

When half words are not enough: analysis of the readability of explanatory notes in the public financial statements for the North and Northeast regions of Brazil

Quando meias palavras não bastam: análise da legibilidade das notas explicativas das demonstrações contábeis públicas das regiões norte e nordeste do Brasil

Cuando las medias palabras no son suficientes: análisis de la legibilidad de las notas explicativas de los estados financieros públicos para las regiones Norte y Noreste de Brasil

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Resumo: As notas explicativas são responsáveis pelo avanço da compreensão dos resultados dos governos, notadamente, àqueles que se referem a informações relevantes que deveriam ser levadas ao conhecimento público. Neste sentido, o presente trabalho busca avaliar o nível de legibilidade das notas explicativas (NEs) contidas nas demonstrações contábeis dos estados do Norte e Nordeste do país. O arcabouço metodológico utilizado possui natureza quali-quantitativa, descritiva exploratória e documental. A amostra se relacionou ao conjunto de estados de ambas as regiões, com a utilização de dados publicados em sites oficiais, no período de 2014 a 2023. Para cálculo do nível de legibilidade, adotou-se o índice de Flesch que classifica as informações divulgadas em 7 estágios (1-muito difícil, 2-difícil, 3-razoável, 4-padrão, 5-razoavelmente fácil, 6-fácil e 7-muito fácil). Como resultados, o estudo apontou para uma situação considerada preocupante, muito embora completamente desconhecida: ocorrência de *disclosure overload* (excesso de informação não útil); descontinuidade na elaboração de NEs, mesmo após a implementação das IPSAS no país; disparidade de resultados entre as regiões, com uma baixa legibilidade maior em relação aos estados do Norte e, nível geral de legibilidade classificado entre difícil e razoável (níveis 3 e 4). Como contribuições, o estudo descortinou a situação na qual se encontram parte dos estados brasileiros no tocante à divulgação de informações financeiras públicas. Entendeu que os prejuízos ultrapassam a simples falta de transparência dos entes governamentais em relação aos seus principais (sociedade em geral), mas também a existência de graves deficiências no processo de *accountability* pública.

Palavras chaves: Legibilidade. Notas Explicativas Públicas. Região Norte e Nordeste.

Abstract: Explanatory notes are responsible for advancing the understanding of government performance, particularly those that refer to relevant information that should be made public. Therefore, this study seeks to assess the readability of the explanatory notes (NBs) contained in the financial statements of the states of the North and Northeast of Brazil. The methodological framework used is qualitative and quantitative, descriptive, exploratory, and

documentary in nature. The sample included states from both regions, using data published on official websites from 2014 to 2023. To calculate the readability level, the Flesch index was adopted, which classifies the information disclosed into seven stages (1-very difficult, 2-difficult, 3-reasonable, 4-standard, 5-reasonably easy, 6-easy, and 7-very easy). The study revealed a situation considered worrying, although completely unknown: disclosure overload (excess of useless information); discontinuity in the preparation of NEs, even after the implementation of IPSAS in the country; disparity in results between regions, with lower readability than in the Northern states, and a general level of readability classified between difficult and reasonable (levels 3 and 4). As a contribution, the study revealed the situation in which some Brazilian states find themselves regarding the disclosure of public financial information. It found that the losses go beyond a simple lack of transparency by government entities toward their principals (society in general) but also include serious deficiencies in the public accountability process.

Keywords: Readability. Public Explanatory Notes. North and Northeast Region.

Resumen: Las notas explicativas son responsables de avanzar en la comprensión del desempeño del gobierno, particularmente aquellas que se refieren a información relevante que debe hacerse pública. Por lo tanto, este estudio busca evaluar la legibilidad de las notas explicativas (NB) contenidas en los estados financieros de los estados del Norte y Nordeste de Brasil. El marco metodológico utilizado es de naturaleza cualitativa y cuantitativa, descriptiva, exploratoria y documental. La muestra incluyó estados de ambas regiones, utilizando datos publicados en sitios web oficiales de 2014 a 2023. Para calcular el nivel de legibilidad, se adoptó el índice de Flesch, que clasifica la información divulgada en siete etapas (1-muy difícil, 2-difícil, 3-razonable, 4-estándar, 5-razonablemente fácil, 6-fácil y 7-muy fácil). El estudio reveló una situación considerada preocupante, aunque completamente desconocida: sobrecarga de divulgación (exceso de información inútil); discontinuidad en la preparación de NE, incluso después de la implementación de las IPSAS en el país; disparidad en los resultados entre regiones, con menor legibilidad que en los estados del Norte y un nivel general de legibilidad clasificado entre difícil y razonable (niveles 3 y 4). Como contribución, el estudio reveló la situación de algunos estados brasileños en cuanto a la divulgación de información financiera pública. Se concluyó que las pérdidas van más allá de la simple falta de transparencia de las entidades gubernamentales hacia sus principales (la sociedad en general), e incluyen también graves deficiencias en el proceso de rendición de cuentas.

Palabras clave: Legibilidad. Notas explicativas públicas. Región Norte y Noreste.

Introduction

In recent years, transparency in public information has gained prominence in Brazil, particularly about the quality of financial information provided by the public sector (Halik, 2015). In this regard, financial statements are essential components of this process, as they provide a comprehensive and detailed overview of the budgetary, financial, economic, and asset situation of government entities, in addition to serving as tools for public oversight. These attributes enable the public, regulatory agencies, and other stakeholders to assess how public funds have been allocated and spent.

However, for these instruments actually to fulfill their role of fostering transparency, public accountability, and fiscal responsibility, it is crucial that the information is presented clearly and accessibly. This approach should cater not only to experts but also to citizens who lack technical expertise. In this context, Abreu and Bezerra Filho (2020) agree that the explanatory notes play a crucial role by providing additional details that contextualize the figures presented in the financial statements, thereby enabling a better understanding of the financial data - a view also validated by Araújo and Callado (2020). As mentioned by Costa and Pelech Júnior (2021) and Zobaran (2019), this refers to reduction of information asymmetry among managers, the population, and other users of public accounting information.

To gain a deeper understanding of how the clarity of the explanatory notes relates to the principles of accountability and citizen participation, it is important to note that the ability to read and understand financial statements determines the effective engagement of various users. Holtz and Santos (2020), for example, mention that the quality of information is not limited only to the accuracy of the data but also to the way in which it is organized and made available, such that technical jargon - when used excessively - can hinder the full exercise of social oversight. The use of indices that measure the level of understanding of information, also known as readability indices, similar to those proposed by Flesch (1974), allows for the quantification of clarity and, as a result, the support of discussions about the changes required to increase public transparency to a more inclusive level.

According to the aforementioned author, the clarity of a text depends not only on the amount of information provided but also on how that information is organized and presented. In the public sector, just as in the private sector, the clarity of these notes is critical to ensuring that all stakeholders, including the general public, have a clear knowledge of the financial status of government institutions. Nonetheless, multiple studies have shown that explanatory notes are usually written in a technical and intricate manner, which might be difficult for users who lack specific accounting knowledge to understand (Monteiro et al., 2021).

Based on this premise, the following research question arises: What is the level of readability of the explanatory notes of the states of Brazil's North and Northeast regions? This question is particularly relevant, given the role that financial statements play in public management aimed at improving accountability and public transparency; notably, the regions in question share similarities in terms of socioeconomic development.

The rationale for conducting this study is based on the need to ensure that the information contained in public financial statements is accessible to as many users as possible. According to the Federal Accounting Council, through the Brazilian Accounting Standard for the Public Sector – NBC TSP Conceptual Framework (CFC, 2020), the clarity and quality of accounting information are critical to ensuring that society knows the acts of public officials and can actively engage in social control. In addition, authors such as Marcolin et al. (2021) suggest the existence of little research focused on the public sector, which is more typical in the business environment (Borges and Rech, 2019). From a social perspective, improvement is expected so that public results reach all stakeholders and are interpreted in the same way as stated by the issuer (Holtz & Santos, 2020).

In turn, the scope of this study is justified by the significance of these states within the Brazilian context, as well as by the need to assess public transparency across different socioeconomic contexts. It is well known that the North and Northeast regions of Brazil share similar socioeconomic characteristics compared to other regions of the country, where levels of income, education, health, and development are more robust. Finally, this study contributes to the literature on the readability of public reports, indicators of textual complexity in explanatory notes, and the potential impact that new standards have on the understanding of disclosed information. It is expected that this analysis provides guidance for regulatory bodies and managers, suggesting possible improvements in the process of converging international accounting standards (IPSAS) and in the emphasis placed on the preparation of financial reports, particularly in terms of language and clarity.

As for the structure of this study, it is organized into the following sections: after this introduction, the second section addresses the theoretical framework comprising the study of explanatory notes; the third section discusses the methodology employed; the fourth section analyzes

and discusses the results obtained; and the final section presents the conclusion.

Theoretical elements of research

Standardization of Brazilian Public Accounting

Law number 4,320/64 (1964), also known as the Financial Law, established general rules for the preparation and oversight of the budgets and balance sheets of the federal government, states, municipalities, and the Federal District, and it is regarded as a milestone in Brazilian public accounting. Considered modern for the time it was enacted, this law - despite the outdated Public Accounting Code of 1922 - modernized procedures related to the budgeting and accounting of government entities and established minimum standards for the recording, measurement, and disclosure of public sector accounting information. Examples include a specific chapter on accounting, internal control, and financial statements (budget balance, financial statement, balance sheet, as well as statements of changes in equity).

Subsequently, the Fiscal Responsibility Law (LRF) (Law number 101 of 2000) was enacted in response to the need for greater fiscal discipline and transparency in Brazilian public administration, following the successive fiscal and economic crises faced in previous decades, which ultimately highlighted the fragility of the country's public finances. It is therefore easy to see that the Fiscal Responsibility Law (LRF) has brought about significant advances in the public regulatory framework, as it has strengthened transparency requirements, refined criteria for public revenue and expenditure, debt, and expanded the scope of public information considering the need to disclose a wide range of reports. In this regard, the Fiscal Responsibility Law (LRF) was auspicious, so to speak, by highlighting among its many provisions the importance of clearer and more transparent financial reporting, in which the notes to the financial statements came to play a key role.

With the convergence process of the International Public Sector Accounting Standards (IPSAS) at the national level (Williams & Hussein, 2019), following the trend in Latin American countries (Prado & Paiva, 2017), as well as the introduction of the Brazilian Accounting Standards for the Public Sector (NBCASP), the Federal Accounting Council (CFC) and the National Treasury Secretariat kicked off the modernization of Brazilian public accounting through MF Ordinance Number 184 (2008). The shift in accounting standards from budget to equity created significant expectations of change in procedures, which had previously been based on rules rather than principles, reinforcing the need for a higher level of judgment on the part of those responsible for preparing financial statements (Vieira et al., 2023).

And that's exactly the point. In Brazil, public accounting is intrinsically linked to administrative law and financial law, adhering largely to the legal maxim that states that in public administration, officials may only act within the scope of what is authorized by law (the principle of legality), implying that there is no discretion in the performance of administrative acts with legal status.

With this new framework, public accounting has been separated from administrative law (Civil Law), even though it retains its roots in financial law, and has moved closer to the Common Law, the legal system used in English-speaking countries, in which decisions are based on unwritten law, case law, and customs. In other words, since the adoption of IPSAS, there has been a growing demand for greater judgment on the part of professionals in the accounting field, due to the increased discretionary

power of managers (Vieira et al., 2023).

Concerning this topic—the expansion of discretionary power in the field of public accounting—contrary to popular belief, this development has not resulted in a diminution in the body of regulations that accounting professionals in the country must follow. The newly enacted legal framework (Brazilian Accounting Standards for the Public Sector -NBCASP) has introduced a greater number of guidelines, procedures, and criteria that in turn have also required accounting professionals to expand their capacity for interpretation and understanding.

Evaluating the interpretive results following the implementation of certain standards in the private sector, a study conducted by Carvalho et al. (2023) indicated that the use of IFRS, on its own, was not sufficient to ensure a language that was truly clear and accessible. Likewise, Borges and Rech (2019) highlighted that, despite advances in standardization, the technical complexity of the reports remained a barrier to understanding by lay users. In this context, it is likely that the same is true in the public sector, with the added complication that, within government agencies, the use of explanatory notes to supplement financial results had previously been underused.

While both IFRS and NBCASP/IPSAS are undeniably important to the quality of disclosed financial information, it is clear that, in both the private and public sectors, these standards must fulfill the role assigned to them, which is to provide supplementary information based on the size, nature, and amounts of the assets and liabilities involved (STN, 2023). It seems that additional initiatives should be taken to make the explanatory notes effectively readable, especially in terms of conciseness, objectivity, and appropriate vocabulary.

If on the one hand there is a concern about the effective results of the new rules in terms of effectively clear and accessible language, on the other hand, the excess of information, without any relevance to its users, is also a recurring topic in debates. The so-called “disclosure overload” - or an excess of irrelevant information - mentioned by Santos et al. (2020) emphasizes that deciding what should or should not be disclosed is more than just a simple decision; it represents a genuine shift in the mentality of accounting professionals who have moved from a system devoid of professional validation to one with more complex rules and principles.

As if that wasn't enough, authors such as Holtz and Santos (2020) and Vieira et al. (2023) highlight additional elements that have gotten little attention in accounting literature. Some of factors include rising transaction costs, more information disclosure, and opaque report creation, which can be utilized to distort narrative accounting statistics. For all these reasons, a good first step would be to assess the readability of the financial statements to determine whether there are any deviations from the IPSAS standards adopted in the country.

Financial statements, explanatory notes, and readability

The accounting statements currently adopted in the country within the scope of the public sector are budget, financial, equity, balance sheets, statement of equity variations, cash flow, and statement of changes in shareholders' equity. Their role is to evaluate budget execution, resource management, and economic performance of government institutions (Kohama, 2015). However, although such documents are essential for ensuring transparency and strengthening public oversight, their effectiveness is not limited to the mere disclosure of data. It depends directly on the clarity and quality of the presentation of the information, especially on the explanatory notes, which play a key role in

providing context for the figures, detailing the criteria used, and enabling a broader and more critical understanding within society. As Holtz and Santos (2020) highlight, the use of overly technical and obscure terminology tends to make it difficult for the average citizen to understand, thereby undermining the very democratic nature of public accounts. Thus, although legislation and accounting standards establish guidelines for the preparation of these financial statements, the use of clear and objective language remains a practical challenge. For this reason, the explanatory notes serve as an important tool for providing context and clarifying the data in the financial statements, as well as strengthening public accountability and citizen participation.

In all these statements, explanatory notes play a crucial role in providing additional information that contextualizes and clarifies the data presented. Such statements must be written in a clear and accessible manner, avoiding excessive technical jargon and using direct language. The readability of these notes is essential to ensure that all users of accounting information can fully understand these accounting documents and make decisions based on the data contained therein, including public managers, citizens and analysts.

Consequently, the explanatory notes are an indispensable part of the financial statements, playing a key role in supplementing and providing context for the data presented in the public balance sheets. They broaden the understanding of the information disclosed, providing additional details that complement the scope of what is intended to be communicated to public officials, citizens, and regulatory agencies.

When specifically discussing the topic of the readability of financial statements, a comparison between the private and public sectors is inevitable. Thus, there is a growing academic production focused on companies, although there is a notable scarcity of studies in the governmental area (Kuang et al., 2020). In addition, from the edition of the NBCASP, the standard of General Purpose Accounting Reports of Public Sector Entities (RCPG) was adopted, encompassing different reports, including explanatory notes, each aimed at certain objectives and a greater breadth of the disclosed accounting information.

For Lemos, Marques and Miranda (2023), there is an inversely proportional relationship between complexity and length of the texts presented, since the explanatory notes are fundamental for the understanding of the reports and the role of expanding the understanding of what is reported.

Therefore, the examination of the readability of the explanatory notes becomes crucial in assessing the general level of understanding of the statements (Borges & Rech, 2019).

In the public sector, there is a recognition that the importance of transparency and accountability is especially pronounced within government institutions, as these principles are firmly rooted in the country's constitution (Federal Constitution, 1988). According to Costa & Pelech Junior (2021), in a comparative analysis of Brazil and the United States, explanatory notes have been underutilized in Brazilian municipalities, thereby compromising the quality and completeness of accounting information. This situation reflects a significant gap compared to international practices, where such documents are structured and widely adopted as a clear and accessible communication tool.

In turn, there are several ways to assess the readability of accounting reports, using indices that measure textual characteristics, such as the Fog and Flesch methods, widely applied in private sector investigations (Holtz and Santos, 2020). However, in comparative terms, private companies outnumber the public sector in terms of the number of studies on readability (Bradbury et al., 2018), and when such documents do exist, they are classified as difficult or confusing to read. This indicates

that the implementation of standards does not necessarily result in documents accessible to the general public, limiting the effectiveness of social oversight and transparency (Carvalho et al., 2023).

A similar conclusion was reached by Bogoni et al. (2010), who found that many of the published reports contained accounting terminology that was difficult to understand and lacked explanatory notes - a finding that aligns with the results of Braga et al. (2015), who identified that 76% of municipalities in Pernambuco did not include explanatory notes in their financial statements. In another study, Abreu and Bezerra Filho (2020) pointed out that in 2009 only 29.63% of Brazilian capitals provided explanatory notes, a percentage that rose to 44.44% in 2015.

It is important to note that none of these studies examined the explanatory notes based on readability indices, nor did it consider the influence IPSAS adoption in this aspect. It is observed, therefore, that the analysis of the content of the explanatory notes in the public sector remains relatively restricted, while in the private sector it is already a consolidated practice (Borges & Rech, 2019).

In this regard, this study, which examined the influence of OCPC Technical Guidance 07 (Silva et al., 2018) on the subject, is timely. The standard aimed to reduce the excess of irrelevant information and improve the quality of financial reports. However, evidence from Gomes et al. (2018) showed that, although there was a reduction in the volume of explanatory notes after the implementation of the standard, readability did not improve significantly.

In addition to facilitating the understanding of financial information itself, the explanatory notes to the financial statements are also essential for enabling social oversight (Santos et al., 2020; Marques, 2021). The latter noted that in municipalities across the state of Tocantins, explanatory notes are often missing or provided in a rudimentary manner, which hinders oversight of public administration and undermines citizen participation. He emphasizes that adherence to MCASP recommendations can enhance transparency and accountability of public managers.

In turn, Santos et al. (2020) associated readability with citizen participation, as a way to contribute to public transparency and strengthen accountability. This is most likely due to the quality and readability of the explanatory notes, which define their effectiveness as tools for communication and social oversight.

Finally, it should be noted that explanatory notes are not only an appendix to financial statements but a crucial element for promoting transparency, standardizing information, and strengthening citizen oversight. Improving its readability and adherence to standards should be a priority for the public sector, ensuring that financial information is understandable and relevant to the entire society.

Previous Studies

The readability of the explanatory notes has been a recurring and relevant theme in accounting research, both in the public and private sectors.

Given the predominant economic and financial aspects of corporate activities, studies on this topic are older and abundant (Borges and Rech, 2019; Cruz Júnior, 2018; Holtz and Santos, 2020; Lemos, Marques & Miranda, 2023; Peleias, 2017; Sena, Freitas & Santana Júnior, 2023; Zobaran, 2019) compared to those in the public sector (Abreu and Bezerra Filho, 2020; Alves et al., 2023; Caldas and Freire, 2020; Carvalho et al., 2023; Marques, 2021; Porto, 2025).

Specifically, regarding the government, Abreu and Bezerra Filho (2020) sought to establish a

basic framework for explanatory notes, based on international accounting standards, emphasizing that the lack of standardization and clarity hinders public oversight and citizen scrutiny. The authors' proposal aimed not only to improve transparency but also to facilitate compliance with regulatory requirements, revealing that mere obligation would not be able to ensure effective readability.

Unlike the study on ENs, Caldas and Freire (2020) examined the factors influencing the readability of financial statements issued by state governments in Brazil. Using the Fog Index method combined with content analysis and panel data, the authors found evidence that fiscal factors - such as budget revenue and debt; socioeconomic factors (number of healthcare facilities); and structural factors (total assets) - can influence the level of readability of the financial statements presented.

Subsequently, Marques (2021) analyzed the explanatory notes of municipalities in the state of Tocantins, evaluating their adherence to the MCASP recommendations. The study revealed that the notes presented were incipient and lacked essential information to promote transparent public management. According to the authors, this scenario would reflect the need for advances in quality and detailing of explanatory notes in the public sector.

Another significant study was that of Carvalho et al. (2023), who evaluated the readability of the explanatory notes of the largest municipalities in Minas Gerais, using the Fog and Flesch indices as metrics. The results indicated that, even with the NBCTSP and MCASP in effect, municipal financial statements were classified as difficult or very difficult to read. This finding raised concerns, given the essential role of these notes in the instrumentalization of social control and the promotion of accountability in the public sector.

Finally, the study by Porto (2025) aimed to evaluate accountability tools by assessing the readability of public reporting, sustainability reports, and integrated reports in three Brazilian states (SC, BA, and RO). Similar to other findings involving the public sector, the results indicated that the content of the documents was classified as very difficult to read, featuring dense writing that remained difficult to understand and lacked clarity for laypeople in the subject matter, thereby compromising the communication goal.

Methodological elements of research

This research is descriptive, exploratory and documentary in nature. It is descriptive because it seeks to identify and detail the level of readability of the explanatory notes to the financial statements of the Northern and Northeastern regions, by describing and comparing them, however without establishing cause and effect. At the same time, it takes an exploratory approach by investigating a topic on which there is a relative scarcity of studies applied to the public sector, seeking to raise new perspectives and deepen understanding regarding the clarity and accessibility of financial statements. In addition, the research is documentary, since it makes exclusive use of primary or secondary sources, such as financial statements and explanatory notes, analyzing these documents according to predefined criteria to measure readability and infer points of improvement in accounting communication.

Regarding the nature of the study - whether qualitative or quantitative -, it is of a mixed character, combining both approaches. The quantitative component measures and classifies readability, while the qualitative component explores the underlying factors, providing a broader and deeper understanding of the phenomenon.

The data were obtained from the textual examination of the explanatory notes to the balance sheets of the public sector whose measurement occurred through the ATL (Textual Readability Analysis) software developed by Moreno et al. (2023) that uses the equation indicated below (Flesch Reading Ease) adapted to Portuguese. Equation 1:

Flesch reading ease readability formula adapted to Portuguese:

$$226 - 1,04 \times \left(\frac{Qtt\ of\ words}{Qtt\ of\ phrases} \right) - 72 \times \left(\frac{Qtt\ of\ syllables}{Qtt\ of\ words} \right)$$

The procedure followed was to download the said financial statements available on the official websites of the states analyzed and based on those, to review the notes to the balance sheets for the last 10 fiscal years, totaling 142 (one hundred forty-two) annual reports.

The assessment of the ENs through content analysis was combined with the calculated readability score. During the preliminary analysis, a careful review was conducted of the structure used, the nature of the information presented, and the level of detail, as well as any copies of legal texts which were used to categorize the collected material. In the exploration and categorization (coding) phase, the ENs were organized by typical topics (short-term and long-term credits, fixed assets, intangible assets, labor, social security, and welfare obligations, provisions, etc.) (STN, 2023). Finally, the treatment of the results consisted of the examination contained in the analysis and discussion section (next topic), using the previously identified criteria as a reference.

To achieve the objectives of the study, the Brazilian regions were considered as the population and the states comprising the North and Northeast Regions of Brazil were considered as the sample. The sample was composed of sixteen (16) states that make up the analyzed regions. These regions were selected due to their socio-economic similarities when compared to other Brazilian regions, where levels of income, education, health, and development are higher

To analyze the result, the scale of the author of the index (Flesch, 1974) was used, ranging from 0 to 100, which indicates the level of difficulty of the text. As shown in Table 1, a result close to 100 indicates a high degree of readability, that is, great ease of reading; while a result that tends to zero indicates low readability (very difficult).

Table 1 - Readability levels according to Flesch index

FLF Score	Readability level
0 – 30	Very difficult
31– 50	Difficult
51 – 60	Reasonable
61 – 70	Standard/Intelligible
71 – 80	Reasonably easy
81 – 90	Easy
91 – 100	Very easy

Source: adapted from Flesch (1974).

To measure the readability of textual documents, object of the proposed analysis, it was necessary to follow some steps.

First, the PDF files of the explanatory notes were transformed into editable files in DOC format; it is worth noting that some files, which were available in scanned and non-digitized texts, required

the use of an ORC - Optical character recognition program, which recognizes the text by optical characters.

Then, the files were treated to exclude structures that do not contribute to the readability of the text and/or are not subject to readability capture by the software, such as header, footer, titles, tables, charts, and graphs. Such adjustments were also made by Borges and Rech (2019), who used Microsoft Word 2016®.

The texts were then entered into the ATL software to calculate readability index of the provided material. Finally, data were tabulated and saved using Microsoft Excel 2016®.

The data analysis period covered the years 2014 through 2023, a timeframe selected because it aligns with the country's requirement to adopt converged public accounting standards. The data collection and analysis period was between December 2024 and February 2025. For states that did not provide data for the analysis, the average of the collected values was used.

Presentation and discussion of results

This section aimed to measure and compare the readability of the explanatory notes to the financial statements of states in the North and Northeast regions of Brazil, to determine whether these notes fulfill their role of providing clarity and transparency in the disclosed accounting information, as emphasized by Carvalho et al., 2023. For a broader and more detailed view, Table 2 was prepared with all data from the states included in the sample and the respective values of the readability index calculated according to the Flesch methodology, considering the period from 2014 to 2023.

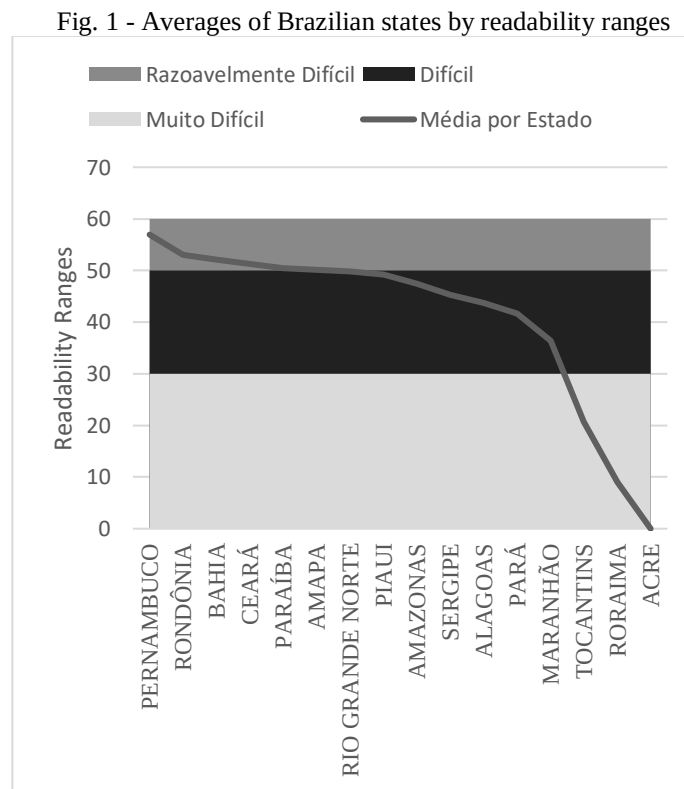
Table 2 - Readability of the explanatory notes of the North and Northeast Regions

Rank	State	2014	2015	2016	2017	2018	2019	Rank	State	2020	2021	2022	2023	Med	SD
1st	TO	68.9	68.9	68.9	68.9	68.9	68.9	1st	TO	68.9	68.8	67.6	70.2	68.9	0.555
2nd	PE	54	59.4	68.6	65.9	63.8	64	2nd	PE	61.2	23.4	53.9	55.3	57.6	11.786
3rd	PB	85.5	55.4	36.1	46.6	47.7	49.9	3rd	PB	36.1	56	74.8	71.6	55.4	15.037
4th	PI	55.2	37.1	41	47.1	51.2	60	4th	PI	65.2	65.7	66.4	58.6	55.2	9.555
5th	AL	44.3	55.2	55.2	54.4	40.8	59.1	5th	AL	57.4	57.3	65.5	58.8	55.2	6.644
6th	RN	54.4	58.2	56.2	55.3	53.5	45.9	6th	RN	46.1	55.5	62.7	64.4	54.4	6.051
7th	RO	53.7	42.2	48.3	62.8	53.3	55.7	7th	RO	44.1	58.1	55.9	55.9	53.2	5.810
8th	BA	45.2	69.7	48.5	49.6	49.8	49.8	8th	BA	51	53.4	51.2	52.6	51.9	5.999
9th	AM	68	52.1	49.2	43.9	46.9	51.3	9th	AM	44.7	39.1	58.9	46.9	50.2	7.474
10th	CE	51	42.3	35.8	51.5	56.7	39.9	10th	CE	35.4	60.9	69.6	69.2	50.2	12.051
11th	SE	48.2	49.7	49.5	50.8	49.4	42.8	11th	SE	58.4	43.2	49.6	61	49.6	5.595
12th	AP	42.9	47.2	49.8	43.7	48.3	48.5	12th	AP	47.9	47.6	48.1	50.1	47.5	2.151
13th	MA	45.7	28.4	45.7	46.4	35.7	46.9	13th	MA	40	55.4	47.7	63.6	45.7	8.809
14th	RR	45.3	45.3	45.3	45.3	45.3	45.3	14th	RR	45.3	45.3	43.4	47.2	45.3	0.810
15th	PA	40.9	43.4	44.4	39.6	39.4	40.4	15th	PA	38.9	38.9	41.4	49	41.5	2.901
16th	AC	0	0	0	0	0	0	16th	AC	0	0	0	0	0.0	0.000
	Avrg	50.2	47.2	46.4	48.2	46.9	48.0		Avrg	46.3	48.0	53.5	54.7		

Source: Research Data

It should be noted, initially, that the evidence indicates readability indices between zero and 68.9 points, suggesting readability levels between very difficult and reasonable. Tocantins state stood out for the best average readability index (68.9 points), followed by Pernambuco (57.6 points) and Paraíba (55.4 points) (Northeast and North regions), respectively. On the other hand, the least satisfactory performances were achieved by the states of Pará (41.5 points) and Acre (zero), all in the North region. Regarding the data as a whole, although most states still fall into the “very difficult to read” category, the average result showed a positive trend over time, ranging from 46.3 to 54.7 points – that is, between “difficult” and “reasonable”—a situation still considered unsatisfactory, given that IPSAS has been in use in the country for approximately 10 years (2015–2025) (Figure 1).

Figure 1 allows to complement the interpretations initially made. Even as the years have passed, and despite the fact that the convergence process has encouraged the use of ENs in the public sector (Abreu & Bezerra Filho, 2020), except for the state of Tocantins (TO), all the entities analyzed still fall into the “difficult to read” category, as their results were classified as “very difficult,” “difficult,” or “reasonably difficult.” The data revealed two findings.



Source: Research Data

The first suggests that, although financial statements are made available, the language used in the ENs remains somewhat complex, making them difficult for non-specialist users to understand. The obvious solution lies in enhancing the technical skills of accounting professionals so that the information they disseminate is presented in a format that improves its comprehensibility.

The second point highlighted here underscores that the requirement to submit explanatory notes has not yet, on its own, been sufficient to ensure clear and accessible language for diverse users, thereby limiting the scope of transparency and the effectiveness of public oversight. So, it is assumed that the difficulty may have less to do with the formal adoption of the standards and more to do with the style of writing used, which is characterized by overly technical language and a complex textual structure, making it difficult to understand for those without specialized accounting training. Therefore, the recommendation to improve the technical training of the professionals involved is timely, as they are considered primarily responsible for fostering communication with stakeholders.

Table 3 - Standard deviations by state

Rank	Region	State	SD
1st	NORTHEAST	PB	15.77
2nd	NORTHEAST	PE	12.64
3th	NORTHEAST	CE	12.64
4th	NORTHEAST	PI	10.02
5th	NORTHEAST	MA	9.24
6th	NORTH	AM	7.84
7th	NORTHEAST	AL	6.97
8th	NORTHEAST	RN	6.35
9th	NORTHEAST	BA	6.29
10th	NORTH	RO	6.09
11th	NORTHEAST	SE	5.87
12th	NORTH	PA	3.04
13th	NORTH	AP	2.26
14th	NORTH	RR	0.85
15th	NORTH	TO	0.58
16th	NORTH	AC	0.00

SOURCE: Research Data

Table 3, in turn, reveals that the calculated standard deviations also provide valuable insight into the identified readability indices, given the wide variation among states over the years. While Paraíba (15.77), Pernambuco (12.64), and Ceará (12.64), for example, topped the list with the highest scores, indicating significant variations in the style of writing explanatory notes, Roraima (0.85) and Tocantins (0.58) had lower scores, suggesting greater consistency in their writing style. The state of Acre was excluded from the analysis because it did not provide explanatory notes for review, and therefore it was not possible to calculate the standard deviation.

Again, the stability - or lack thereof - in the drafting of the ENs highlights the preparation of the information contained therein and places the training of accountants and the way financial statements are interpreted at the heart of the discussion. Thus, it is reasonable to assume that government entities working in this way ultimately fail to connect with the reality of the government organizations they

are supposed to represent. Furthermore, they also undermine the ability of users, investors, and analysts to understand the information contained in financial reports, as well as the accountability process and transparency requirements to which the public sector is subject.

Table 4 - Readability by states in the North Region

Rank	State	2014	2015	2016	2017	2018	cont.
1st	TO	68.9	68.9	68.9	68.9	68.9	...
2nd	RO	53.7	42.2	48.3	62.8	53.3	...
3rd	AM	68.0	52.1	49.2	43.9	46.9	...
4th	AP	42.9	47.2	49.8	43.7	48.3	...
5th	RR	45.3	45.3	45.3	45.3	45.3	...
6th	PA	40.9	43.4	44.4	39.6	39.4	...
7th	AC	0.0	0.0	0.0	0.0	0.0	...

Rank	State	2019	2020	2021	2022	2023	Average
1st	TO	68.9	68.9	68.9	68.8	67.6	70.2
2nd	RO	55.7	55.7	44.1	58.1	55.9	55.9
3rd	AM	51.3	51.3	44.7	39.1	58.9	46.9
4th	AP	48.5	48.5	47.9	47.6	48.1	50.1
5th	RR	45.3	45.3	45.3	45.3	43.4	47.2
6th	PA	40.4	40.4	38.9	38.9	41.4	49.0
7th	AC	0	0	0	0	0	0.0

Source: Research Data

Table 4 shows the results by region of the country; first. the North region, then the Northeast region. Regarding the North region, Tocantins ranked highest with an average of around 70.0 points and a relatively low standard deviation (0.55 points). This result indicates greater consistency and clarity in the explanatory notes over the years analyzed. Rondônia, although classified as reasonably difficult, has an average of over 53.2 points. suggesting relative accessibility compared to other states. Finally, other states remain in the difficult or very difficult range, with average indices ranging from zero to 50.2 points. The most appropriate interpretation of this behavior may be associated with the use of long phrases, an abundance of technical content (which often duplicates the legal text itself), and a lack of language that is more intelligible for the typical reader.

Table 5 - Readability by states in the Northeast Region

Rank	State	2014	2015	2016	2017	2018	cont.
1st	PE	54.0	59.4	68.6	65.9	63.8	...
2nd	PB	85.5	55.4	36.1	46.6	47.7	...
3rd	PI	55.2	37.1	41.0	47.1	51.2	...
4th	AL	44.3	55.2	55.2	54.4	40.8	...
5th	RN	54.4	58.2	56.2	55.3	53.5	...
6th	BA	45.2	69.7	48.5	49.6	49.8	...

7th	CE	51.0	42.3	35.8	51.5	56.7	...
8th	SE	48.2	49.7	49.5	50.8	49.4	...
9th	MA	45.7	28.4	45.7	46.4	35.7	...
	Σ	50.6	48.5	52.0	49.8	49.8	...

Rank	State	2019	2020	2021	2022	2023	Average
1st	PE	64.0	64.0	61.2	23.4	55.3	56.95
2nd	PB	49.9	49.9	36.1	56.0	52.6	52.08
3rd	PI	60.0	60.0	65.2	65.7	69.2	51.23
4th	AL	59.1	59.1	57.4	57.3	71.6	50.43
5th	RN	45.9	45.9	46.1	55.5	64.4	49.78
6th	BA	49.8	49.8	51.0	53.4	58.6	49.23
7th	CE	39.9	39.9	35.4	60.9	61	45.30
8th	SE	42.8	42.8	58.4	43.2	58.8	43.76
9th	MA	46.9	46.9	40.0	55.4	63.6	36.41
	Σ	64,0	64,0	61,2	23,4	61,6	

Source: Research Data

Table 5, on the other hand, examined the Northeast region. Pernambuco, Paraíba and Piauí reported scores over 55 points, predominantly classified as “reasonably difficult.” However, it can be observed that minimum values may fall into ranges that are very difficult, indicating fluctuations in the form of the presentation of explanatory notes during the period under review. In addition, Ceará, Sergipe and Maranhão showed lower averages, between 50 to 45 points or lower, falling into the rating 'difficult' to understand. This result may be due to a lack of standardization in writing and the excessive use of technical terms. In specific cases, such as Paraíba, a relatively high standard deviation is observed - about 15 points - suggesting that the method used to develop the NEs varied significantly from one exercise to the next.

Discussion of Results

Readability, according to Lemos, Marques and Miranda (2023), is a characteristic of financial information that can be measured to assess the complexity of the disclosed information. Unlike companies that use OCPC 07 as their regulatory standard on this matter (Silva et al., 2018), there is no regulatory standard on this topic in the public sector. Broadly speaking, the guidelines come from the MCASP and several versions, which set forth guidelines on what type of information needs to be disclosed (STN, 2023). Examples include the accounting policies used, the methodologies applied in preparing the financial statements, and the breakdown of the amounts reported in those statements.

Since the essence of the information that should be disclosed by the public and private sectors is the same – namely, relevant information - the literature review (Peleias, 2017; Lemos, Marques & Miranda, 2023; Borges e Rech, 2019; Cruz Júnior, 2018; Zobaran, 2019; Holtz e Santos, 2020; Sena, Freitas e Santana Júnior, 2023) shows that the paths taken by these sectors (both public and private) have diverged over the years, showing more promising results to the companies when compared to government institutions. In this regard, it is important to understand the progress made by the public sector, particularly in the North and Northeast regions, which is the focus of this study, given the

distinctive particularities that connect both regions.

Initial findings indicated that, at least on average, the readability of financial reports in the regions analyzed showed a significant improvement, with the score obtained – 8.9 points on the Flesch scale - being considered reasonable (Tocantins State). Nevertheless, not yet considered ideal, the score obtained is close to the average readability level (standard/intelligible).

In line with this result, an upward trend in readability was also observed over the years, with a 66% increase between the first and last average measurements (2014 to 2023), indicating an improvement in the readability of EN's to the public financial statements.

Likewise, it is evident that the professionals involved have been adapting to regulatory changes and new standards in the public sector, contrary to the findings of Borges and Rech (2019) and Holtz and Santos (2020). Research carried out by the authors pointed out low readability as one of the central problems of public sector financial statements.

Although the results appear optimistic at first glance, some caveats must be noted due to the placement of the level of readability on the Flesch scale and the historical growth of the scores.

Firstly, the issue cannot be treated as a mere failure to comply with regulatory requirements or as a legislative gap in the public sector, especially when compared to the private sector which has its own regulations (OCPC 07). If that were the case, there would be no justification for the fact that, more than 15 years after the initial implementation of IPSAS, doubts still persist regarding what information to include in disclosures. As a result, it must be considered that the issue is not simply a matter of implementing IPSAS in the country, but rather a mentality change caused by the new system, which gives professionals in the sector decision-making ability that they were not previously accustomed to (Santos et al., 2020).

The results showed significant regional variation, with the North region faring the worst. This scenario suggests, at the very least, the presence of distinct behaviors among professionals in each region, which calls for a more in-depth analysis of the possible causes.

In this regard, upon examining the ENs, it was observed that their low readability may be linked to the absence of what can effectively be considered relevant information. It was found that in some cases the situations were presented with little clarification—when they required further details—while in others they were presented in excessive detail or accompanied by verbatim transcriptions of legal texts, demonstrating the use of so-called “information overload” (Santos et al., 2020), which occurs when more information is disclosed than is necessary. In both situations, there are shortcomings in the expected readability.

Therefore, in both regions, the process of communicating financial information was deemed flawed and difficult to understand. Except for the state of Tocantins, none of the other states was rated as having a reasonable readability index—that is, the minimum level of comprehensibility expected.

Consequently, it can be said that, to a greater or lesser extent, both regions are unable to communicate effectively with their primary stakeholder - in this case, society. This is why both national and international literature consistently highlights how a lack of informational asymmetry on the part of public managers leads to low transparency and undermines public accountability (Araújo & Callado, 2020; Borges & Reich, 2019; Costa & Pelech Júnior, 2021; Zobaran, 2019).

Despite the recurring issue of low readability of the explanatory notes, the Northeast region scored better, as evidenced by the combination of higher standard deviations and higher average readability indices. These results indicate that there has been progress in the disclosure standards of

the ENs in the Northeast region compared to the North region, suggesting the existence of a learning curve among the authors of the explanatory notes given the upward trend in the results.

It is generally accepted that the main reason for this result stems from differences in accounting practices across regions. However, to gain a broader understanding of the differences observed in the quality and readability of the explanatory notes, it is essential to consider the association with other explanatory factors, including external factors (regional development, professional training, market pressures, etc.). These factors could demonstrate that performance is not solely the result of accounting choices but also of structural and contextual conditions that influence the disclosure process.

In general, the results point to the need for significant improvements in the clarity and accessibility of the explanatory notes of the analyzed regions. Poor readability not only undermines users' ability to effectively use this data for decision-making but also weakens social control by delaying the development of a sense of collective belonging within society.

Last but not least, it is important to point out that, while low readability was noted in the analyzed explanatory notes, the Flesch index has certain limitations that should be acknowledged. The first relates to its focus on the average sentence length and the number of syllables per word, ignoring factors such as clarity of ideas, logical organization, or the use of examples. Some scientific fields, by their very nature, use jargon and/or technical terms that are penalized because they are considered difficult to understand. Furthermore, there is a lack of assessment of cohesion and coherence, the relevance of the text to a specific target audience, and, of course, cultural and linguistic limitations, since indices of this nature are derived from the English language. Nevertheless, it is still considered a good complementary tool that can be combined with human review and contextual analysis.

Final Considerations

This study aimed to evaluate the level of readability of the explanatory notes to the financial statements of the states of the North and Northeast, examining whether such documents fulfill the role of providing clarity and transparency on the financial information.

The analysis, based on the Flesch Index - despite its known limitations (shortcomings in semantic evaluation, coherence, logical structure, and discursive context) showed that, mostly, the information presented was considered difficult or reasonable (46.67% for each level). Only the state of Tocantins was rated as having standard readability (68.9 points), and among the Northeastern states, Pernambuco ranked highest (57.6 points, reasonable). A situation worth noting concerns the state of Acre, which did not release the NEs during the analyzed period.

However, there were signs of improvement in some regions, particularly in northeastern Brazil. Specifically, regarding this region, the results indicate an upward trend in the readability index over the period examined, a conclusion that cannot be extended to the Northern region. As for the Northern region, the results were more homogeneous, which explains why the years have not substantially altered the readability of the region's explanatory notes.

One of the main consequences of low readability is information asymmetry. This leads to a lack of transparency and undermines public accountability, as highlighted in the national and international literature.

Readability – in this case, the observed shortcomings – was not limited to a single figure, nor did

it affect only the regions analyzed. It is evident in the inadequacy of a number of elements, including those mentioned previously, which have the potential to paralyze stakeholders' ability to respond to effective public-fund allocation. multiple

In the case of the public sector - unlike in a company representing a limited group of investors - poor communication between the actor and the key stakeholders extends beyond the mere failure to correctly follow accounting practices, such as IPSAS, for example. It goes further.

When done intentionally, the withholding of essential information from the public not only conceals results, covers irregularities, and masks corrupt practices but also undermines the transparency that is indispensable to public life. Ultimately, it weakens the mechanisms of social control and undermines the community itself, eroding the foundations of democracy and social trust.

Among the limitations observed, the existence of a significant number of unpublished financial statements stood out, which hindered the analysis across the selected fiscal years. Finally, as a topic for future research, we propose comparing these results with those from other regions of the country and expanding the study to identify the factors underlying the results obtained.

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