



IGovEO: municipal planning governance and citizen control and participation index

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Summary

Objective of the study: to propose a model for measuring governance in budget estimation in municipalities in the state of São Paulo.

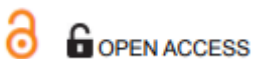
Methodology/approach: as for the objectives, it was characterized as an exploratory-descriptive research; in relation to the procedures, in addition to a literature review, it is outlined as documentary; and as for the approach, it contemplates a quantitative research.

Originality/relevance: the creation of an index for governance in budget estimation and its respective practical applicability contributes to the discussion of the Brazilian budget process, in addition to individually measuring the degree of municipal governance based on the weighting of pre-established variables and indicators.

Main results: as a result, the creation of the Governance Index in Budget Estimation (IGovEO) was proposed, which reflects, through its indicators, governance practices in budget estimation. Through its measurement, it was possible to verify that 44.41% of the municipalities are in the very high or high ranges, 24.85% are concentrated in the very low or low result ranges, and that 30.75% are in the medium range.

Theoretical/methodological contribution: in summary, the article contributes to three central discussions - (1) creation of a specific governance index linked to government planning; (2) the relationship between the topics of budget estimation and governance, proposing as a result of its application the strengthening of society, governments, and the relationship between them, in the process of preparing budgets; (3) the identification and perception of the applicability of governance in the budget estimation process in Brazil, highlighting important gaps so that the process can be effectively improved.

Keywords: governance, public budget, budget estimation, governance index, IGovEO



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Resumo

IGovEO: índice de governança de planejamento municipal e de controle e participação do cidadão

Objetivo do estudo: propor um modelo de medição da governança na estimação orçamentária em municípios no estado de São Paulo.

Metodologia/abordagem: quanto aos objetivos, caracterizou-se como uma pesquisa exploratória-descritiva; em relação aos procedimentos, além de uma revisão de literatura, delineia-se como documental; e no que concerne à abordagem, contempla uma pesquisa quantitativa.

Originalidade/relevância: a criação de um índice para a governança na estimação orçamentária e sua respectiva aplicabilidade prática, contribui para a discussão do processo de orçamentário brasileiro, além de aferir individualmente o grau de governança municipal a partir da ponderação das variáveis e indicadores preestabelecidos.

Principais resultados: como resultado, propôs-se a criação do Índice de Governança na Estimação Orçamentária (IGovEO), que reflete por meio de seus indicadores, práticas de governança na estimação orçamentária. Por meio de sua medição, foi possível verificar que 44,41% dos municípios encontram-se nas faixas muito alto ou alto, 24,85% concentram-se nas faixas de resultado muito baixo ou baixo, e que 30,75% se situam na faixa médio.

Contribuição teórica/metodológica: em síntese, o artigo contribui para três discussões centrais - (1) criação de um índice específico de governança vinculado ao planejamento governamental; (2) o relacionamento entre os tópicos de estimação orçamentária e governança, proposita como resultado de sua aplicação o fortalecimento da sociedade, dos governos, e da relação entre eles, no processo de confecção das peças orçamentárias; (3) a identificação e percepção da aplicabilidade da governança no processo de estimação orçamentária no Brasil, evidencia lacunas importantes para que o processo seja efetivamente melhorado.

Palavras-Chave: governança, orçamento público, estimação orçamentária, índice de governança, IGovEO

Resumen

IGovEO: índice de gobernanza y participación ciudadana en la planificación municipal

Objetivo del estudio: proponer un modelo para medir la gobernanza en la estimación presupuestaria en municipios del estado de São Paulo.

Metodología/enfoque: en cuanto a los objetivos, se caracterizó como una investigación exploratoria-descriptiva; en relación a los procedimientos, además de una revisión bibliográfica, se perfila como documental; y en cuanto al enfoque, incluye investigación cuantitativa.

Originalidad/relevancia: la creación de un índice de gobernanza en la estimación presupuestaria y su respectiva aplicabilidad práctica, contribuye a la discusión del proceso presupuestario brasileño, además de medir individualmente el grado de gobernanza municipal a partir de la ponderación de variables preestablecidas y indicadores.

Principales resultados: como resultado se propuso crear el Índice de Gobernanza en la Estimación Presupuestaria (IGovEO), que refleja, a través de sus indicadores, las prácticas de gobernanza en la estimación presupuestaria. A través de su medición se pudo comprobar que el 44.41% de los municipios se encuentran en los rangos de resultados muy altos o altos, el 24.85%

se concentran en los rangos de resultados muy bajos o bajos, y que el 30.75% se ubican en el rango medio.

Contribución teórica/metodológica: en resumen, el artículo contribuye a tres discusiones centrales: (1) creación de un índice de gobernanza específico vinculado a la planificación gubernamental; (2) la relación entre los temas de estimación presupuestaria y gobernanza, con el propósito de fortalecer a la sociedad, a los gobiernos, y la relación entre ellos como resultado de su aplicación, en el proceso de elaboración de las piezas presupuestarias; (3) la identificación y percepción de la aplicabilidad de la gobernanza en el proceso de estimación presupuestaria en Brasil resalta brechas importantes para que el proceso sea efectivamente mejorado.

Palabras clave: gobernanza, presupuesto público, estimación del presupuesto, índice de gobernanza, IGovEO

1 Introduction

In the second third of the last century, Jensen and Meckling (1976) founded Agency Theory as a way of analyzing the conflicts that exist in the context of organizations through the agency relationship. This agency relationship is defined as "a contract under which one or more persons (the principal(s)) employs another person (agent) to perform on their behalf a service that involves delegating some decision-making power to the agent" (M. C. Jensen & Meckling, 1976, p. 5). In this sense, if both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in accordance with the principal's interests. In this way, "the principal can limit divergences in its interests by applying appropriate incentives to the agent and by incurring monitoring costs in order to limit the agent's irregular activities" (M. C. Jensen & Meckling, 1976, p. 308).

Faced with these situations of conflicts of interest that occur between the parties in the organizational sphere, governance "is pointed out as an alternative for overcoming the agency problem, i.e. it is one of the mechanisms used to align the interests of both the principal and the agent" (Almeida et al., 2010, p. 373). From this perspective, mechanisms linked to governance to mitigate, resolve or eliminate conflicts of interest and opportunistic actions, such as increased bureaucracy, incentives, transparency, institutional change, increased rationality, among others, are necessary for the maturing and improvement of the actors and processes involved (Beyers & Heinrichs, 2020; Couto et al., 2019; Mapurunga et al., 2015; Reed & Curzon, 2015; Schillemans, 2013).

As a result of this reality, in the mid-1980s the debate and application of the theme of governance in the corporate and governmental sphere spread with the aim of limiting the individual interests of the principal and the agent, as well as reducing their conflicts (Aberg et

al., 2019; Oliveira & Pisa, 2015; Teixeira & Gomes, 2019; van der Vegt, 2018). Thus, there has been an institution and proliferation of principles and codes of good governance practices in the world and in Brazil (ANAO, 2003; Brasil, 2018; IBGC, 2015; IFAC, 2001; IIA, 2012; OECD, 2015; United Nations, 2015; World Bank, 2007). These documents set out basic premises for good governance practices. However, despite the wide range of market and government regulations, as well as the benefits of adopting these good practices, not all organizations choose to apply this policy (Mapurunga et al., 2015).

In the field of public administration, society has increasingly demanded attention to political and social rights, as well as greater equity in income distribution, transparency, efficiency and effectiveness of public resources, greater participation in decision-making and the formulation of government policies and programs. All of this is accompanied by a due process of *accountability* (Oliveira & Pisa, 2015). These requirements are supported by the 1988 Federal Constitution, as well as the principles and good practices of public governance in force and found in the literature (Brasil, 2018; Brasil, 2017; Matias-pereira, 2010b; Slomski, 2005; Slomski et al., 2008).

An important issue in the process of citizen participation, the applicability of government resources, the definition of public policies and the applicability of governance is the perspective of public planning/public budgeting. This topic comes up against the building block of the government's objectives and goals for the future, which can be configured as budget estimation. In this way, the budget estimation stage, through its institutions, is geared towards the construction of programs, projects and activities that public management must build together with the population, contemplating goals, objectives, necessary resources, results, among other factors (Bezerra Filho, 2013; Demarco & Chieza, 2015; Giacomoni, 2019, 2021; Lima et al., 2020). However, what has been noticed is that many municipalities in the country are unable to implement the budget in a way that is integrated with governance. There is a preoccupation on the part of managers with meeting legal requirements (so as not to incur illegalities and penalties), disregarding the benefits that governance can offer (Azevedo, 2013; Azevedo et al., 2019).

Therefore, according to Oliveira and Pisa (2015), it is necessary to define evaluation instruments based on the principles of public governance, which systematically and in a timely manner assess the effectiveness of government actions. Thus, given this context, considering that governance is a mechanism that contributes to a country's development and plays a fundamental role in social and economic growth, while providing greater reliability to public management, inducing improvements in the performance of its organizations (Bogoni et al.,

2010; Seller, 2017); and also considering the relevance that the budget estimation process has within public administration (Azevedo, 2013); this study aims to **propose a model for measuring governance in budget estimation in municipalities in the state of São Paulo.**

In summary, the article contributes to several discussions. Firstly, it contributes to the creation of a specific governance index linked to government planning, which has not been specifically found in previous studies. Secondly, the relationship between the topics of budget estimation and governance, through the creation of an index, proposes as a result of its application the strengthening of society, governments, and the relationship between them, in the process of making budget pieces in a broad, transparent and participatory way. And thirdly, the identification and perception of which contents and principles arising from the measurement of the index are more or less complied with by the municipalities offers a relevant insight into the applicability of governance in the budget estimation process in Brazil, thus opening up important gaps for the process to be effectively improved.

It should also be noted that the focus on the topic of public budgeting and the main and adjacent issues surrounding budget estimation needs more specific and in-depth research. According to Anessi-Pessina, Barbera, Sicilia and Steccolini (2016) in a study analyzing all the articles on public budgeting that have been published in all the editions of the 15 main accounting and public management journals since 1980, budgeting has played a marginal role in public management and accounting research. Among the existing articles, most focus on the local context, look at the intra-organizational aspects of budgeting, emphasize its managerial and allocative functions, adopt a weakened theoretical framework or make no explicit reference to theory, and rely on qualitative analyses with unclear methodological rigor. Thus, more diversified studies linked to this particular purpose, such as governance, are needed to fill this gap. This view is also consistent with previous observations by, among others, Goddard (2010), Lyrio, Dellagnelo, and Lunkes (2013) ()and Jacobs 2013. It should also be noted that despite the emergence of a rich diversity of new journals, accounting applied to the public sector as a whole has been marginalized by conventional and generalist journals (Anessi-Pessina et al., 2016).

As far as the structural organization of the article is concerned, it should be noted that in addition to this introduction, which presents the context and the research objective, the work is structured in four more sections. The second and third sections present the literature review that supported the research. The next section presents the paths taken to develop the article's proposal, i.e. the methodology. This is followed by the results, analysis and discussions carried out after measuring the proposed index. And finally, in the last section, the final considerations



are presented, taking up the main ideas of the article, the limitations and proposals for future work.

2 Public Budget

Studying the budget process as a whole, and not just the average annual change in a budget, provides insight into one of the most important recurring decisions in a political system, as it is from this that all public policies in a locality can be made possible. In this way, knowing, observing and discussing small, medium and large-scale budget changes from year to year provides important information on political and administrative decision-making more generally (Jensen et al., 2019).

In Brazil, according to the Federal Constitution (FC) of 1988, it is the responsibility of the Union, the States and the Municipalities to legislate concurrently on the public budget, with the forecasting of revenues and the setting of expenses, as well as on execution and their respective budget amendments. The budget document sets out the public policies that enable the government to plan and guarantee citizens' rights. The current Brazilian budget cycle consists of three budget provisions, which the Executive Branch must initiate: the Multi-Year Plan (PPA); the Budget Guidelines Law (LDO); and the Annual Budget Law (LOA). The purpose of this legal structure is to support the task of planning, with a view to better distribution of public resources, promoting integration between macro planning and the annual budget (Rosa, 2011).

Configured as the most strategic piece of planning, the PPA must establish, on a regionalized basis, the guidelines, objectives and targets of the public administration for capital expenditure and other expenses arising from it and for those relating to long-term programs (Brasil, 2021; Lacerda, 2005; Lyrio et al., 2013). The LDO, on the other hand, is the first document generated as a result of the PPA that serves as a link for the construction of the annual budget (Malcher, 2012; Quintana et al., 2015), i.e. it makes the connection between the more strategic budget piece and the more analytical plan (Paludo & Procopiuck, 2014).

In addition, it also introduces financial legal norms peculiar to the Brazilian budget system, with the publication of a legal text that sets out priorities, targets, investments, changes in tax legislation, among others (Christopoulos, 2016). The LOA, the last instrument in the Brazilian budget cycle, is a document that presents, in monetary terms, the detailed public revenue and expenditure that the government intends to make over the course of a financial year (Andrade et al., 2010; Lacerda, 2005; Mauss, 2012; Rocha, 2001). In this budget piece, the guidelines and targets set out in the PPA and LDO are detailed in programs, defining the

actions and priorities of public entities for the financial year to which it refers (Broliani, 2004; Bruno, 2013).

With the system created for the government planning process, Andrade et al. (2010) add that integration between the planning instruments is compulsory, since the LRF requires that when the budget is drawn up and implemented, the compatibility of the expenditure to be implemented with the PPA and the LDO must be demonstrated. The author further exemplifies in his work that if a municipality establishes as a goal a certain urban policy aimed at reducing the existing housing deficit in the city, it will be up to the PPA to establish programs and actions aimed at this goal, and the LDO must incorporate this action as a priority in its content, with the LOA finally providing the budgetary resources necessary to carry out the respective planned actions. In this way, the national budget system is contained in a sequential rite in which these planning instruments must necessarily relate to each other (Andrade, 2017; Lacerda, 2005).

3 Public Governance

The definition of governance is multivariate and multidimensional, and different concepts and implementations can be found in the literature. In his work, for example, Bevir (2009) had already identified and defined 50 different approaches to governance. This difficulty in generalizing is closely linked to the different types of organizations and *stakeholders* (Bovaird, 2005; Secchi, 2009). The different areas mean that the term does not have a specific, single and uniform definition (Balanzo et al., 2020). As a result, the literature contains a plethora of plural understandings, which can be approached in different contexts in different ways and applications. This diversity is especially distressing, especially considering the relevant role that governance plays in organizational environments (Urbinnati et al., 2020).

Due to this plurality of concepts and ramifications, there is also no single governance structure in public administration, commonly referred to in the literature as public governance. There are various authors, entities, bodies and legislation that form different basic guidelines for this formation. Although it is possible to find in some works (ANAO, 2003; Brasil, 2018; IBGC, 2015; IFAC, 2001; IIA, 2012; Marques, 2007; Matias-pereira, 2010a, 2010b; Slomski, 2005; Slomski et al., 2008; TCU, 2014; World Bank, 2007), an attempt to delimit these fundamentals as premises for their disclosure.

In a study on the application of governance principles in public administration, Marques (2007) identified six of the most common principles inherent to the public sector: leadership; integrity; commitment; *accountability*; integration; and transparency. The first three (leadership, integrity and commitment) involve the personal qualities of everyone in the



organization and the last three (responsibility, integration and transparency) are the product of established strategies, systems, policies and processes (Marques, 2007).

In a similar vein, Slomski (2005), Slomski et al. (2008) and Matias-Pereira (2010a, 2010b), listed the basic principles of corporate governance that guide the direction of public governance: *disclosure; fairness; compliance; accountability*; and ethical conduct. According to these authors, the basic principles that inspire the code of best corporate governance practices are fully applicable to public government entities. "The scopes of corporate and public governance, while distinct, are similar in terms of procedures" (Teixeira & Gomes, 2019, p. 525). These pillars are very similar to those proposed by Marques (2007), and bring with them conceptual aspects that are convergent to their perspective of application. The only difference between the two groups is the addition of the principle of equity to that of integration.

In parallel with these authors, in 2018 the Federal Government issued a "Public Governance Policy Guide", the result of Decree No. 9.203 of 2017^f, which provides for the governance policy of the direct, autarchic and foundational federal public administration, the aim of which is to enable government entities to ensure that their actions are in fact directed towards objectives aligned with society's interests in a coordinated, coherent and consistent manner. The legal provision, which is convergent with the already institutionalized "Basic Reference for Governance Applicable to Public Administration Bodies and Entities" of the Federal Court of Auditors (TCU) (TCU, 2014), establishes principles and guidelines for the operationalization of public governance in public sector entities. The set of institutions advocated by the governance policy seeks to contribute to the modernization of the state framework in the provision of public services and in the formulation and implementation of public policies (Brasil, 2018), overcoming the models of the past in order to incorporate techniques that introduce indispensable notions of quality, productivity, results and employee responsibility into the culture of public work (Bresser-pereira, 1998). Among its various foundations, the basic principles/guidelines (Chart 1) established for governance in the public sector are: responsiveness; integrity; reliability; regulatory improvement; accountability; responsibility; and transparency.

^f Later amended by Decree No. 9,901 of July 8, 2019, but with few changes.

Chart 1

Governance principles and guidelines from the "Public Governance Policy Guide".

Principles	Guidelines	Fundamentals
Responsiveness	Directing actions towards pursuit of results for society, finding timely and innovative solutions to deal with limited resources and changing priorities	(United Nations, 2015)
	Promote administrative simplification, the modernization of public management and the integration of public services, especially those provided electronically.	
Integrity	Implement internal controls based on risk management, which will prioritize strategic preventive actions ahead of sanctioning processes.	(OECD, 2012)
	Incorporate high standards of conduct by senior management to guide the behavior of public agents, in line with the functions and attributions of their respective bodies and entities.	
Reliability	Monitor the performance and evaluate the design, implementation and results of policies and priority actions to ensure that strategic guidelines are observed.	(OECD, 2017)
	Articulate institutions and coordinate processes to improve integration between the different levels and spheres of the public sector, with a view to generating, preserving and delivering public value.	
Regulatory improvement	Maintaining a decision-making process guided by evidence, legal compliance, regulatory quality, debureaucratization and support for the participation of society.	(European Commission, 2016)
	Editing and revising normative acts based on good regulatory practices and the legitimacy, stability and coherence of the legal system, carrying out public consultations appropriate.	
	Evaluate proposals to create, expand or improve public policies and grant tax incentives and assess, whenever possible, their costs and benefits.	
Accountability and responsibility	Formally define the roles, competencies and responsibilities of institutional structures and arrangements.	(United Nations, 2014)
Transparency	Promote open, voluntary and transparent communication of the organization's activities and results, in order to strengthen public access to information	(OECD, 2016)

Source: Adapted from Brazil (2018).

As can be seen, the principles categorized by the "Public Governance Policy Guide" come from some important bodies in the global context (Brazil, 2018). These include the *United Nations* (UN), an intergovernmental organization created to promote international cooperation, the *Organisation for Economic Co-operation and Development* (OECD), an international organization that seeks to stimulate economic progress and world trade, and the *European Commission* (EC), which represents and defends the interests of the European Union as a whole. According to the book (Brasil, 2018), the use of recommendations, principles and guidelines



from specialized literature and international organizations in an integrated way synthesizes the best governance practices for the public context. Marques (2007) also points out that the principles linked to important international bodies are used as a point of reference for companies and countries to develop their own principles, according to their needs and particularities.

It is also worth noting that, in addition to the aforementioned bodies, other multilateral organizations and private institutions deserve to be highlighted for their contributions to and encouragement of the application of governance in the public sector (Chart 2), such as: *World Bank*, an international financial institution that lends and finances projects in developing countries; *Australian National Audit Office (ANAO)*, a supervisory body specialized in providing a range of auditing services to Australian parliamentary bodies; *International Federation of Accountants (IFAC)*, a global organization dedicated to strengthening the accounting profession and serving the public interest; *Institute Of Internal Auditors (IIA)*, an international organization that advocates, promotes educational conferences and develops standards, guidelines and certifications for the internal auditing profession; and, *Instituto Brasileiro de Governança Corporativa (IBGC)*, a Brazilian body that seeks to contribute to the sustainable performance of organizations through the generation and dissemination of knowledge of best practices in corporate governance.

Chart 2

Governance principles (World Bank, IFCA, IIA, ANAO and IBGC).

Bodies/Entities	Principles	Source
World Bank	Legitimacy	(World Bank, 2007)
	Accountability	
	Responsibility	
	Fairness	
	Transparency	
	Efficiency	
	Probity	
International Federation of Accountants (IFAC)	Transparency (Openness)	(IFAC, 2001)
	Integrity	
	Accountability	
Institute Of Internal Auditors (IIA)	Accountability	(IIA, 2012)
	Transparency	
	Integrity	
Australian National Audit Office (ANAO)	Equity	(ANAO, 2003)
	Leadership	
	Commitment	
	Integrity	
	Accountability	
Brazilian Institute of Corporate Governance (IBGC)	Transparency (Openness)	(IBGC, 2015)
	Integration	
	Transparency	
	Equity	
	Accountability	
	Corporate Responsibility	

Source: From the author (2023).

Compared to the premises highlighted by Marques (2007), Slomski (2005), Slomski et al. (2008), Matias-Pereira (2010a, 2010b) and Brasil (2018), the set of principles/guidelines that permeate public governance, issued by the bodies/entities in Chart 2, are essentially similar. The purposes of legitimacy and *probity* outlined by the *World Bank* appear as complementary items.

In this way, given the varied nature of the topic of governance and the alternating but consistent guidelines that apply to the public sphere, Pisa (2014) and Teixeira and Gomes (2019) outline that this configuration summarizes public governance as a model of public management in which different actors interact (politicians, public administrators and representatives of society) who seek to achieve jointly defined objectives through shared management based on the principles of legality, ethics, integrity, fairness, transparency and *accountability*. This definition of public governance has been used in this article.



4 Governance Indices in the Public Sector

Underpinned by the premises that make up the concept of public governance, several studies have proposed the creation of a public sector governance index.

With the aim of assessing the degree to which each federal entity strives to comply with the principles of public governance, Oliveira and Pisa (2015) developed a public governance assessment index as a self-assessment and planning tool for the state and a social control tool for citizens. To this end, the authors used some principles linked to governance to create a model for measuring public governance. The so-called Public Governance Assessment Index (IGovP) was applied to all of Brazil's state capitals, and the authors found, by measuring the index, that various disparities in public governance between the federal entities are related to the age-old problems of poor income distribution and lack of access to education, health and work, affecting the country's development more incisively on a regional level.

In a more recent study, Santos and Rover (2019) also constructed a public governance index to measure the efficiency of the application of public resources in education and health in Brazilian municipalities in 2010. To this end, the authors used various variables linked to public governance and the education and health sectors. As a result, the authors found that the principles of public governance linked to transparency, *accountability*, participation, integrity, ethics, legal compliance, equity and effectiveness positively influence the efficiency of the application of public resources in education and health in Brazilian municipalities.

Souza (2018) developed an index to measure the degree of public governance with a focus on the societal management of public administration. To create the Municipal Public Governance Index (IGovM), the following public governance principles were considered as dimensions: Transparency; *Accountability*; Participation; Integrity (*compliance*); Legal Conformity (legality); Equity; and Effectiveness. The IGovM score ranges from 0 (0%) to 1 (100%) and has a five-point scale for measurement: above 0.8 (very high); 0.7 to 0.8 (high); 0.6 to 0.7 (medium), 0.5 to 0.6 (low); and 0 to 0.5 (very low). The IGovM was applied to the 399 municipalities of Paraná, revealing the degree of municipal public governance in each municipality. According to Souza (2018), 56% of Paraná's municipalities are in the very low (34%) and low (22%) ranges, while 44% of the other municipalities are in the medium (7%), high (31.5%) and very high (5.5%) ranges.

In their research, Silva (2022) and Silva and Cândido (2022) proposed similar instruments for assessing municipal public governance. The authors state that the introduction of indices of this nature contributes to better management, monitoring and implementation of

public policies in municipal administration. Both studies were based on the principles of public governance for the dimensions of the indices. The principles of effectiveness, participation, equity, transparency and legality are examples of their compositions. Measurable variables were allocated to each principle so that each dimension was made up of a set of indicators that synthesized them. Silva (2022) not only created it but also applied it to a municipality in Paraná. Silva and Cândido's (2022) research only aimed to propose the index.

In their study, Mello and Slomski (2010) created an index to measure and monitor the development of e-governance in Brazilian states and the Federal District, specifically in the executive branch. To this end, they used bibliographic reviews to build the theoretical platform and to identify governance practices in the public and electronic environment. Using the theoretical framework researched, the authors proposed the Electronic Governance Index of Brazilian States (IGEB). The study's data was obtained from the *websites* of the states and the Federal District in 2009. By measuring the IGEB, Mello and Slomski (2010) noted the percentage of practices implemented by the states and the Federal District, highlighting the states of São Paulo, which has already implemented 71.40% of the suggested practices, and Mato Grosso do Sul with only 37.31%.

In a similar study, Gomes (2018) created a digital governance index applicable to municipalities and foundations linked to the Ministry of Education (MEC) in the federal executive branch. The index, called the Digital Governance Index of Brazilian Municipalities (IGD-Aut), seeks to understand the degree of implementation of digital governance practices on the *websites* of the population studied. Data was collected from 108 *websites*. The calculation of the result for each *website* generated individual scores for each organization. These scores were presented in a national ranking of compliance with digital governance practices. The results revealed that the biggest gap in promoting digital governance is compliance with Citizen Participation practices. To this end, Gomes (2018) suggested greater attention to good governance practices related to conducting satisfaction surveys, prior consultations, allowing citizens to report unforeseen events and allowing evaluation of events in general promoted by the organization. It was also found that the organizations that least comply with digital governance practices are concentrated in the Northeast and North regions.

Aquino et al. (2020) analyzed the public governance of Brazilian municipalities, investigating them from the perspective of large and small size. To do so, they adapted the Public Governance Index of Brazilian Municipalities (IGovP) developed by Oliveira and Pisa (2015). The authors found through their results that most of the municipalities analyzed have a high degree of public governance. Also, in general, it was found that the larger municipalities



had higher public governance than the smaller municipalities. In addition, the municipalities in the southern region of the country stood out in terms of their degree of governance when compared to the other regions.

The TCU (2022) also systematically carries out surveys within its structure in order to better understand the state of public governance and encourage public bodies to adopt good governance practices. The surveys are carried out using questionnaires that contain content on the adoption of good practices in public governance. These questions are based on national and international references of good governance practices. In 2021, 378 public organizations participated in the survey with valid responses. The Public Governance Index (iGovPub) created by the TCU ranges from 0 (0%) to 1 (100%) and is arranged individually (TCU, 2022).

5 Methodology

According to Gil (2019), research is a rational and systematic procedure that aims to provide answers to proposed problems. Its demand arises when satisfactory information is not available to answer a problem, or when the available information is in such a state of disarray that it cannot be adequately combined with the problem. The search for answers to research problems is a cyclical process, since it doesn't end with the answer obtained; new problems are identified based on the research itself and the answers found. This position is mainly confirmed at the end of theses, dissertations and other works, in which the author, after drawing conclusions, recommends future work because their study did not cover all the possible discussions on the proposed subject (Beuren et al., 2013).

In this sense, in terms of objectives, this study was carried out using exploratory-descriptive research, since it creates a governance index in budget estimation and seeks to measure it in the municipalities of the state of São Paulo. Thus, according to Trivinos (2009), the researcher plans an exploratory study (development of the index) in order to find the necessary elements that will allow him, in contact with a certain sample or population, to obtain the results he needs for a descriptive study (measurement of the index in the municipalities of the state of São Paulo).

As far as procedures are concerned, in addition to a literature review to develop the proposed index, the research is delineated as documentary, since it mainly used secondary information from the municipalities studied. Documentary research makes use of materials that have not yet received an analytical treatment, or that can still be reworked according to the objects of the research (Gil, 2002; Martins & Theóphilo, 2016). This type of research aims to select, process and interpret raw information, seeking to extract some meaning from it and

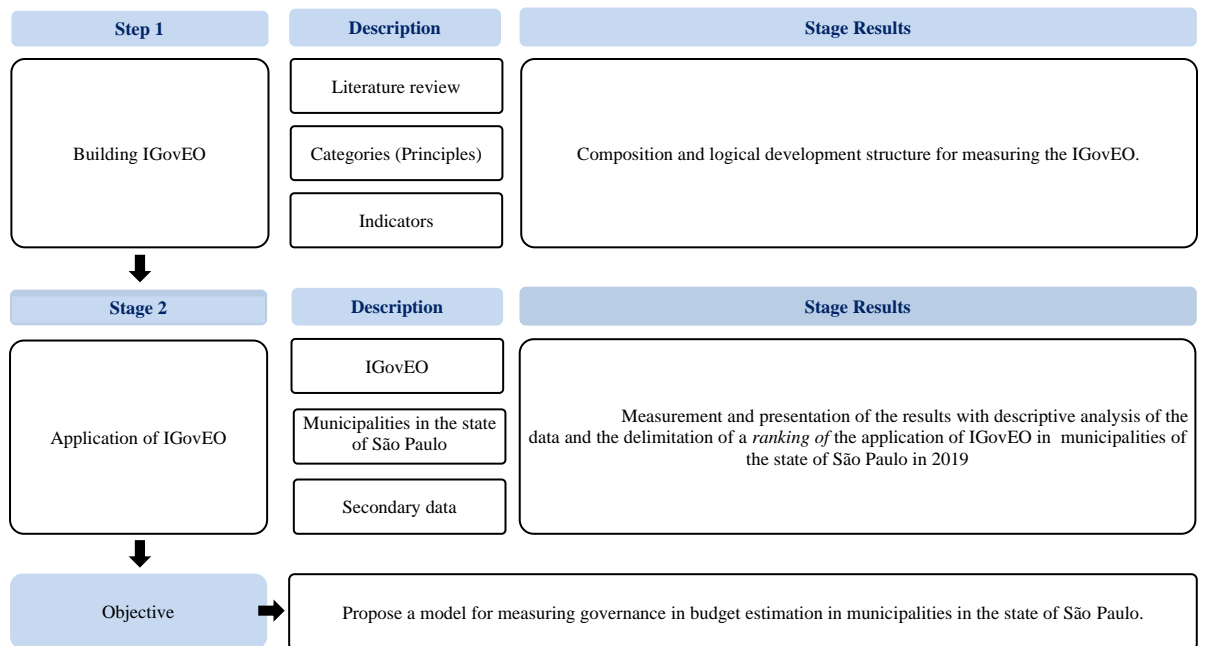
introduce some value into it, which can contribute to the scientific community so that others can play the same role again in the future. In this way, documentary research makes use of materials that have not yet been analyzed in depth (Silva & Grigolo, 2002).

As far as the approach is concerned, the study includes quantitative research, which according to Martins and Theóphilo (2016, p. 107), "are those in which the data and evidence collected can be quantified, measured" to then be filtered, organized and tabulated and prepared for analysis. It involves in-depth analysis of the phenomenon being studied. This approach highlights characteristics that are sometimes not evident in a qualitative study, making the latter superficial in relation to the former (Beuren et al., 2013).

It should be noted that the choice of the state of São Paulo made it easier to collect the content needed to create and apply the proposed index, since the São Paulo State Court of Auditors (TCESP), through the Municipal Management Effectiveness Index (IEG-M), already makes available, on a secondary basis, various indicators that make up the index created. Thus, the selection of this sample contributed to the execution of the research as well as interacting with possibilities for future work, since the collection process was faster, as this data did not need to be obtained primarily, and because it allows other researchers to replicate, adapt and search for this data in a more central and objective way. The year of the data used in the study is 2019.

That said, the study is divided into two stages. In the first, the governance index in budget estimation is constructed, with its respective categories and indicators. In the second stage, the developed index is assessed. Figure 2 shows the methodological design of the article with these stages.

Figure 2
Methodological design of the article



Source: From the author (2023).

6 Results and Discussions

According to the methodological design proposed for the article, this section is divided into two parts. The first demonstrates the development of the governance index in budget estimation, and the second applies it to municipalities in the state of São Paulo.

6.1 Governance Index in Budget Estimation (IGovEO)

A methodological proposal for measurement requires the development of a structural set of criteria and the selection of consistent indicators related to these same criteria, in such a way that they can lead to a measurement of the results based on the pre-established framework of references (Pisa, 2014). To this end, the pillars and theoretical foundations used to create the Governance Index in Budget Estimation (IGovEO) are the principles of public governance listed in the theoretical basis of this article. Thus, the contents specified in the works and documents by Marques (2007), Slomski (2005), Slomski et al. (2008), Matias-Pereira (2010a, 2010b) and Brasil (2018), as well as contributions from the *United Nations* (2014, 2015), OECD 2012, 2016, 2017), *European Commission* ((2007)2016), *World Bank* , IFAC (2001), IIA (2012), ANAO (2003) and IBGC (2015), were combined and used as a basis for forming and supporting the IGovEO categories. In addition, it can be inferred that as this is a public governance index, the steps involved in its formation took into account the aspects contained

in the "Reference Guide for the Construction and Analysis of Indicators" (Bahia, 2021) used as a reference by the Interministerial Governance Committee (CGI), which is responsible for conducting the governance policy of the federal public administration.

Each category, created on the basis of public governance principles, corresponds to a set of indicators that seek to measure the effectiveness of each category. Thus, the IGovEO was proposed based on a set of 5 categories: (i) Participation and responsiveness; (ii) Transparency; (iii) Accountability and responsibility; (iv) Regulatory improvement and reliability; and (v) Integrity. With a total of 30 indicators whose answers were obtained from secondary data. The secondary data comes from the Municipal Management Effectiveness Index (IEG-M), the Brazilian Institute of Geography and Statistics (IBGE), the São Paulo State Court of Auditors (TCESP), the Brazilian Public Sector Accounting and Fiscal Information System (SICONFI) and the Multi-Year Plans (PPA), Budget Guidelines Laws (LDO) and Annual Budget Laws (LOA) of each locality. These categories and indicators are shown in Table 3. The data content refers to the 2019 financial year.

Table 3*IGovEO categories and indicators.*

Categories	Indicators	Meter	Source
1 - Participation and responsiveness	1.1 - Did the City Council hold public hearings in 2019?	0 – No 1 – Yes	IEG-M (2020)
	1.2 - Are the public hearings transcribed in minutes or another document recording the demands/propositions presented by popular participation?	0 – No 1 – Yes	IEG-M (2020)
	1.3 - Does the City Council collect suggestions on the internet for the preparation of budget documents?	0 – No 1 – Yes	IEG-M (2020)
	1.4 - Is there a Participatory Budget Management committee or commission?	0 – No 1 – Yes	IBGE (2020)
	1.5 - Apart from public hearings, are there any formal surveys of the municipality's problems, needs and deficiencies prior to planning?	0 – No 1 – Yes	IEG-M (2020)
	1.6 - Have the diagnoses served as solutions and are they materialized in the budget documents?	0 – No 1 – Yes	IEG-M (2020)
	1.7 - Is a study carried out to draw up/define the programs, actions, targets and indicators for multi-annual planning?	0 – No 1 – Yes	IEG-M (2020)
2 - Transparency	2.1 - Are the demands/propositions resulting from the public hearings publicized?	0 – No 1 – Yes	IEG-M (2020)
	2.2 - Are the pieces that make up the plan publicized?	0 – No 1 – Yes	IBGE (2020)
	2.3 - Are the documents that make up the planning published with the indicators of programs and goals of government actions planned vs. carried out?	0 – No 1 – Yes	IBGE (2020)
	2.4 - Does the Municipality make the Citizen Information Service/e-SIC (LF No. 12.527/11) available on its website?	0 – No 1 – Yes	IEG-M (2020)
3 - Accountability and responsibility	3.1 - Are there mechanisms in place to monitor the inclusion and implementation of the demands raised at the PPA public hearings or the collection of suggestions by control bodies and society?	0 – No 1 – Yes	IEG-M (2020)
	3.2 - Is the implementation of planning monitored?	0 – No 1 – Yes	IEG-M (2020)
	3.3 - Results of the opinions of the municipal accounts for the last 10 years.	0,1 - For each favorable year 0 - For each unfavorable year	TCESP (2021)
	3.4 - Percentage of variation between the executed and planned budget expenditure ratio.	0-1 - Implemented/planned ratio	SICONF (2021)
4 - Regulatory improvement and reliability	4.1 - Is a study/analysis carried out to forecast income at least annually?	0 – No 1 – Yes	IEG-M (2020)

Categories	Indicators	Meter	Source
	4.2 - Does the methodology used to project revenue vary according to the type of budget revenue projected?	0 – No 1 – Yes	IEG-M (2020)
	4.3 - Are physical and financial targets set on an annual basis in the actions provided for in the multi-annual planning?	0 – No 1 – Yes	PPA (2019)
	4.4 - Are the indicators in the budget measurable and consistent with the physical and financial targets set?	0 - No indicators 0,5 - Part of the indicators 1 - All PPA indicators	IEG-M (2020)
	4.5 - Was the Fiscal Targets Annex prepared in accordance with the Manual of Fiscal Statements (MDF) established by the National Treasury Secretariat (STN)?	0 – No 1 – Yes	LDO (2019)
	4.6 - Is the Fiscal Risks Annex part of the budget proposal, as required by the LRF?	0 – No 1 – Yes	LDO (2019)
	4.7 - What is the percentage for opening additional credits by decree?	0 - Above 30% 0.25 - Above 20% to 30% 0.5 - Above 10% up to 20% 0.75 - Above 0% up to 10% 1 - 0%	LOA (2019)
5 - Integrity	5.1 - Is there an administrative structure for planning?	0 – No 1 – Yes	IEG-M (2020)
	5.2 - Does the municipality have the human resources to carry out planning activities?	0 – No 1 – Yes	IEG-M (2020)
	5.3 - Does the municipality have the technological resources to carry out planning activities?	0 – No 1 – Yes	IEG-M (2020)
	5.4 - Is the person responsible for the municipality's accounts a permanent employee?	0 – No 1 – Yes	IEG-M (2020)
	5.5 - Are all the Budgetary Units (BU) of the City Hall aware of the annual revenue forecast for the execution of their actions?	0 – No 1 – Yes	IEG-M (2020)
	5.6 - Is there an internal control system regulated by law?	0 – No 1 – Yes	IEG-M (2020)
	5.7 - Is there an internal structure in the municipality with formally defined and regulated attributions that meet the requirements of the Federal Constitution and the Fiscal Responsibility Law?	0 – No 1 – Yes	IEG-M (2020)
	5.8 - Expenditure by function (per capita) - administration and planning - municipal	1- Highest spending per capita 0-1 - Others by proportion	SICONF (2021)

Source: From the author (2023).

As can be seen in Table 3, the proposed IGovEO is the result of the sum of the scores in five categories: (1) Participation and responsiveness; (2) Transparency; (3) *Accountability*; (4) Regulatory improvement and reliability; and (5) Integrity. These five categories form the basic pillars of measurement that are based on the principles of public governance.

The first category, (1) Participation and responsiveness, sought to understand in its content aspects that are consistent with the participation and effective voice of the different actors in a society in the main governance and management decisions. This is why indicators inherent to public hearings, as well as their minutes and the collection of demands, are part of its structure. In addition, it is important that the respective suggestions made during this process are clearly materialized in the budget plans, with the aim of conveying the government's ability to respond to such surveys. The second category, (2) Transparency, complements the first. "Transparency represents the public administration's commitment to publicizing its activities, providing reliable, relevant and timely information to society" (Brasil, 2018, p. 51). As part of a group of core principles that guide public activity, transparency is one of the pillars for building an open budget process. Thus, the indicators that make up this category seek to actively and passively capture the transparency of the items that involve budget estimation.

The third category, (3) *Accountability*, seeks to amplify the planning process, ensuring that there is a "necessary link, especially in the administration of public resources, between decisions, behaviors and competencies and their respective responsible parties" (Brazil, 2018, p. 51). Effective governance for sustainable development requires public institutions at all levels to be inclusive and accountable to the population (United Nations, 2014). This category therefore seeks to determine whether there is follow-up, monitoring, evaluation and accountability of what has previously been agreed between government and society. The fourth category linked to (4) Regulatory improvement and reliability seeks to capture whether the decision-making process in budget estimation is guided by evidence, legal compliance, regulatory quality, debureaucratization and support for the participation of society (Brazil, 2018; European Commission, 2016). In addition, it also seeks to verify whether the parameters of fiscal targets and risks are being well established according to the local reality, since these aspects are relevant to having a balanced and preventive government.

The fifth and final category, (5) Integrity, is concerned with the aspects of structure and human resources that are part of a government's budget estimate. According to the OECD (2012), integrity is more than a moral issue, it is also about making the economy more productive, the public sector more efficient and society more inclusive. Thus, this fifth category seeks to understand whether there are expenses and an internal structure with physical, human



and technological resources specifically linked to the budget sector. In addition, the content of this category also includes the perception of whether or not there is an internal control structure that favors strategic preventive actions before sanctioning processes (Brazil, 2017).

The composition and logical structure for developing and measuring the IGovEO are shown in Table 4, listing the index, categories and indicators with their respective weights. Each value assigned to the variables in the model contains a weight for the index, the final scale of which will vary between 0 and 1.



Table 4

Composition/logical structure of the IGovEO and its weighting criteria

Contents	Weight (IGovEO)	Categories	Weights (Categories)	Indicators	Weights (Indicators)	
Governance Index in Budget Estimation (IGovEO)	1.00	1 - Participation and responsiveness	0.20	1.1	0.1428	
				1.2	0.1428	
				1.3	0.1428	
				1.4	0.1428	
				1.5	0.1428	
				1.6	0.1428	
				1.7	0.1428	
		2 - Transparency	0.20		2.1	0.2500
					2.2	0.2500
					2.3	0.2500
					2.4	0.2500
		3 - Accountability and responsibility	0.20		3.1	0.2500
					3.2	0.2500
					3.3	0.2500
					3.4	0.2500
		4 - Regulatory improvement and reliability	0.20		4.1	0.1428
					4.2	0.1428
					4.3	0.1428
					4.4	0.1428
					4.5	0.1428
4.6	0.1428					
4.7	0.1428					
4.8	0.1428					
5 - Integrity	0.20		5.1	0.1250		
			5.2	0.1250		
			5.3	0.1250		
			5.4	0.1250		
			5.5	0.1250		
			5.6	0.1250		
			5.7	0.1250		
			5.8	0.1250		

Source: From the author (2023).

Each category receives a weight of 20%, since they are all equally relevant to achieving effectiveness in budget estimation in municipalities (Mello & Slomski, 2010; Oliveira & Pisa, 2015; Pisa, 2014). Thus, the maximum score for each category (20%) corresponds to 100% of the sum of the indicator weights, or, taking absolute values into account, the unit (1). In addition, each category is also the result of the sum of the weights of the indicators in each category. The value of the indicator weights varies according to the number of indicators each category has. In summary, it can be seen that each pillar (principle/category) makes up an IGovEO measuring factor, and each of these pillars is formed from the aggregation of indicators which, in turn, have their own measuring factors, the results of which are obtained in a secondary way.

The secondary data derived from IEG-M, IBGE, TCESP and SICONFI were abstracted directly from the electronic portals where they are available, without any major problems or refinements. On the other hand, the necessary data, which was directly linked to the PPA, LDO and LOA budget documents, was taken from the content of the legislation itself, which made great demands on the researchers. However, after carrying out the work, this data can be found on the TCESP portal in an integrated manner, with all the municipalities.

In order for the index to provide an easy-to-read and easy-to-understand output, the result range scales (Figure 1) proposed by Oliveira and Pisa (2015) were used. It should be noted that the respective ranges have already been used and validated in several other studies on the application of governance indices. Thus, the IGovEO result, which ranges from 0 (0%) to 1 (100%), has a five-point scale for measurement: above 0.800 (very high); 0.700 to 0.799 (high); 0.600 to 0.699 (medium), 0.5 to 0.599 (low); and 0 to 0.499 (very low).

Figure 1

IGovEO score range scales



Source: Adapted from Oliveira and Pisa (2015).

It is important to note that unlike the indexes focused on public sector governance, which include various socio-economic variables in their calculations, the IGovEO seeks to include its own specificities that are exclusive to the budgetary sphere. Indexes such as iGovPub created by the TCU (2022), IGovP developed by Oliveira and Pisa (2015) and IGovM established by Souza (2018), for example, include within their construction various areas linked to the applicability of public policies, such as health, education, social assistance, income and employability, unlike the more specific proposal of IGovEO. In this sense, even though the IGovEO and all the other most important public governance indices are based on the premises, principles and basics of governance, the proposal in this study focuses only on aspects linked

to the public budget, differentiating it from the other more general indicators that are commonly worked on.

The next subsection presents the measurement of the IGovEO in the municipalities of São Paulo.

6.2 IGovEO of municipalities in the state of São Paulo

Considering the procedures adopted to draw up the IGovEO and the data collected from the secondary data mentioned in the previous section, referring to the 2019 financial year, we arrived at the index result for the municipalities that were part of this study. Table 1 shows, in general terms, the number and percentage of municipalities per IGovEO score range, as well as the score ranges of the categories that comprise it. It is worth noting that the city of São Paulo was excluded from the sample due to the unavailability of survey data in the IEG-M (2020). The sample was therefore made up of 644 municipalities, since according to the IBGE portal, IBGE Cidades (2022), the state of São Paulo has 645 municipalities in its entire territory.

Table 1

Municipalities by score band.

Index/Categories	Very high	High	Medium	Low	Very low	Total
IGovEO	115	171	198	111	49	644
	17.86%	26.55%	30.75%	17.24%	7.61%	100.00%
Participation and responsiveness	44	104	-	148	348	644
	6.83%	16.15%	0.00%	22.98%	54.04%	100.00%
Transparency	264	231	-	135	14	644
	40.99%	35.87%	0.00%	20.96%	2.17%	100.00%
Accountability and responsibility	110	174	222	82	56	644
	17.08%	27.02%	34.47%	12.73%	8.70%	100.00%
Regulatory improvement and reliability	443	68	77	28	28	644
	68.79%	10.56%	11.96%	4.35%	4.35%	100.00%
Integrity	202	67	36	163	176	644
	31.37%	10.40%	5.59%	25.31%	27.33%	100.00%

Source: From the author (2023).

Looking at the results, it can be seen that 44.41% of the municipalities are in the very high or high score bands when it comes to governance in budget estimation, which is a positive inference, as it corroborates that many governments are applying governance practices. However, 24.85% of the municipalities are concentrated in the very low or low score ranges, which indicates few governance practices in budget estimation in a quarter of the local governments in the state of São Paulo. The largest IGovEO range is concentrated in the medium result, comprising 30.75% of municipalities.

Table 1 also shows that the categories Transparency and Regulatory improvement and reliability are the ones that the municipalities adhere to the most, with 76.86% and 79.35% respectively in the very high and high ranges. The adherence percentage of 68.79% for the very high range in the Regulatory improvement and reliability category stands out. A strong indication for this in both categories is the greater demands made by state inspection agents in forwarding and checking municipal data and complying with the legal parameters, together with the greater technological apparatus that has become evident in recent years. Afonso et al. (2015), in a study of all the Brazilian Courts of Auditors, pointed out that these bodies, in 2013, noticed the need to invest in information technology in order to make progress in terms of



improving the quality of the service provided to citizens and in faster and more comprehensive inspections. Since then, whether due to the need to keep up with technological advances in the last decade and/or the implementation of new legislation, what has happened, and what other studies have shown (Cavalcante Júnior et al., 2021; Miranda, 2018; D. G. da Rocha & Zuccolotto, 2017), is that there have been several investments that have helped the inspection capacity of state agents, consequently increasing the compliance of municipalities with their legal requirements.

On the other hand, the Participation and responsiveness category showed a low level of compliance. The sum of the very low and low ranges accounted for 77.02% of municipalities, which indicates that most localities have problems in the process of participation and delivery of results chosen by the population in the budget. This evidence is in line with the study by Azevedo and Aquino (2016), who state that the instrument of popular participation in Brazil still has a symbolic and ceremonial character in most municipalities, with low adherence by the population. In addition, it is inferred that the methods of citizen participation in the country are still subjective and difficult to monitor, corroborating disbelief on the part of civil society, placing it much more as a spectator of the discussion between the legislative and executive branches than as a participant in the budget process (Brelaz & Alves, 2013).

The Accountability and Responsibility category was the one that came closest to the IGovEO. Its percentages by score range were very similar to the general index. The Integrity category, on the other hand, showed high percentages in the high and low ranges of the index, which suggests that municipalities have a spaced-out tendency to practice or not practice the premises that make up this item. According to Aquino et al. (2020) this is because there is a difference in the application of governance in this aspect in large and small municipalities. According to the authors, governance is more effective in larger localities because there is greater access to income and better conditions for human development, since these places are home to large urban and commercial centers, as well as educational and health units with more physical and human resources, unlike the reality in small municipalities.

Based on this context, and dividing São Paulo's municipalities into 4 population bands, with 161 in each (644 in total), the first with the most populous municipalities and the fourth with the least populous, we can see this evidence pointed out by Aquino et al. (2020) in Table 2. For better visualization, given the weighting in the ratio of 20% shown in Table 4 for each category, it was decided to highlight the categories with values between 0 and 1, showing the importance that each one has for the formation of the IGovEO,

Table 2

Average score for the categories by population group.

Population groups	Participati on and responsiveness	Transpar ency	Accounta bility and responsibi lity	Regulatory improvement and reliability	Integr ity
Track 1	0.5989	0.8137	0.7030	0.8310	0.7238
Track 2	0.5102	0.7873	0.6900	0.8314	0.6516
Track 3	0.4942	0.7811	0.6857	0.7924	0.5413
Track 4	0.4623	0.7748	0.6709	0.7804	0.4783

Source: From the author (2023).

As can be seen in Table 2, unlike the other categories, the average score in the Integrity category fell more sharply between the population groups. The value goes from 0.7238 in Band 1 (most populous) to 0.4783 in Band 4 (least populous), showing the extremism seen in Table 1. This widening of the ranges reinforces the idea put forward by Aquino et al. (2020) that in large municipalities there is a greater degree of effectiveness of the premises linked to the Integrity category.

This wide discrepancy, found in the Integrity category, is not seen in the others. However, with the exception of the increase between Bands 1 and 2 in the Regulatory improvement and reliability category, in all the others there was a drop in the average score. This indicates that the population factor influences the applicability of the parameters involved in governance. This evidence was also seen in the studies by Freitas and Luft (2014), Moura et al. (2015), Vasconcelos, Aquilo and Castelo (2019) and Aquino et al. (2020).

Next, a descriptive analysis of the IGovEO and its underlying categories was carried out. The analysis looked at the mean, median, standard deviation and maximum and minimum values for each item. Based on the results shown in Table 3, it can be seen that the average IGovEO was 0.6801 and the highest and lowest IGovEO were 0.9354 and 0.3060 respectively. The median was very close to the mean and indicates that half of the municipalities in the study had results better than 0.6801. The standard deviation indicates a lower dispersion of the IGovEO than its categories, indicating more consistency in its results.



Table 3

Descriptive analysis of IGovEO and its categories.

Index/Categories	Average	Median	Standard Deviation	Minimum	Maximum
IGovEO	0.6801	0.6830	0.1202	0.3060	0.9354
Participation and responsiveness	0.5164	0.4286	0.1624	0.1429	1.0000
Transparency	0.7892	0.7500	0.2066	0.2500	1.0000
Accountability and responsibility	0.6874	0.6911	0.1461	0.0750	0.9989
Regulatory improvement and reliability	0.8088	0.8571	0.1500	0.0714	1.0000
Integrity	0.5987	0.5001	0.2341	0.0000	1.0000

Source: From the author (2023).

Regarding the categories that represent the IGovEO, it can be seen from the average that the application of content linked to Transparency and Regulatory improvement and reliability are those with the best results. On the other hand, the categories Participation and responsiveness together with Integrity have the lowest scores. Accountability and responsibility are in the middle of these two blocks and converge very closely with the ranges of results found in the IGovEO. As a result, the average of each category shows that municipalities are generally more concerned with practices related to Regulatory improvement and reliability, followed by Transparency, then Accountability and responsibility, then Integrity and finally Participation and responsiveness.

Using the median in the Participation and Responsiveness and Integrity categories, it can be seen that more than half of the municipalities in the survey have lower results than the average in these same categories. This indicates that fewer municipalities, with higher numbers, raised the group average. The standard deviation values for both also indicate this issue, as they represent the first and third largest dispersion of data between the categories. With regard to the minimum numbers, it should be noted that only in the Integrity category were there municipalities with no scores. This means that in all the other categories, the municipalities in the study scored at least one minimum score. As for the maximum figures, it can be inferred that in all categories, with the exception of Accountability and Responsibility, there were municipalities with the maximum score.

In order to identify the locations with the most extreme values for each variable, Table 4 shows the municipalities with the most widely spaced data. The municipalities of Itapirapuã Paulista and Catanduva had the lowest (0.3060) and highest (0.9354) IGovEO results, respectively.

Table 4

Descriptive analysis of the minimum and maximum extremes of the IGovEO and its categories.

Index/Categories	Minimum		Maximum	
	Municipality	Value	Municipality	Value
IGovEO	Itapirapuã Paulista	0.3060	Catanduva	0.9354
Participation and responsiveness	Emilianópolis	0.1429	Osasco and Araraquara	1.0000
Transparency	14 municipalities	0.2500	264 municipalities	1.0000
Accountability and responsibility	Regente Feijó	0.0750	São João da Boa Vista	0.9989
Regulatory improvement and reliability	Canas	0.0714	Capão Bonito, Quatá and Dumont	1.0000
Integrity	5 municipalities	0.0000	Guarulhos	1.0000

Source: From the author (2023).

Regarding the categories, Emilianópolis was the municipality with the lowest score (0.1429) for Participation and responsiveness, while Osasco and Araraquara had the best score (1.000) in this category. Regarding to Transparency, there were 14 cities with the lowest score (0.2500), while 264 municipalities achieved the maximum score in this category (1.0000). The city with the lowest accountability score was Regente Feijó (0.0750), and the highest was São João da Boa Vista (0.9989). Canas is the municipality with the lowest value (0.0714) for the Regulatory improvement and reliability category, while Capão Bonito, Quatá and Dumont had the highest (1.000). Finally, related to the Integrity category, 5 municipalities did not present any content (0.0000), and Guarulhos was the only municipality to present a total score (1.0000).

7 Final considerations

The idea for this study arose from the existence of few studies on budget estimation in the Brazilian public sector, and also from the fact that no specific governance index for the



budget planning process was found in the literature. To this end, the aim of this research was to propose a model for measuring governance in budget estimation in municipalities in the state of São Paulo.

The proposed index is called IGovEO (Index of Governance in Budget Estimation) and was developed based on the principles of public governance. After a literature review covering government studies and materials on public governance, the IGovEO was based on 5 categories/principles: (i) Participation and responsiveness; (ii) Transparency; (iii) Accountability and responsibility; (iv) Regulatory improvement and reliability; and (v) Integrity. Through the index it was possible to observe the adoption of municipalities in the state of São Paulo in relation to the fundamentals that each category/principle absorbs.

The results show that 44.41% of the municipalities are in the very high or high range when it comes to governance in budget estimation, 24.85% are in the very low or low range, and 30.75% are in the medium range. Furthermore, when analyzing the categories that represent the IGovEO, it can be seen that the contents linked to Transparency and Regulatory improvement and reliability are those with the best results, and that, in contrast, the categories Participation and responsiveness together with Integrity are those with the lowest results. The category Accountability and responsibility is between these two blocks, and is very close to the results found in IGovEO.

Therefore, in order to generally improve governance in the budget estimation of municipalities in the state of São Paulo, considering the shortcomings found by measuring the IGovEO, it is suggested that managers adopt practices such as: (i) implementing internal controls based on risk management, which will favor strategic preventive actions before sanctioning processes; (ii) incorporating standards of conduct to guide the behavior of public agents, in line with the attributions and functions of their respective bodies; (iii) establishing a specific structure for the budgetary area, with specific standards of action; (iv) directing actions that seek to cohesively explain the requests and consequent results requested for society, in a timely and innovative manner in the face of limited resources and possible changes in priorities; (v) seek to consistently align adherence to common values, principles and ethical standards in order to prioritize and sustain the public interest; (vi) promote access and administrative simplification in a coordinated manner; and, (vii) expand citizen participation by electronic means, without leaving the population without access isolated; promote the modernization of public management and the integration of public services, especially those provided by electronic means; among others.

Regarding to the contributions of this research, in addition to the suggestions made in the previous paragraph, the following can be identified: it provides a theoretical framework based on the principles of public governance to be used as a basis for other implementations and/or new studies; it gives due prominence to the theme, since it demonstrates the relevance of the public budget and governance in the budget estimation process; it creates an index of governance in budget estimation applicable to municipalities that can be applied and compared; and, it demonstrates a way of assessing and monitoring the development of governance in budget estimation in the municipalities of the state of São Paulo.

Some limitations can be noted in the development of the study. The first concerns the one-year timeframe assessed (2019). It is recommended that future research use the IGovEO on a timeline, in order to delimit a greater amount of data from the same city in different years. This alternative will provide more robust results through the improvement or worsening of local governance over the years. The second limitation refers to the local delimitation of a specific state, without referring to the other units of the federation or even to integrated regions in the state of São Paulo. It is therefore suggested that the same methodology be applied in different states or regions. Through comparability, the purpose of this bias is to understand whether different locations have different realities. Thus, applying an index to a specific territorial demarcation, without covering other different realities, can limit a view of local governance aspects and may lead to generalized perceptions that do not necessarily fit into another sample. Finally, it can be inferred that the number and content of indicators in each category may not combine or capture all the precepts linked to each principle of public governance

As a recommendation for future work, we suggest further discussion and application of the IGovEO, either by using it in different locations, by including or adapting the index, or by using it as a variable in other models. This study is not intended to exhaust the subject, nor is it intended to present all the works and literature on the subject. Nevertheless, it is finally suggested that more studies involving governance in the public budget or planning should be published, involving national and international references, because, in addition to noticing that the research on the subject presents generalist literature reviews that delve more deeply into the results, there is a high level of repetition of authors with similar studies. Thus, new studies on this topic bring with them more comprehensive foundations and reflective evidence that corroborate various integrating aspects on the global reality of the subject, as well as new theoretical and empirical assumptions for future work.

Finally, it is hoped that the study carried out can represent a theoretical and practical advance in the field of governance in order to enable new perspectives and visions in conducting



and preparing work, as well as in the implementation of new public policies that develop citizenship.

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