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BRAZILIAN JOURNAL OF PUBLIC ADMINISTRATION

Influence of contingency factors on the socioeconomic performance of local governments

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This research aims to identify which elements characterize the contingency factors in the public sector and how these elements influence municipal socioeconomic performance. The main hypotheses tested in this study analyze whether the contingency factors environment (external context), technology (processes), structure (investments), and size (population and revenues) influence the socioeconomic performance of local governments. We conducted documentary research with the 399 municipalities of Paraná, totaling 1,995 observations for the period from 2013 to 2017, which corresponds to a complete budget cycle. For data analysis, multiple linear regression with panel data was applied. The results reveal that the contingent factors environment and size positively affect the socioeconomic results, while technology has a negative influence and structure did not present significant results. Based on these results, we conclude that external factors, those not controllable by the managers, best explain the socioeconomic performance of the investigated local governments. Thus, managers need to implement public policies capable of impacting their environment and work towards achieving a population size able to improve socioeconomic performance and meets the population's objectives. As for theoretical implications, this study contributes to the literature by adding elements that characterize contingencies in the public sector, at the municipal level, to the flow of research based on contingency theory, such as social observatory, degree of dependence, budget planning, capacities of the public agency to maintain current expenses, personnel, and investment structure and size, when considering the municipality's revenue.
Keywords: contingency factors; socioeconomic performance; local governments.

Influência de fatores contingenciais no desempenho socioeconômico de governos locais

O desafio desta pesquisa é responder quais elementos caracterizam os fatores contingenciais no setor público e como eles influenciam o desempenho socioeconômico municipal. As principais hipóteses testadas neste estudo analisam se os fatores contingenciais ambiente (contexto externo), tecnologia (processos), estrutura (investimentos) e porte (tamanho) têm influência sobre o desempenho socioeconômico dos governos locais. Para tanto, uma pesquisa documental foi realizada junto aos 399 municípios paranaenses, totalizando 1.995 observações relativas ao período de 2013 a 2017, o que corresponde a um ciclo orçamentário completo. Para a análise dos dados, aplicou-se uma regressão linear múltipla com dados em painel. Os resultados revelam que os fatores contingenciais "ambiente" e "porte" afetam positivamente os resultados socioeconômicos, enquanto "tecnologia" apresenta influência negativa e "estrutura" não apresentou resultados significantes. Com base nesses resultados, conclui-se que os fatores externos, aqueles não controláveis pelos gestores, são os que melhor explicam o comportamento do desempenho socioeconômico dos governos locais investigados. Assim, cabe aos gestores implantar políticas públicas capazes de interferir em seu ambiente e incentivar um porte que contribua para o desempenho socioeconômico e atenda aos objetivos da população. De igual modo, os resultados apresentam implicações teóricas, pois contribuem para a literatura no sentido de acrescentar ao fluxo da pesquisa, fundamentada na Teoria da Contingência, elementos que caracterizam contingências no setor público, no âmbito municipal, como observatório social, grau de dependência, planejamento orçamentário, capacidades do órgão público em manter suas despesas correntes, estrutura de pessoal e de investimentos e porte considerando a receita do município.
Palavras-chave: fatores contingenciais; desempenho socioeconômico; governos locais.

DOI: http://dx.doi.org/10.1590/0034-76120200827
ISSN: 1982-3134
Article submitted on November 26, 2020 and accepted on August 30, 2021.
[Translated version] Note: All quotes in English translated by this article's translator.

Influencia de factores de contingencia en el desempeño socioeconómico de los gobiernos locales

El desafío de esta investigación es responder qué elementos caracterizan los factores de contingencia en el sector público y cómo influyen estos elementos en el desempeño socioeconómico municipal. Las principales hipótesis probadas en este estudio analizan si los factores de contingencia entorno (contexto externo), tecnología (procesos), estructura (inversiones) y porte (tamaño) influyen en el desempeño socioeconómico de los gobiernos locales. Para ello, se realizó una investigación documental con los 399 municipios del estado de Paraná, totalizando 1.995 observaciones para el período de 2013 a 2017, lo que corresponde a un ciclo presupuestario completo. Para el análisis de los datos se aplicó una regresión lineal múltiple con datos de panel. Los resultados revelan que los factores de contingencia entorno y porte inciden positivamente en los resultados socioeconómicos, mientras que el factor tecnología influye negativamente y el factor estructura no mostró resultados significativos. A partir de estos resultados se concluye que los factores externos, no controlables por los gestores, son los que mejor explican el comportamiento del desempeño socioeconómico de los gobiernos locales investigados. Así, corresponde a los gestores implementar políticas públicas capaces de interferir en su entorno y propiciar un porte que contribuya al desempeño socioeconómico y cumpla con los objetivos de la población. Asimismo, los resultados también tienen implicaciones teóricas, ya que aportan a la literatura en el sentido de sumar elementos que caracterizan las contingencias en el sector público, a nivel municipal, al flujo de investigación basada en la Teoría de la Contingencia, como el observatorio social, grado de dependencia, planificación presupuestaria, capacidades de la agencia pública para mantener sus gastos corrientes, estructura de personal e inversión y porte considerando los ingresos del municipio.

Palabras clave: factores de contingencia; desempeño socioeconómico; gobiernos locales.

1. INTRODUCTION

The contingency theory has challenged researchers to find elements that materialize contingency factors in the organizational environment. This challenge is observed in a research line in management accounting dedicated to demonstrating the spectrum of the contingency theory's coverage in such studies. According to Otley (1980), although the area of organizational studies has been discussing contingency factors since the beginning of the 1960s, approaches considering the field of systems only started in the 1970s and, at the end of the decade, the literature on organizational and behavioral aspects related to management control systems stood out. Otley (1980) emphasized that the care in observing organizational phenomena – such as the use of management control systems linked to performance in a contingency perspective – contributed to the scientific improvement of organizational research.

Chenhall (2003) conducted a critical review of contingency-based studies, revealing significant advances in the debate about elements that permeate the contingency theory in the organizational field. The author observed that contingency-based studies addressed factors such as environment, technology, structure, and organizations' size and strategy.

In a systematic review of the management accounting literature based on one or more contingency factors and covering the period from 1980 to 2014, Otley (2016) raises contemporary discussions on this matter. For the author, the contingency perspective shows that universal solutions to problems in administrative control are very rare. Thus, the contingency approach requires conceptual clarity to investigate organizational aspects, especially when such aspects are incongruent or not sufficiently addressed in the literature.

The contingency approach shows to have advanced when it comes to organizational studies related to management control systems (Otley, 2016). Contingency formulations are underlying in

studies that consider the organization's internal and external factors (Wadongo & Abdel-Kader, 2014). The literature shows recurrent concern for the effects of contingency variables on organizations' performance due to the influence of internal and external pressures (Teisman & Klijn, 2008). However, there is considerable concern with the characterization of contingency factors in private business environments. According to Woods (2009), despite having similarities to the public sector, private businesses operate in a different context.

Sell, Beuren, and Lavarda (2020) point out that, due to the search for efficiency in the new public management, performance evaluation has gained importance and has led to increasing research on contingency factors influencing government operation. Against this backdrop, the following questions are posed: which elements characterize the contingency factors in local governments? Do they influence the municipalities' socio-economic performance? Therefore, this article examines representative elements of contingency factors in the public sector. The study empirically tests the influence of these elements on the local governments' socio-economic performance.

This research contributes to the literature on contingency factors, adding elements that can characterize these factors in the public sector. The elements proposed are in line with factors already consolidated in theoretical frameworks encompassing the private sector's organizational context. The research also adds to the study by Sell et al. (2020), developed in municipalities of the Brazilian state of Santa Catarina and exploring the relationship between the performance of public entities and contingency factors. This study examines new determinants that characterize contingency factors in the public sector and municipal performance.

This research adds new elements to the factor environment, building on Sell et al. (2020). We observe this factor considering the Municipal Human Development Index (IDHM), the presence of social observatories in the municipalities (social observatories are nonprofit organizations that oversee local governments, working as a social accountability instrument), the degree of dependency (or how much the municipality depends on transfers from the state and federal governments), and the municipality's GDP. These elements are added as the municipalities' "external environment" factor. Other advances of this research in relation to Sell et al. (2020) are the inclusion of the technology factor in the discussion of contingencies in the context of public sector organizations (added since knowing the internal processes, especially planning, contributes to broadening the discussion on contingency factors) and the structure factor, where we included capital expenditures (investment) while Sell et al. (2020) considered only expenses with personnel (the intention is to observe whether capital expenditures help to explain the contingency factor "structure").

Finally, while Sell et al. (2020) use current net revenues as a proxy for public sector performance, we adopt the index of municipal development developed by the Industry Federation of the State of Rio de Janeiro (Firjan), which encompasses elements that help to assess the municipalities performance, such as employment, income, and investment in education and health.

Thus, we seek to contribute to a broader understanding of the effects of contextual elements in the local government's performance. Identifying and empirically verifying the elements that represent contingency factors in the public sector context may subsidize the government in formulating and implementing policies to improve socio-economic performance. Therefore, this article is consistent with the practical-social bias of fiscal responsibility and government efficiency.

The article is organized into five sections, including this introduction. Section 2 presents the theoretical contribution identifying the elements that represent contingency factors in the public sector context associated with the local governments' socio-economic performance. This is followed by a description of the research hypotheses and the operationalization of the variables concerning their empirical verification (Section 3). Section 4 presents the research results and theoretical and practical implications, aiming to contribute to understanding performance in the Brazilian public sector, specifically with local governments, under the lens of a contingency approach. The last section offers the final considerations.

2. THEORETICAL CONTRIBUTION AND RESEARCH HYPOTHESES

According to Donaldson (2001), contingency theory is one of the main theoretical lenses for organizational studies, providing ideas and empirical support. It supports the relationship between the organizational structure and contingencies that positively impact its performance. In management accounting, research based on contingency theory started around the 1970s to understand the varieties of emerging management practices based on contingency factors, such as those related to organizational structure (Otley, 2016).

According to Otley (1980), the contingency approach applies to the specificities of different accounting systems and the circumstances around each system, characterized by contingency factors. Cadez and Guilding (2008) show that different specific or environmental factors impact management control and organizational performance systems in the context of contingency formulation.

Studies offering systematic analysis, such as Covaleski, Evans III, Luft, and Shields (2003), Chenhall (2003), and Otley (2016), show some of the main external and internal variables permeating the relevant debate around contingency factors addressed in the contingency theory. Among them are the external variables of environment and technology and the internal variables related to structure and size.

As for the organizational environment, the contingency theory assumes that the development of an organization tends to be connected to environmental conditions (Prajogo, 2016), especially when observing the significant uncertainties around its operation (Chenhall, 2003; Otley, 2016). Thus, the organizational practices adopted must aim to improve performance considering the specific environment, achieving organizational equilibrium (Covaleski et al., 2003).

Environmental factors influence the operation of public management in local governments. One type of organization that exercises such influence is the social observatory (SO). SOs are nonprofit organizations engaged in social accountability, approximating government and society, overseeing the local governments' practices, and contributing to improving the quality of public administration (Schommer & Moraes, 2010). Another element influencing local governments' management and environment is the Municipal Human Development Index (MHDI). This index encompasses health, education, employment, and income (Mendes, Ferreira, Abrantes & Farias, 2018).

In addition to these indicators, the degree of dependency (DD) of local governments on transfers from state and federal governments reflects an environmental characteristic that influences public management and, for Macedo and Corbari (2009), tends to affect municipal performance. Finally, the municipal GDP – reflecting the local economic growth – is also considered an environmental variable that influences the local government's performance (Mendes et al., 2018).

The empirical finding presented in the recent study by Sell et al. (2020) examining municipalities in the Brazilian state of Santa Catarina suggested a positive influence of the factor "environment" on local governments' performance, which is in line with the literature. Therefore, the first hypothesis in this research addresses the contingency factor environment, stating that this factor positively influences the local governments' socio-economic performance.

Another contingency factor is technology. It can generally be conceptualized as how the organization's operation processes are carried out, encompassing hardware, software, materials, people, and knowledge, responding to environmental uncertainties (Chenhall, 2003). According to Otley (2016), technologies directly impact organizations, causing changes that generate environmental uncertainties.

In the public sector, the revenue budget execution index (RBEI) (measuring the successful of the revenue budget planning) and the current budget execution index (CBEI) (measuring the government's ability to cover current expenses) can be considered elements of the technology contingency factor (Santos & Alves, 2011).

These indexes are related to internal budgeting processes carried out in the public sector. They reflect how the flow of budget operations behaves in relation to government activities. Therefore, following the assumption of the classical contingency approach (Chenhall, 2003), these proxies are aligned with the technology contingency factor. The organization in the public sector must adopt best practices and be efficient when carrying out internal processes, positively impacting socio-economic indicators. Therefore, the second hypothesis tested in this study is that the contingency factor "technology" positively influences the local governments' socio-economic performance.

Another relevant contingency factor is the entity's structure. According to Donaldson (2001), there is a deterministic connection between contingencies and the structure. One of the contingency theory propositions is that the organization's performance is linked to the adjustment between context and the organizational structure (Cadez & Guilding, 2008). Chenhall (2003) highlights that the contingency factor "structure" can affect the individuals' efficiency and motivation, helping to shape the organization's future.

Thus, the personnel expense ratio (PER) and the investment expense ratio (IER) are variables able to assess the local government's structure. The PER measures how much of the municipal net current revenue (NCR) is committed to cover expenses with personnel, whereas the IER shows how much of the government's NCR is allocated in investments. Therefore, measuring structure through current expenditures, as in the case of expenditure on civil servants, and capital expenditures, such as investments that represent work and equipment, reflects the municipalities' structure (Macedo & Corbari, 2009).

Sell et al. (2020) also considered structure in their study on contingency factors. They examined personnel expenses and found a positive influence between such expenses and municipal performance. Given the characteristics of the variables adopted as elements representing the contingency factor "structure," the third hypothesis is that contingency factor structure positively influences the local government's socio-economic performance.

The organization's size affects the bureaucratic structure (Donaldson, 2001). Also, there is a certain unpredictability associated with size (Otley, 1980). Donaldson (2001) argues that a large organization

with a simple and inadequate structure will certainly present ineffective management, thanks to the overload of decisions to be made. Therefore, the size of the organization may affect performance.

Chenhall (2003) emphasizes that there are different measures capable of representing the factor "size" in an organization and that its definition depends on the context and dimensions under study. In the public sector, municipal revenue can be adopted to represent the municipal size. However, Vieira (2009) points out that there may be inequalities in the size of the public sector if observed from the revenue point of view. Population size is another variable that includes internal characteristics that represent the size, which may affect performance (Cavalcante, 2016).

Population density as a proxy for a contingency factor demonstrated a positive relationship with municipal performance in the study by Sell et al. (2020). In addition, measuring size by municipal revenue is consistent with the discussion of disclosure of contingencies in the public sector. As seen in the literature on the contingency approach and in Sell et al. (2020), the fourth hypothesis states that the contingency factor "size" positively influences the local government's socio-economic performance.

Following the theoretical contributions and the hypotheses discussed above, the next section presents the methodology adopted in this study.

3. METHODOLOGY

3.1. Research design and data collection

This study adopts a descriptive methodology – limited to observing the phenomena – with documentary analysis based on secondary sources and adopts a quantitative approach using statistical techniques. The sample corresponds to 399 municipalities in the Brazilian state of Paraná. We assume that the contingency characteristics (variables) are common in all municipalities of the country, which means that the interpretations of the indicators are similar, justifying the sample for the empirical test. Without disregarding the other municipalities in other Brazilian states, the decision to research municipalities in Paraná gained strength thanks to the online portal of the state's Court of Accounts (TCE-PR), which provides consolidated and audited budgetary/financial and accounting information.

Data were collected from the online portal of TCE-PR and the Brazilian Institute of Geography and Statistics (IBGE), corresponding to the electoral cycle from 2013 to 2017. The limited period is justified because the financial and accounting data are already consolidated and audited, which indicates the reliability of the 1995 observations and represents a complete budget cycle.

3.2. Variables and econometric model

Box 1 describes the operationalization of the variables to meet the contingency factors considered in this research.

BOX 1 RESEARCH VARIABLES

Variables		Measurement	Source	Reference	Hypotheses
PERFORMANCE		**Firjan index of municipal development:** The index calculates the socio-economic development of municipalities in Brazil, considering employment, income, education, and health. The index is elaborated by Firjan.	Firjan	–	–
Environment - ENV	SO	Dummy variable: 1 for municipalities with a social observatory (a nonprofit organization that oversees the local government activities); 0 when the municipality does not have a social observatory.	Instituto Nacional de OS (National Institute of Social Observatories)	Elaborated by the authors	H_1
	MHDI	The municipal human development index represents the local human development based on longevity, education, and income.	IBGE	Sell et al. (2020)	
	DD	Represents the degree of dependency (DD) of local governments, considering transfers received from the state and federal governments. The calculation of the degree of dependency is: $DD = \frac{RTrans}{TR}$, where *RTrans* = revenues from transfers, and *TR* = total revenues.	TCE-PR (Court of Accounts of the State of Paraná)	Elaborated by the authors	
Technology - TECH	GDP	Monetary value of all finished goods and services made within a given municipality.	IBGE	Elaborated by the authors	
	RBEI	It shows the performance of revenue budget planning, considering the revenues budgeted and the actual revenues: $IRBE = \frac{TRE}{TRB}$, where *IRBE* = revenue budget execution index, *TRE* = total revenues executed, and *TRB* = total revenue budget.	TCE-PR	Elaborated by the authors	H_2
	CBEI	It is the government's ability to cover the current expenses with the current revenues for the same period: $CBEI = \frac{ECR}{ECE}$, where *CBEI* = current budget execution index, *ECR* = executed current revenues, and *ECE* = executed current expenses.			
Structure - STRUC	PER	**Personnel expense ratio (PER):** refers to the portion of current revenues committed with expenses on personnel: $PER = \frac{(Sal+LBen)}{NCR}$, where *Sal* = salary, *LBen* = labor benefits, *NCR* = net current revenues.	TCE-PR	Sell et al. (2020)	H_3
	IER	**Investment expense ratio (IER):** refers to the portion of current revenues committed with investments: $IER = \frac{IE}{NCR}$, where *IE* = investment expenses, *NCR* = net current revenues.		Elaborated by the authors	
Size	POP	Size based on the natural logarithm of the population.	TCE-PR	Sell et al. (2020)	H_4
	REC	Size based on the natural logarithm of the executed revenues.		Elaborated by the authors	

Source: Elaborated by the authors.

In line with the hypotheses, the equation below presents the econometric model to analyze the influence of contingency factors on the local governments' socio-economic performance:

$$\text{PERFORMANCE}_{It} = \beta_{0\,it} + \beta_1 ENV_{it} + \beta_2 TECH_{it} + \beta_3 STRUC_{it} + \beta_4 SIZE_{it} + \in_{it}$$

The variables in each contingency factor were grouped according to the weighted aggregated sum product assessment (WASPAS) method, which is an exclusive combination of the weighted sum model (WSM) model and the weighted product model (WPM). The WASPAS method seeks a joint optimization criterion based on two optimality criteria (Chakraborty, Zavadskas & Antucheviciene, 2015). Thus, the variables of each group belonging to the contingency factors provided for in Box 1 – for example, the environment factor considers the variables SO-MHDI-DD-GDP – were consolidated in their respective factor, based on the WASPAS method.

The data analysis procedures used statistical techniques, such as multiple linear regression with panel data, through the Stata® version 14 software. The panel modeling observed the Breusch-Pagan, Chow, and Hausman tests to design the most suitable regression model for the observations under analysis – fixed, random, or POL effects (Greene, 2008).

4. RESULTS

In this section, the description and analysis of the results were organized to show the robustness of the empirical model applied and, subsequently, to discuss tests of the hypothesis.

4.1. Robustness of the empirical model and description of results

Table 1 presents the results of the model proposed in the equation above, followed by the regression assumptions and the individual analysis of each contingency factor to provide reliability to the research findings.

TABLE 1 INFLUENCE OF CONTINGENCY FACTORS ON THE MUNICIPAL PERFORMANCE

Prob>F	R^2	DW	Mean VIF	BP/CW test	White test	Obs
0.0000	0.0120	2.01	1.01	0.0000	1.400	1,995

Contingency factors	Fixed effects						
	Coefficient	Standard error	*T*	*P-Value*	*VIF*	Confidence Interval 95%	
Environment	0.0141	0.0057	2.48	0.013**	1.02	0.0030	0.0253
Technology	-0.0002	6.6600	-36.31	0.000***	1.01	-0.0003	-0.0002

Continue

Contingency factors	Fixed effects						
	Coefficient	Standard error	*T*	*P-Value*	*VIF*	Confidence Interval 95%	
Structure	-0.0104	0.0112	-0.93	0.351	1.01	-0.0323	0.0115
Size	0.0112	0.0039	2.87	0.004***	1.00	0.0035	0.0188
Constant	0.6834	0.0219	31.24	0.000	–	0.6405	0.7263

Note: Significance at the level of ***1%; **5%; *10%.
Key: Prob>F = Model's significance; R^2 = model's explanatory power; DW = Durbin-Watson – auto-correlation; BP/CW test = Breuch-Pagan/Cook-Weisberg – heteroscedasticity of residuals; White test = heteroscedasticity of residuals.
Source: Research data.

The modeling to verify the influence of contingency factors on socio-economic performance is consistent, as the results of the Breusch-Pagan, Chow, and Hausman F tests demonstrate the use of fixed effects in the sample. The Breusch-Pagan test was less than 0.05, the Hausman test was less than 0.05, conditioning the fixed effects panel modeling. The model is significant at the 1% level, with 1995 observations, which corresponds to 399 municipalities over five years.

This study did not aim to find explanatory variables for the socio-economic performance of the municipalities but to relate contingency factors with such performance. Thus, the assumed variables represent 1% (R2) of explanation in the entire context of the performance measured by the Firjan index, as this metric is intended to monitor the main areas of municipal development annually – especially employment and income, education, and health (Avelino, Gama & Cunha 2013).

The results show that the model does not violate the assumptions of autocorrelation and multicollinearity, as the Durbin-Watson statistic (2.01) is close to 2 and the VIF values (1.16<5) are less than 5. In White's test, the model presents heteroscedasticity problems. However, White's robust correction was applied to offer reliability.

In general, the model does not violate the basic assumptions required in the multiple regression, which allows for advancing in the analysis of each contingency factor (variable), in line with the discussion of the hypotheses. After analyzing the robustness of the proposed model, Table 1 above shows the results of each respective contingency factor variable's influence on the local governments' socio-economic performance.

4.2. Discussion of results

Box 2 offers the results regarding the research hypotheses, subsidizing the discussion of the findings.

BOX 2 RESULTS OF THE HYPOTHESES

Hypotheses	Proposition	Result
H_1	Contingency factor "environment" → socio-economic performance	Confirmed
H_2	Contingency factor "technology" → socio-economic performance	Not-confirmed
H_3	Contingency factor "structure" → socio-economic performance	Not-significant
H_4	Contingency factor "size" → socio-economic performance	Confirmed

Source: Research data.

The first contingency factor analyzed (environment) is represented by the variables SO, MHDI, DD, and GDP, and it positively influences the local governments' socio-economic performance. The data gathered through the method demonstrate that the performance index tends to increase when these variables are positive, indicating the influence of external factors on municipalities' management. Thus, the research findings confirm hypothesis H1 and corroborate the understanding that environmental factors are determinants of municipal socio-economic performance.

Previous empirical studies examined these factors, such as Schommer and Moraes (2010), who claim that social observatories can be decisive for the administration of public entities. Mendes et al. (2018) found that the HDI is a social perspective related to health, education, and income indicators, and GDP represents economic growth, capable of affecting the management of public entities.

Macedo and Corbari (2009) found that the degree of dependency variable related to intergovernmental transfers influences the local government's performance. Seminal studies in the area of management accounting addressing the contingency theory, such as Otley (1980), Chenhall (2003), and Covaleski et al. (2003), warned that the factor "environment" tends to impact the performance of organizations. Our findings converge with Sell et al. (2020), even though expanding the limits by considering other characteristics that reinforce the relationship between environment and municipal performance.

In the second contingency factor analyzed, technology, represented by the variables "revenue budget execution index" and "current budget execution index," results reveal that the parameters associated with the technology variables negatively influence municipal socio-economic performance. Therefore, the research findings for the set of data and variables suggest a different result than expected – the influence of the contingency factor "technology" is negative in relation to municipal performance – leading to the non-confirmation of hypothesis H2.

It is noteworthy that the coefficient associated with the regression results is significant. However, the coefficient is low, which may be connected with the characteristics of the variables used to represent this contingency factor. Although the variables are associated with the ability to plan and cover the cost of government activities, as highlighted by Santos and Alves (2011), the search for an equilibrium of public accounts, and complying with the guidelines of the Brazilian Fiscal Responsibility Law (concerning planning and budget execution), justify the result observed. The negative influence of the variables that make up the technology factor on municipal performance demonstrates that

the internal processes of public management still lack empirical evidence since the government's compliance with legal limits still prevails as the main goal of management, instead of the quality of service delivered to the public.

The results for the third contingency factor, associated with the variables of personnel expenses and investment expenses, were not significant. Therefore, there are insufficient elements to offer a conclusion regarding H3, which predicted a positive influence of the factor "structure" on the local governments' socio-economic performance. A possible reflection on this finding is that although the p-value was not significant, the characteristics related to structure influence performance since the personnel expenses variable was tested empirically in the study by Sell et al. (2020) as an element of the structure factor. However, due to the sample's limitation, the observations are insufficient to generate statistically significant results.

Finally, the fourth contingency factor observed is related to the size of municipalities, considering the variables 'size of population' and 'municipal revenue.' The contingency factor "size" confirms hypothesis H4, indicating that the larger the municipality, the better the government's socio-economic performance. It follows that municipalities with greater leverage, especially concerning revenues linked to a higher population index, can invest more in health, education, and income, as observed by the socio-economic performance indicator. This finding confirms Sell et al. (2020), who also found a positive relationship between size and municipal performance.

Empirical studies, such as those by Vieira (2009), for the case of size related to revenue, and by Cavalcante (2016), for the case of size related to population, assume that the size of municipalities varies significantly, which affects local governments' performance. In line with the contingency theory, Donaldson (2001) and Chennal (2003) highlight the importance of observing these variables and using adequate parameters for their measurement.

Therefore, the findings pointed out that the contingency factors environment, technology, and structure seem to explain the municipalities' socio-economic performance. The factors environment and structure positively influence the performance, while the factor technology demonstrated to exercise a negative influence. In this sense, hypotheses H1 and H4 are confirmed, and hypothesis H2 is not confirmed. As for the structure of municipalities, the results were not sufficiently significant to statistically evaluate the hypothesis proposed.

Our findings subsidize relevant analyses regarding the municipalities' managerial practices, suggesting better socio-economic performance when municipalities count on a favorable environment and size. Thus, adopting adequate mechanisms to increase external control and monitoring, public policies addressing interests of the society as a whole, optimization of tax collection and other revenues, and policies aimed at maintaining or increasing the number of inhabitants in the municipality can contribute to improving performance.

5. FINAL CONSIDERATIONS

This study investigated elements representing contingency factors in the public sector and empirically tested their influence on the local governments' socio-economic performance. The results suggest that the contingency factors associated with the environment and the size of the municipalities positively influence socio-economic performance, confirming the research hypotheses H1 and H4. As for the contingency factor "technology," the findings did not confirm hypothesis H2, indicating that technology has a negative influence on local government's performance. The contingency factor "structure" was not statistically significant, which did not provide enough subsidies to achieve a conclusion about hypothesis H3. These results demonstrated that external factors, i.e., factors that cannot be directly controlled by public managers, are those that best explain the local government's socio-economic performance in the sample analyzed.

The theoretical implications from these findings are related to the fact that analyses of the influence of contingency factors on performance are not well explored in the literature on management. Therefore, this study contributes to the literature based on the contingency theory by adding elements representing contingency factors for governments at the municipal level, such as the social observatories, degree of dependency, budget planning, government ability to cover its current personnel and investment expenses, and to maintain and expand the municipality's size (considering revenues). In particular, the social observatory is an interesting element for verifying contingencies, as this type of social accountability instrument can influence performance.

This research offers practical-social contributions, particularly for public administration regarding the performance indicators at the local level, associated with variables that represent contingency factors. By considering the factors environment, technology, structure, and size, it was possible to extract variables to explain and determine performance. The results reveal that external factors, such as the environment in which governments are inserted and those related to their size, positively impact municipal development indicators. In contrast, elements representing factors related to internal processes – which is the case of technology and structure – present a negative influence (technology) or an inconclusive influence (structure), different from the expectations in the public sector context. Therefore, managers should implement public policies to the environment and encourage achieving a size that contributes to socio-economic performance and meets the population's goals.

However, the results of this research are limited to the variables adopted to represent the contingency factors. Future studies can consider other variables to delineate contingency factors, broadening the research scope. Another limitation emerges from the methods used to aggregate the variables into the contingency factors. In this sense, future studies can associate variables differently. Furthermore, different performance measures can be selected to reflect the local governments' performance, such as the municipality's capacity of generating their own revenue and the degree of population satisfaction with the public services planned and offered during the budget cycle of the multi-year plan. We also recommend exploring how these factors influence the population's social well-being.

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