et al., 2016). The deadline for states and the Federal District was set for January 1, 2019, while for capitals (municipalities with more than 50,000 inhabitants), it was set for January 1, 2020.

As part of the convergence process to international accounting standards, on October 21, 2016, the Federal Accounting Council (CFC) issued NBC TSP 03. This standard defines and identifies the circumstances under which these liabilities should be recognized, along with their measurement and disclosure in financial statements and explanatory notes in the Brazilian public sector. Its purpose is to ensure that users can understand their nature, maturity, and amounts (CFC, 2016).

Considering the adoption of this regulation in 2016, the recognition and disclosure of provisions and contingent liabilities are not new in Brazilian public accounting. The third edition of MCASP had already recommended procedures for provisions and contingent liabilities. This reinforces the idea that the topic is not confined to NBC TSP 03 and that these liabilities are not being consistently observed by public entities (Nascimento, Almeida & Viotto, 2019; Costa, 2023).

Regarding the applicability of MCASP, the manual itself mandates that public sector entities must comply with the standards set forth in the document. However, its application is optional for Professional Councils and other entities not classified as part of the public sector, including independent state-owned enterprises (MCASP, 2024).

NBC TSP 03 defines a provision as "a liability of uncertain timing or amount." Meanwhile, the NBC TSP Conceptual Framework defines a liability as "a present obligation arising from a past event, whose settlement is expected to result in an outflow of resources from the entity." Therefore, a provision differs from other liabilities due to uncertainty regarding the timing or amount of the future expenditure required for its settlement. Farias (2004), Kieso, Weygandt, and Warfield (2012) and (Anghel et al., 2021) emphasize that contingencies are characterized primarily by uncertainty concerning the likelihood of gains or losses, which can only be resolved by future events.

Following IPSAS 19, NBC TSP 03 classifies provisions and contingent liabilities into three categories: probable, possible, and remote. If an event is classified as probable, it should be recognized as a liability on the balance sheet—in other words, it is considered a provision rather than a contingency.

According to Rosa (2014), the probability of occurrence is the key distinction between provisions and contingencies. If an event is classified as possible, it should only be disclosed in the explanatory notes, highlighting its qualitative and monetary characteristics. Finally, if the probability of occurrence is deemed remote, no disclosure or recognition is required (CFC, 2016). It is crucial for public and private entities to disclose contingent liabilities, as these liabilities, if not properly monitored, pose risks that could negatively impact an organization's financial health (Santos, 2011; Anghel et al., 2021).

In this regard, NBC TSP 03 provides regulations to ensure that these liabilities are recognized according to appropriate measurement criteria. It also mandates sufficient disclosure so that users can understand the timing, nature, and value of the contingencies involved (CFC, 2016).

2.2 Public Debt

Public debt refers to the total liabilities owed by the government, including not only long-term loans but also short-term obligations, such as salaries, pensions, and benefits payable. In her study, Mora (2016) states that public debt, along with taxation, is the primary tool for financing state public expenditures. According to the author, public debt, within a virtuous cycle, stimulates development, increases the potential for tax collection, and mitigates restrictions arising from economic crises that public managers may face over time.

Lima (2011) defines public indebtedness as occurring when a government entity's current revenues are insufficient to cover its expenses. At that point, the public entity seeks to obtain additional resources beyond its own revenues, thereby assuming new financial obligations with third parties (Kohama, 2014).

With the enactment of Complementary Law No. 101 on May 4, 2000, commonly known as the Fiscal Responsibility Law (LRF), new regulations were introduced to enhance the effectiveness of the Budget Guidelines Law (LDO) and the Annual Budget Law (LOA). These regulations also provided tools to improve control over public deficits and, consequently, public debt, while promoting transparency in public spending (Sodré, 2002; Islah et al., 2022).

Under the LRF, public managers are required to comply with the financial limits set by the law and manage public accounts responsibly, ensuring balance and transparency. In practice, the LRF serves as a code of conduct, and failure

to adhere to its provisions may result in legal penalties for public managers, as stipulated in the law and related regulations (Matias-Pereira, 2007; Grossi et al., 2020).

However, an imbalance in public debt can create fiscal risk for government entities. According to Brixi and Schick (2002) and (Amalia, 2023), fiscal risk refers to potential financial pressures that a government may face in the future. Freitas (2005) and (Anghel et al., 2021) explain that fiscal risk includes the possibility of increased deficits and public debt due to the recognition of uncertain obligations that, once realized, impact the government's financial capacity.

Regarding the public indebtedness levels of Brazilian states and municipalities, Pereira (2008) highlights that during the 1980s and 1990s, their public debt reached unsustainable levels. This was also influenced by external economic crises, leading to the urgent need for continuous debt renegotiation.

The LRF provides public managers and researchers with key indicators of state and municipal indebtedness, including Consolidated Debt, Net Consolidated Debt (NCD), Net Current Revenue (NCR), and the relationship between the last two indicators (NCD/NCR) (Hamada, Moreira, Mila & Oliveira, 2019).

The LRF defines Consolidated Debt as the total financial obligations of states, the Federal District, and municipalities, measured without duplication. These obligations arise from laws, contracts, agreements, or treaties and from credit operations intended to be repaid over a period exceeding twelve months (Complementary Law No. 101, 2000). According to Federal Senate Resolution No. 40/2001, credit operations with a maturity of less than twelve months that generate budgetary revenues are also included in Consolidated Debt (Resolution No. 40, 2001).

Several studies in the literature examine the determinants of public indebtedness in state and municipal governments (Azmy Mahmoud El-Berry & Goeminne, 2020; FMI, 2020; Grossi et al., 2020; Kang & Chen, 2021; Terra & Filho, 2020). Regarding Brazilian states, Silva and Sousa (2003) identify government spending models, the economic significance of states, and heavy reliance on federal government transfers as key factors influencing public debt evolution.

Mello and Slomski (2006) conducted a study on state government debt in Brazil, comparing two periods: 1998–2000 (before the LRF) and 2001–2003 (after the LRF was enacted). Their study, based on LRF indicators, found no statistically significant differences in the evolution of net consolidated state debt. However, they observed that the LRF contributed significantly to public debt amortization. Nevertheless, their research did not incorporate other variables that might have had a statistically significant impact on state indebtedness.

Queiroz, Santos, Morais, and Souza (2018) examined whether Gross Domestic Product (GDP), population size, and tax revenue influenced public debt levels in Brazilian states from 2002 to 2015. Their findings indicated that GDP and population had a statistically significant negative relationship with public debt at the 5% level, meaning that states with higher economic output and larger populations tend to have lower debt levels. However, tax revenue was not found to have a statistically significant impact.

While previous studies (Almeida-Santos & Scarpin, 2013; Fran ̧a et al., 2016) have focused on disclosure levels of provisions and contingent liabilities in public entities, they did not assess their direct impact on public debt. Additionally, studies such as Filho and Pinheiro (2003) and Brixi and Schick (2002) highlighted the fiscal risks of these liabilities but did not consider the role of accounting standard changes (NBC TSP 03). Furthermore, prior research has largely relied on data from specific periods or sectors, limiting generalizability.

As evidenced by the studies referenced, multiple factors—financial, political, socioeconomic, and institutional, among others—affect public indebtedness. To enhance the scope of this research, this study will focus on economic and social factors that influence state and municipal debt levels. Based on the discussion presented, and considering that the accounting standard classifies provisions and contingent liabilities as "probable," "possible," or "remote," their recognition involves an element of judgment. Consequently, the impact of these liabilities depends on managerial discretion.

Despite the existence of a specific regulatory framework, the inherent uncertainty associated with provisions and contingent liabilities, along with managerial discretion, increases the complexity of estimating and disclosing such liabilities. This, in turn, has implications for government indebtedness, which has been a subject of academic investigation. Given the presence of IPSAS 19, which has been incorporated into Brazilian public sector accounting through the MCASP and, more specifically, NBC TSP 03, regulating the recognition, measurement, and disclosure of these financial elements, it is expected that an increase in the recognition and disclosure of provisions has influenced public debt levels.

Therefore, the following research hypotheses are proposed:

H1: The recognition of provisions has a statistically significant impact on public debt levels, with an expected positive effect.

Provisions represent obligations that, once recognized, increase reported liabilities. Since higher liabilities contribute to an increase in total debt, it is anticipated that greater recognition of provisions will be associated with higher public debt levels.

H2: Public debt levels exhibit a statistically significant change following the implementation of NBC TSP 03.

The adoption of NBC TSP 03 has introduced more stringent requirements for the recognition, measurement, and disclosure of provisions and contingent liabilities. This regulatory change is expected to have altered debt reporting, leading to measurable differences in public debt levels pre- and post-implementation.

3. Methogology

3.1 Sample

The sample used in this study consists of the 26 Brazilian state capital municipalities, the 26 states, and the Federal District. The decision to include both states and capitals in the same study aims to enhance the robustness of the analysis by considering variables at different federative levels. Furthermore, these entities provide the necessary data for the research during the analyzed period.

3.2 Data Collection and Processing

This study employs annual data covering the period from 2014 to 2023. The main reason for selecting this period is to analyze the behavior of consolidated public debt before (2014–2016) and after (2017–2023) the implementation of NBC TSP 03.

To control confounding factors, the research also incorporates socioeconomic variables to support the econometric analysis of the determinants of public debt. These variables include government transfers, infant mortality rate, the Basic Education Development Index (IDEB), and population size.

Data on consolidated public debt, recognized provisions, and government transfers were obtained from the National Treasury Secretariat through the Annual Accounts Reports (DCA) in SICONFI (Brazilian Public Sector Accounting and Fiscal Information System). Infant mortality rate data were sourced from DATASUS, population data from the Brazilian Institute of Geography and Statistics (IBGE), and IDEB data from the National Institute of Educational Studies and Research An ísio Teixeira (INEP).

Since IDEB data are reported biennially, the index was estimated to use the arithmetic means of the IDEB values from the previous and subsequent years of the analyzed period, given that the index has remained relatively stable in recent years.

The variables Public Debt, Provisions, and Government Transfers were adjusted to 2023 values using the Broad National Consumer Price Index (IPCA). To mitigate the effects of heteroscedasticity, the Population variable was transformed into its natural logarithm.

3.3 Proposed Models

To test the research hypotheses, this study employs panel data regression techniques. Panel data models include both spatial and temporal dimensions, making them suitable for the sample used in this study. This method allows for the verification of whether the explanatory variables significantly impact the consolidated public debt of state capitals, states, and the Federal District.

The regression models are specified as follows:

$$\boldsymbol{DP_{it}} = \beta_0 + \beta_1 PROV_{it} + \beta_2 NBCTSP03_{it} + \beta_3 TRANSF_{it} + \beta_4 MORT_{it} + \beta_5 IDEB_{it} + \beta_6 POP_{it} + \varepsilon_{it}$$

$$\boldsymbol{DP_{i\,t+1}} = \beta_0 + \beta_1 PROV_{it} + \beta_2 NBCTSP03_{it} + \beta_3 TRANSF_{it} + \beta_4 MORT_{it} + \beta_5 IDEB_{it} + \beta_6 POP_{it} + \varepsilon_{it}$$

In these models:

- The dependent variable DP_{it}, in the first equation represents the consolidated public debt of entity i in year t, while $DP_{i,t+1}$ in the second equation represents the consolidated public debt of entity i in year t+1.
- The independent variable PROV represents the recognition (negative patrimonial variation) of provisions in state i in year t.
- The dummy variable NBCTSP03 indicates the implementation of NBC TSP 03, taking a value of 1

for the post-implementation period (2017–2023) and 0 for the pre-implementation period (2014–2016).

Regarding the second equation, which analyzes the effects of explanatory variables on consolidated public debt in the following year, it is important to note that the expected impact might not be immediately observable. This is because many of the provisions analyzed in this study are related to pension liabilities, also known as actuarial liabilities, as per the MCASP framework. These liabilities correspond to future pension benefits to be paid to contributors, with an expected realization over the long term. Their recognition is based on actuarial assessments, which serve as the foundation for their measurement.

The remaining variables, TRANSF, MORT, IDEB, and POP, serve as control variables, representing relevant economic and social factors in each entity i during year t. The term ε_it represents the standard error. The coefficients β_1 and β_2 are particularly relevant for testing the research hypotheses, and according to the theoretical expectations, both are anticipated to be positive.

The control variables in this study were selected based on prior literature regarding the economic and social determinants of public debt in state and municipal entities. Their definitions are as follows:

- Government Transfers – "$TRANSF_{it}$"

Represents funds transferred from the federal government to states, the Federal District, and municipalities, as well as transfers from states to municipalities. According to Gómez, Díaz, and López (2011), entities receiving higher government transfers tend to have lower levels of indebtedness.

- Infant Mortality Rate – "$MORT_{it}$"

A social indicator related to healthcare that measures the number of infant deaths (before one year of age) per 1,000 live births within a year (World Bank, 2020). Higher infant mortality rates may indicate greater fiscal pressure on healthcare services, which could indirectly affect public debt levels.

- Basic Education Development Index – ""$IDEB_{it}$"

An education-related social indicator that evaluates the progress of public education at all levels, based on the scores obtained by each school. Public entities with higher levels of indebtedness may allocate fewer resources to education, resulting in lower IDEB scores (Silva, Nascimento, Ferreira & Santos, 2015; Silva, 2017).

- Population - "POP_{it}"

Represents the total number of inhabitants in a municipality, state, or the Federal District. Previous studies (Groves & Valente, 2003; Lima, 2011) suggest that population size affects public debt, as higher populations often demand increased infrastructure spending and improved public services. Consequently, entities with larger populations are expected to exhibit higher levels of indebtedness.

As summarized in Figure 1 below, the definitions of the dependent, independent, and control variables used in this study are presented.

Type	Variable	Expected Sign	Definition	Literature
Dependent	Public Debt	-	Represents the total amount of public debt of capitals, states, and the Federal District. It is measured using Consolidated Debt. Variable transformed into natural logarithm.	Mello & Slomski (2009)
Explanatory	Provisions	β_1 (+)	Represents the recognition of provisions.	Filho & Pinheiro (2003)
	Dummy NBCTSP03	β_2 (+)	Takes the value of 1 for the period after the implementation of NBC TSP 03 and 0 otherwise.	Not studied
Control	Government Transfers	β_3 (-)	Calculated as the ratio of Transfer Revenues to Total Collected Revenue.	Gómez, Díaz & López (2009)
	Infant Mortality Rate	β_4 (+)	Estimates the mortality rate of children under one year old in a given region.	Pizzo, Andrade, Silva, Melchior & Gonzáles (2014)
	IDEB	β_5 (-)	Basic Education Development Index. Assesses the quality of basic education in states or municipalities.	Silva et al. (2015); Silva (2017)
	Population	β_6 (+)	Represents the number of inhabitants in a region. Variable transformed into natural logarithm.	Groves & Valente (2003); Lima (2011)

Figure 1. Definitions of variables used in this study

4. Results and Discussions

4.1 Descriptive Statistics

Considering the applied methodological procedures and the collected data, Tables 1 and 2 present the descriptive statistics of the variables used in the models for Brazilian states and capitals, respectively.

Table 1. Descriptive statistics of variables for Brazilian states and the Federal District

Variables	Mean	S.D.	Min	25%	50%	75%	Max
Public Debt	23.05	1.25	21.29	22.19	22.67	23.70	26.40
Public Debt t+1	23.09	1.26	21.36	22.21	22.69	23.74	26.40
Provisions	8.83e9	2.04e10	0	0	7.07e8	4.19e9	1.10e11
Dummy NBCTSP03	0.40	0.49	0	0	0	1	1
Government Transfers	0.34	0.16	0.06	0.21	0.31	0.46	0.82
Infant Mortality Rate	13.41	2.42	8.80	11.40	12.80	15.30	20.20
IDEB	3.42	0.39	2.60	3.10	3.40	3.70	4.40
Population	15.33	1.03	13.11	14.80	15.18	16.04	17.61

Considering the applied methodological procedures and the collected data, Tables 1 and 2 present the descriptive statistics of the variables used in the models for Brazilian states and capitals, respectively.

The results indicate that the provisions recorded by states and the Federal District amount to billions of reais. Additionally, it is observed that several states did not recognize expenses related to the establishment of provisions in their financial statements for at least one year within the analyzed period. Consequently, given the high standard deviation, the mean values are not consistent across entities.

The Government Transfers variable represents 34% of the total revenue collected by states, meaning that, on average, one-third of state revenues originate from federal transfers.

Table 2. Descriptive statistics of variables for Brazilian capitals

Variables	**Mean**	**S.D.**	**Min**	**25%**	**50%**	**75%**	**Max**
Public Debt	20.35	1.48	17.06	19.58	20.19	20.90	25.07
Public Debt t+1	20.39	1.43	17.13	19.58	20.26	20.92	24.57
Provisions	1.87e9	4.31e9	0	0	8.52e7	8.48e8	1.84e10
Dummy NBCTSP03	0.40	0.49	0	0	0	1	1
Government Transfers	0.51	0.12	0.28	0.44	0.52	0.59	0.78
Infant Mortality Rate	12.48	2.90	6.09	10.56	12.08	14.46	21.52
IDEB	5.41	0.69	4.10	4.80	5.50	5.90	7.00
Population	13.89	0.91	12.48	13.14	13.82	14.44	16.30

Similar to the findings for states, the values recorded for provisions in Brazilian capitals are also substantial. However, it is observed that, as in the case of states, some capitals did not recognize expenses related to the establishment of provisions in at least one year during the study period.

Regarding the Government Transfers variable, on average, 51% of total capital revenues originate from transfers made by states and the federal government. This suggests that capitals rely more heavily on government transfers compared to states.

4.2 Regression Analysis

Considering the models presented in this study, Tables 3 and 4 report the regression results for Brazilian states and state capitals, respectively. Each table presents the results of two regressions, which differ based on their dependent variables: Public Debt in period t and Public Debt in t+1.

To analyze the relationship between consolidated public debt and the variables that may influence its magnitude, panel data regression was employed. The Hausman test was applied to determine the most appropriate model specification. Additionally, the Variance Inflation Factor (VIF) test confirmed the absence of multicollinearity among the explanatory variables.

Table 3. Regression Analysis for Brazilian states and the Federal District

Variables	**Public Debt**	**Public Debt *t+1***
Provisions	4.13e-13	1.89e-13
Dummy NBCTSP03	**0.08***	**0.13*****
Government Transfers	0.42	**0.64****
Infant Mortality Rate	-0.02	0.01
IDEB	-0.01	**-0.20****
Population	278.31	19.12
Number Obs	270	243
Statistic F	0.00	0.00
Mean FIV	2.21	2.21
R^2within	0.27	0.37

Obs.: Significance levels: *** 1%, ** 5%, *10%.

The Provisions variable was not statistically significant in either model, contradicting the findings of Filho and

Pinheiro (2003), who analyzed similar liabilities at the federal level. Therefore, at the state level, Hypothesis H1 is rejected. The lack of significance for Provisions may be explained by the discretionary nature of recognizing and disclosing these liabilities, as highlighted by Fran ça et al. (2016).

The results indicate that, at a 10% significance level, there is a positive relationship between the implementation of NBC TSP 03 and the increase in consolidated public debt of Brazilian states and the Federal District. Moreover, for Public Debt in t+1, the NBCTSP03 variable also exhibits a positive influence, but at a 1% significance level, reinforcing Hypothesis H2 of this study.

Furthermore, the Infant Mortality Rate and Population were not significant. However, the Government Transfers variable showed a significant positive relationship with Public Debt in t+1, while the IDEB variable had a significant negative relationship, both at a 5% significance level.

The positive relationship between Government Transfers and Public Debt in t+1 contradicts the findings of G ómez, D íaz, and L ópez (2009), who identified a negative relationship between government transfers and public debt accumulation.

Table 4. Regression Analysis of variables for Brazilian capitals

Variables	**Public Debt**	**Public Debt *t+1***
Provisions	**2.61e-11*** **	**1.92e-11***
Dummy NBCTSP03	**0.21*** **	**0.15** **
Government Transfers	**-4.40*** **	**-3.63*** **
Infant Mortality Rate	0.13	0.03
IDEB	0.10	**0.18***
Population	**1.14*** **	**1.16*** **
Number Obs	260	234
Statistic F	0.00	0.00
Mean FIV	1.74	1.74
R^2within	0.25	0.15

Obs.: Significance levels: *** 1%, ** 5%, *10%.

For Brazilian capitals, a statistically significant negative relationship was found between the recognition of Provisions and consolidated Public Debt, in both t and t+1, at 1% and 10% significance levels, respectively. This suggests that higher provision recognition is associated with a decrease in public debt levels.

Similar to the results for states, Table 4 also shows a significant positive relationship between the dummy variable NBCTSP03 and Public Debt in both t and t+1, at 1% and 5% significance levels, respectively. This indicates that after the implementation of NBC TSP 03, the consolidated public debt of Brazilian capitals increased in both the current and subsequent periods.

Additionally, Government Transfers and Population were significant at the 1% level in both models, while Infant Mortality Rate was not significant. The IDEB variable was only significant at the 10% level in t+1, but its results were not robust across model variations. Based on the findings presented in Table 4, Hypothesis H2 is not rejected, whereas Hypothesis H1 is rejected.

Although the Provisions variable was statistically significant, the expected positive relationship between provision recognition and public debt was not observed. Given the findings of previous studies cited in this research, provisions should generally increase public debt, making this result unexpected. This suggests that the recognition of provisions is not a determining factor for the increase in consolidated public debt among Brazilian subnational entities.

5. Conclusions

This study aimed to assess the impact of provision recognition and the implementation of NBC TSP 03 on the consolidated public debt of Brazilian capitals, states, and the Federal District over the period 2014 to 2023.

Regarding the recognition of provisions, the study found that this variable was not statistically significant in influencing the consolidated public debt of Brazilian states and the Federal District. However, for Brazilian capitals, the findings suggest that provision recognition negatively impacts consolidated public debt in both t and t+1, at significance levels of 1% and 10%, respectively. Thus, Hypothesis H1 is rejected. These findings contradict the conclusions of Filho and Pinheiro (2003) and Brixi and Schick (2002), who emphasized that provisions and contingent liabilities are a significant fiscal risk factor contributing to public debt increases.

The results from the estimated regressions indicate that the implementation of NBC TSP 03 contributed to an increase in consolidated public debt, both in states and capitals. This effect was observed in the current period (t) and the following period (t+1), supporting Hypothesis H2 of this study. Nascimento, Almeida, and Viotto (2019) reinforce that the introduction of NBC TSP 03 was fundamental in enhancing the recognition and disclosure of contingent liabilities and provisions in subnational entities, leading to advancements in accounting records and an impact on public debt levels.

Several factors may explain this result. One key factor is the issuance of Ordinance No. 548/2015 by the National Treasury Secretariat (STN), which established the Implementation Plan for Patrimonial Accounting Procedures (PIPCP). This regulation extended deadlines for the mandatory adoption of disclosure and recognition procedures for provisions and contingent liabilities, granting public entities significant discretion in how they recognize these liabilities in financial statements, as noted by Fran ça et al. (2016).

Additionally, a significant proportion of the provisions analyzed in this study consist of actuarial pension provisions, which are related to future pension benefits to be paid to contributors and are expected to be realized over the long term. This factor may explain why no immediate increase in public debt levels was observed in the short term. Reis, Lima, and Wilbert (2017) support this perspective, explaining how pension expenditures can affect public financial equilibrium over the long term.

Given that the number of studies on provisions and contingent liabilities in the public sector remains limited, and there is still insufficient monitoring of these liabilities regarding their potential impact on public finances, future research should continue to explore this topic. Therefore, future studies should examine the post-mandatory period to provide a more comprehensive understanding of the long-term impact of these liabilities on public debt.

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The authors contributed equally to the study. Both authors read and approved the last version of the manuscript.

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