Revista de Contabilidade e Organizações
www.rco.usp.br

DOI: http://dx.doi.org/10.11606/issn.1982-6486.rco.2020.164058

Journal of Accounting and Organizations
www.rco.usp.br

Influence of contingency factors on municipal performance: inferential evidence

Influência de fatores contingenciais no desempenho municipal: evidências inferenciais

Filipy Furtado Sell[a], Ilse Maria Beuren[b], Carlos Eduardo Facin Lavarda[b]

[a] *Universidade Federal do Pará*
[b] *Universidade Federal de Santa Catarina*

Keywords
Contingency Theory.
Contingency factors.
Municipal performance.

Abstract

This study analyzes contingency factors influence on the performance of municipalities throughout three government mandates. It considers external (environment) and internal (organizational leadership, structure, and size) contingency factors. Data from 293 municipalities, with 3,516 observations, for the last three complete mandates were analyzed by panel regression. The results showed a significant influence of contingency factors on the performance of the municipalities. The following factors positively influenced municipality performance (per capita net current revenue): environment (MHDI), organizational leadership (mayor's age), structure (per capita personnel expense), and organizational size (population density). Structure was positively and significantly associated with municipality performance, indicating that it will not improve by cutting personnel expenses. For control variables, municipalities in which the mayor's party is the same as the governor's have a better chance of obtaining resources. Other control variables related to the mayor's characteristics had no statistical significance. Thus, mayor's re-election and his party line exerted no influence on the performance of the municipality.

Palavras-chave
Teoria da Contingência.
Fatores contingenciais.
Desempenho municipal.

Resumo

Este estudo analisa a influência de fatores contingenciais no desempenho de municípios ao longo de três mandatos governamentais. Consideram-se fatores contingenciais internos (liderança organizacional, estrutura e porte organizacional) e externo (ambiente). Os dados de 293 municípios, com 3.516 observações, relativos aos três últimos mandatos encerrados, foram analisados pela regressão de dados em painel. Os resultados revelaram influência significativa de fatores contingenciais no desempenho dos municípios. Os fatores: ambiente (IDHM), liderança organizacional (idade do prefeito), estrutura (despesa de pessoal per capita) e porte organizacional (densidade populacional) influenciaram positivamente o desempenho municipal (receita corrente líquida per capita). A relação positiva e significativa entre estrutura e desempenho municipal indica que o corte de gastos com pessoal nos municípios estudados não aumentará seu desempenho. Para as variáveis de controle, destaca-se que nos municípios em que o partido do prefeito é o mesmo do governador há maior possibilidade de obtenção de recursos. As demais variáveis de controle atreladas às características do prefeito não obtiveram significância estatística. Assim, a reeleição do prefeito e sua direção partidária não influenciaram no desempenho municipal.

Article information
Received: November 12, 2019
Approved: April 17, 2020
Published: May 8th, 2020

Practical implications

This article seeks to assist public management in the figure of public servant, managers, and advisor in evincing contingency factors that affect the structure, organizational behavior, and performance of municipalities to improve management efficiency.

Corresponding author: Tel. +55 (91) 3201-8049
E-mail: filipysell@ufpa.br (F. F. Sell); ilse.beuren@gmail.com (I. M. Beuren); elavarda@gmail.com (C. E. F. Lavarda)
Universidade Federal do Pará, Faculdade de Ciências Contábeis. Rua Augusto Corrêa, 01 - Guamá, Belém/PA - 66075110, Brazil.

1 INTRODUCTION

Performance appraisal in the public sector integrates the new public management proposal, given the orientation to use management mechanisms and performance indicators for a efficient use of public resources (Hood, 1991; Gonzaga, Frezatti, Ckagnazaroff & Suzart, 2016). Bezerra and Carvalho (2018) state that Brazilian public management is experiencing changes in practices, directing the country to new theoretical currents focused on efficiency and transparency.

However, despite efficiently and transparently managing resources, governmental organizations must appraise and monitor their actions (Ramos & Schubbach, 2012). According to Verbeeten (2008), performance appraisal functions as a learning factor to improve performance and support for accountability. On the other hand, it may cause the increasing internal bureaucracy to suffocate performance metrics innovation and sub-optimization (Castaldelli & Aquino, 2011).

Johnsen (2005) suggested that the growing use of performance indicators in the public sector assists decision-making processes related to administrative and political issues. Despite the growing use of performance indicators, no framework helps measuring governmental organizations performance and showing the consequences of adopting certain groups of indicators to the detriment of others (Boyne, Meier, O'Toole & Walker, 2005). No consensus has been reached on this matter (Boyne et al., 2005), whether in international or national scope.

Our study discusses contingency factors related to performance appraisal in the public sector. According to Donaldson (2001), contingency factors affect the association between an organization characteristics and its performance. Marques, Souza, and Silva (2015) highlight that contingency factors comprise an organization internal and external elements, possibly interfering in its organizational structure. Porporato (2011) suggests that aligning the contingency factors and management controls of an organization cause it to achieve the desired performance. However, the author stresses that universal definitions are ineffective, considering the lack of a pattern of contingency factors that affect organizations.

In the Brazilian context, studies performed under the lens of contingency theory employed several elements to capture contingency factors, such as: environment and mechanistic and organic organizational structure (Fagundes, Petri, Lavarda, Rodrigues, Lavarda & Soller, 2010); environment, technology, structure, strategy, and organizational size (Beuren & Fiorentin, 2014); environment and management practices (Gonzaga et al., 2016); and external environment, size, strategy, structure, technology, organizational culture, and leadership (Oliveira & Callado, 2018). Although studies reached no consensus regarding internal elements, the external element environment is addressed in all of them.

In identifying indicators to appraise performance in the Brazilian public sector, Avellaneda and Gomes (2015; 2017) analyzed internal factors that may affect municipal performance. In 2015, they analyzed the effect of size and, in 2017, mayor's management capacity on municipal performance. The authors employed the municipal property tax (MPT) collected amount as a performance variable and did not address (declaredly) the internal factors supported by contingency theory.

This perspective poses the following question: How do contingency factors influence the performance of municipalities? Our study aims to analyze the influence of contingency factors (environment, organizational leadership, structure, and size) on the performance (net current revenue) of municipalities throughout three government mandates (2005 to 2016).

In doing so, this research strives for contributing to the literature dedicated to appraising factors that affect performance in the public sector (e.g.: Holzer et al., 2009; Drew, Kortt & Dollery, 2014; Jung & Kim, 2014; Avellaneda & Gomes, 2017; Goeminne & George, 2018; Park, 2019) and the new public management (e.g. Lapsley, 1999; Parker & Gould, 1999; Christensen & Yoshimi, 2003; Van der Hoek, 2005; Van de Walle & Hammershmid, 2011; George, Van de Walle & Hammerschmid,2019), for discussing elements that may affect governmental organizations performance.

The literature evinces that contingency factors may affect an organization characteristics and its performance. Considering that, our advances in discussing factors that may affect the performance of municipalities. Particularly, it advances by including the external contingency factor concerning the environment and by assessing municipal performance based on net current revenue (NCR) – current revenue effectively belonging to the municipality, – an unregarded parameter in previous studies.

It also contributes to the literature by offering a longitudinal analysis of factors that affect the performance of municipalities. According to Adhikari, Derashid, and Zhang (2006), studies with these characteristics can mitigate results biased by the effect of time.

Hedeker and Gibbons (2006) claim that longitudinal analyses are fundamental for formulating inferences between variables. In counterpoint with individual analysis, Fávero and Belfiore (2017) argue that the higher data variability in longitudinal studies mitigate possible inconveniences in statistical analysis.

Despite leveraging advances, this study also makes practical contributions in the literature for stressing internal and external factors to governmental organizations that may affect their performance. In the contemporary Brazilian scenario of political and economic uncertainties, underlining factors that may affect public organizations performance – in this case, municipalities – is of great matter to civil society, servants, managers, and control bodies (Lima & Aquino, 2019). The studied municipalities were chosen illustratively, and we expect the selected indicators to be useful to other studies.

2 CONTINGENCY FACTORS AND PERFORMANCE IN THE PUBLIC SECTOR

Contingency Theory predicts that contingency factors affect organizations characteristics and performance (Donaldson, 2001). Greenwood and Hinings (1976) stress that contingency factors involve the degree to which an organization regulates structure and controls, arising from situational circumstances, to increase performance. For Brignall and Modell (2000), the basic premise of Contingency Theory is organizations effort in maximizing performance and efficiency by adjusting environment and structure.

Teisman and Klijn (2008) highlight that absorbing internal and external pressures impacts organizational structure and behavior. Those internal and external factors entail contingency factors (Wadongo & Abdel-Kader, 2014). Aside from influencing efficiency, performance, and behavior, Woods (2009) states that contingency factors such as environment, technology, structure, size, and strategy also influence control system design and implementation. For Donaldson (2001), contingency factors are any variable capable of changing the relationship between organizational structure and performance.

The literature applied to the private and public sector identifies environment as an external contingency factor, and as internal contingency factors: technology, structure, strategy, organizational size, organizational culture, and leadership; (Greenwood & Hinings, 1976; Woods, 2009; Fagundes et al., 2010; Beuren & Fiorentin, 2014; Wadongo & Abdel-Kader, 2014; Gonzaga et al., 2016; Oliveira & Callado, 2018). According to Wadongo and Abdel-Kader (2014), environment is a relevant contingency factor due to the uncertainty or difficulty in forecasting, and the dynamism and adversity faced by organizations.

The literature applied to the private and public sectors agrees in the characterization of internal and external contingency factors. Yet, Woods (2009) believe them to fit different contexts. For him, the private organizational context prioritizes contingency variables with economic implications, whereas the public focuses on services provision implications. However, the Brazilian public sector is currently experiencing changes aligned with the new public management (Hood, 1991), which attributes features of the private to the public sector, such as: implementing management control systems, focusing on performance, and modifying public services provision and managers' characteristics (Oliveira, Sant 'Anna & Vaz, 2010).

In a research conducted by Christensen and Yoshimi (2003), they observed that the new public management does not fully explain the tracks for developing performance reports, stressing the need for further viewpoints to understand the studied phenomenon, such as the contingency theory. Likewise, George, Van de Valle, and Hammerschmid (2019), approached contingency theory to explain the studied phenomenon. Based on Donaldson (2001), they argued that larger municipalities with clear goals are more likely to apply management mechanisms due to the organizational context.

From the above stated, we may imply that the literature aimed at verifying factors influencing municipal performance – as the studies conducted by Avellaneda and Gomes (2015; 2017), which verified the influence of municipality size and mayor's characteristics – found internal factors to affect performance. Our study goes even further by analyzing the influence of external and internal factors on municipal performance. We propose a fruitful research agenda, present in studies published since 1976 (e.g.: Greenwood & Hinings, 1976) until nowadays (e.g.: George, Van de Valle & Hammerschmid, 2019).

3 METHODOLOGY

To analyze the influence of the contingency factors environment, organizational leadership, structure, and size on municipal performance, our research population was composed of the 295 municipalities that comprise the state of Santa Catarina. The municipalities of Balneário Rincão (founded in 2003) and Pescaria Brava (founded in 2013) were excluded due to the lack of data from 2005-2011. The study covered 293 municipalities, with 3,516 observations, and choice is illustrative.

The studied period was from 2005 to 2016, comprising three complete government mandates (12 years). We opted by studying the last three complete mandates to mitigate interpretation bias, considering the use of budget data and municipal mayor's characteristics. Data from the municipalities of Santa Catarina were collected in the following websites: Court of Accounts of the State of Santa Catarina (TCE/SC), Industry Federation of the State of Rio de Janeiro (FIRJAN), Superior Electoral Court (STF), Brazilian Institute of Geography and Statistics (IBGE), and municipal transparency portal.

Table 1 shows the dependent, independent, and control variables.

Table 1. Searched variables

Variable	Measure	Author
	Dependent variable	
Per capita net current revenue	NCR_{pc}=NCR/ Population	Research authors
	Independent variable	
Environment	Municipal Human Development Index (MHDI)	Research authors
Organizational Leadership	Mayor' s management capacity regarding Age *(MA)= Mayor' s Age Log* Mayor' s management capacity regarding Education Level (ME) = 1. Can barely read his/her own name 2. Incomplete elementary school 3. Primary Education 4. Incomplete secondary education 5. Complete secondary education 6. Incomplete Undergraduate studies 7. Complete Undergraduate studies 8. Graduate studies	Avellaneda and Gomes (2015)
Structure	*Per capita* personnel Expense *(PEpc)= PE/Population*	
Organizational size	Population Density *(PDens) = Population /Area of the municipality* (km^2) *PL = Log Population*	
	Control Variable	
Governor and Mayor party political alignment	Are the Governor and Mayor from the same political party? 1.Yes / 2.No	Avellaneda and Gomes (2015)
Former mayor	Has the Mayor been previously elected? 1. Yes / 2. No	
Party line	What is the mayor's party line? 1. Left / 2. Right / 3. Center	
GDP *per capita*	*GDPpc = GDP / Population*	

Source: prepared by the authors.

We chose net current revenue (NCR) as a dependent variable to evaluate municipal performance considering that it represents the current revenue values that effectively remain for the municipality (see art. 2 of Complementary Law No. 101/2000, Fiscal Accountability Law). NCR is a relevant indicator of public finances and a financial management metrics for meeting the goals established in the Fiscal Accountability Law (TCU, 2015). Its performance (greater or lesser available amount to the municipal manager) implies municipal planning and demands dexterity from the manager to apply resources for social benefit, meeting the goals established by the Fiscal Responsibility Law.

Independent variables include factors internal and external to the organization, as contingency theory advocates. The external variable – environment – employed the Municipal Human Development Index (MHDI) estimated by the FIRJAN. We chose this index for comprising within its calculation data related to employment, income, health, and education, independent or not, of the municipality's action. Despite covering the environment external to the organization, the MDHI, as well as the NCR, entail the following properties, required for an indicator: relevance, measurement reliability, operational feasibility for obtaining them, periodicity, comparability of historical series, specificity, representation validity, and methodological transparency in designing them (Gonzaga et al., 2016).

The variables organizational leadership, structure, and size were defined for internal environment, considering the study conducted by Avellaneda and Gomes (2015) and the call of Greenwood and Hinings (1976) – that research addressing public organizations should consider chosen candidates. Control variables followed the same principle. Avellaneda and Gomes (2017) did not employ contingency theory to verify the influence of the mayor's quality on municipal performance, but found evidence supported by this theory precepts.

The control variable party line made use of Carreirão's (2006) perspective, when classifying the Brazilian political parties into: Right-wing (DEM, PR, PP, PFL, PRN, PDC, PL, PTB, PSC, PSP, PRP, PSL, PSD, and PRONA, as well as PMDB and PSDB that, although presenting characteristics related to center, were considered right-wing due to their conservative orientation); Left-wing (PT, PDT, PPS, PCdoB, PSB, PV, PSTU, PCO, and PMN); and Center (PHS, PPS, PRB, PRTB, PSD, PSDC, PT DO B, PTC, and PTN).

Considering the presented variables and the dependent variable cross-sectional data, the model was estimated by ordinary least squares, as follows:

$$NCR_{pc\_i} = \alpha + \beta_1 (Env) + \beta_2 (MA) + \beta_3 (ME) + \beta_4 (PE_{pc}) + \beta_5 (PDens) + \beta_6 (PL) + \beta_7 (X_i) + \beta_8 e$$

Whereby, "X_i" refers to the control variables and "e" is the error term.

Panel data regression was used for executing the model. The Poi and Wiggins test (2001) and the Wald test were applied to verify the presence of heteroskedasticity, as the best estimator is Fixed Effects (by Chow's F and Hausman tests). For autocorrelation, the Wooldridge test (Fávero & Belfiore, 2017) was applied. We found data to be heteroscedastic and autocorrelated.

According to Gujarati and Porter (2011) heteroskedasticity and autocorrelation are feasible and common problems in panel data. An alternative would be to re-estimate the model using the feasible generalized least squares (Gujarati & Porter, 2011; Fávero & Belfiore, 2017). Thus, the model was re-estimated using feasible generalized least squares estimators with autocorrelation controlled by the Durbin-Watson method. The model was run by the Stata® program.

4 DESCRIPTION AND ANALYSIS OF RESULTS

In this section, we will present the descriptive statistics, followed by the correlation matrix and, at last, the result of the panel data regression in the proposed model. Table 2 shows data descriptive statistics.

Table 2. Descriptive Statistics

Variable	Minimum	Maximum	Mean	Standard deviation
1. Per capita Net Current Revenue	244.35	9,642.71	2,241.30	1,162.93
2. Environment	0.4284	0.928	0.7211	0.0758
3a.Mayor' s Age	24	80	49.44	8.46
3b. Mayor' s Education Level	1	8	5.43	1.75
4. Personnel Expense *per capita*	69.13	4,660.70	1,088.63	595.98
5a. Population Density	1.965	2,848.76	83.95	195.32
5b. Population Logarithm	7.20	13.25	9.09	1.40
6. Party Alignment	1	2	1.7647	0.4241
7. Former Mayor	1	2	1.7050	0.4560
8. Party Line	1	3	1.9203	0.4403
9. Gross Domestic Product per capita	1.42	166.37	20.11	11.48
N = 3,516 | n = 293 | T = 12				

Source: prepared by the authors.

The descriptive statistics shows minimum, maximum, mean, and standard deviation values of the collected data. Table 3 shows municipalities and respective year stressed with minimum, maximum, and mean values for dependent and independent variables.

Table 3. Municipalities highlighted in the descriptive statistics

	Variable	Minimum	Maximum	Mean
Dependent	1. Per capita Net Current Revenue	Brunópolis (2010)	Bom Retiro (2016)	José Boiteux (2013) Campo Alegre (2014) Itaiópolis (2016)
Independent	2. Environment	Cerro Negro (2005)	Concórdia (2013)	São Pedro de Alcântara (2010) Rio Negrinho (2010) Herval d´Oeste (2013)
	3a.Mayor' s Age	Mafra (2012)	Barra Velha (2011)	Belmonte (2016) Benedito Novo (2005)
	3b. Mayor' s Education Level	Bombinhas (2009-2012) Luiz Alves (2005-2008) Rio das Antas (2013-2016) Romelândia (2009-2012) Timbó Grande (2005-2008)	Biguaçu (2005-2008)	48 municípios (2005-2016)
	4. Personnel Expense *per capita*	Criciúma (2006)	Bom Retiro (2016)	Nova Itaberaba (2010) Laurentino (2012) Taió (2013)
	5a. Population Density	Capão Alto (2005-2016)	Balneário Camboriú (2005-2016)	Balneário Barra do Sul (2013) Rodeio (2010) Laurentino (2016)
	5b. Population Logarithm	Santiago do Sul (2009-2016)	Joinville (2005-2016)	Saudades (2008) Santa Terezinha (2013) Lontras (2005)

Source: prepared by the authors.

To be included in the mean column, the municipality had to present a result closer to the variable mean, indicated in the descriptive statistics, adding the preceding and following municipality closest to the mean. With the exception of Mayor's Education Level and Mayor's Age, the other variables include three municipalities. This happens because these variables have a cardinal numerical scale, comprising no decimal values.

Mafra was the municipality with the younger mayor to assume an electoral mandate in the last three elections, with 24 years old. Conversely, Barra Velha elected the oldest mayor in 2011, whose mandate was terminated in the same year (it would end in 2012) by impeachment.

The variable that indicates municipal performance shows Brunópolis, in 2010, as the worst-performing municipality and Bom Retiro, in 2016, the best. Besides being the best-performing municipality, Bom Retiro also presented the highest per capita personnel expense, in 2016, when compared to other municipalities in the sample. The municipality of Criciúma (2006) had the lowest per capita personnel expense. In 2005, Cerro Negro had the greatest environmental uncertainty and the lowest Municipal Human Development Index of the sample. Concordia, in 2013, had the lowest environmental uncertainty.

The municipality of Capão do Alto (2016) has the lowest population density, feature that has remained alternately over the 12 studied years, but always with lower population density. Conversely, Balneario Camboriu had the highest population density in 2016 and, based on data collected from 2005 to 2016, it is the municipality with the highest population density among the sample.

Given the higher per capita net current revenue and the higher per capita personnel expense in the municipality of Bom Retiro evinced by the descriptive statistics, we must analyze the correlation matrix between the study variables to verify whether variables tend or not to align. Table 4 shows the correlation matrix between the variables.

The variables per capita net current revenue and per capita personnel expense are strongly, significantly, and positively correlated. This data suggests that the highest the municipality net current revenue, the highest the personnel expense – as the Complementary Law No. 101/2000 establishes that personnel expenses cannot be greater than 60% of the municipality net current revenue. The descriptive statistics reinforces that the municipality with the highest per capita net current revenue has also the highest per capita personnel expense. However, the opposite is not true, indicating that other elements are involved. The descriptive statistics shows that the municipality with the lowest per capita net current revenue is not the one with lowest per capita personnel expense. Municipalities specificities impact how contingency variables influence performance.

We have observed a moderate, negative, and significant correlation between the variables per capita net current revenue and population. That is, the larger the population, the poorer the municipal performance tends to be. This finding corroborates the "small is beautiful" theoretical perspective (Schumacher, 1973), which postulates that smaller municipalities deliver a better performance. Per capita net current revenue also shows to be moderately, positively, and significantly correlated with GDP per capita.

Environment is moderately, positively, and significantly correlated with population density, population logarithm, and GDP per capita. Such correlation is attributable to the MHDI composition – which represents an external contingency variable in this study for comprising data related to population, employment, income, health, and education.

We observed a moderate, negative, and significant correlation between per capita personnel expense and population logarithm, indicating that municipalities expenses with personnel do not follow population increase. Such finding may help justify the lack of healthcare, education, and safety, but requires further study.

Table 4. Correlation matrix

Variables	1	2	3a	3b	4	5a	5b	6	7	8	9
1.NCRpc	1										
2.Env	0.104*	1									
3a.MA	0.039*	0.079*	1								
3b.ME	-0.024	0.207*	-0.174	1							
4.PEpc	0.961*	0.120*	0.067*	-0.017	1						
5a.PDens	-0.048*	0.345*	-0.025	0.145*	-0.038	1					
5b.PL	-0.424*	0.465*	0.067*	0.258*	-0.359*	0.546*	1				
6.PA	0.149*	0.131*	0.007	0.036**	0.174*	0.030	0.041**	1			
7.FM	-0.018	-0.009	-0.004*	0.004*	0.011	0.012	0.013	0.020	1		
8.Pline	0.056*	0.021	0.108	-0.019	0.062*	0.039*	0.004	-0.423*	-0.043**	1	
9.GDPpc	0.387*	0.475*	0.106*	0.139*	0.395*	0.146*	0.207*	0.137*	-0.025	0.045*	1

Source: prepared by the authors.
Note: **p <0,05; *p <0,01

Table 5 presents the results of the model that tests the influence of contingency factors on municipal performance.

Table 5. Panel data regression

Per capita net current revenue	*β*	t-statistic	p-value	*e*
External Contingency Variable				
2. Environment	421,2761	3,79	0,000	111,2273
Internal Contingency Variables				
Organizational Leadership				
3a.Mayor' s Age	1.9980	2.64	0.008	0.7566
3b.Mayor' s Education Level	2.2978	0.68	0.497	3.3861
Structure				
4.Personnel Expense per capita	1.6599	63.61	0.000	0.0261
Organizational size				
5a.Population Density	0.3552	4.05	0.000	0.0876
5b.Population Logarithm	-205.0721	-13.11	0.000	15.6413
Control Variables				
6.Party Alignment	23.1981	2.51	0.012	9.2363
7.Former Mayor	-4.3935	-0.46	0.647	9.6076
8.Party Line	-0.4058	-0.03	0.976	13.4226
9.Gross Domestic Product per capita	2.8962	2.10	0.036	1.3792
Linear regression				
Constant	1,765.22	12.46	0.000	141.6499
Number of observations		3.516		
F		585.24		
Prob.>F		0.0000		
R^2		0.7795		
Durdin-Watson		0.4428		

Source: prepared by the authors.

The independent and control variables explain in 77.95% (R^2 = 0.7795) the municipal performance dependent variable. We suggest further studies to include other variables for analyzing municipal performance. Given this limitation in our study, we adjusted the model estimation using the feasible generalized least squares with autocorrelation controlled by Durbin-Watson and estimated robust error (Prob.>F=0.0000 and DW=0.4428) (Gujarati & Porter, 2011; Fávero & Belfiore, 2017).

We implied that external and internal contingency variables significantly influence municipal performance, considering the positive and significant influence of the independent variables environment, mayor's age, per capita personnel expense, and population density, as well as the negative and significant influence of the variable population. We also observed a positive and significant influence of the control variables party alignment and GDP per capita on municipal performance.

In line with the classification proposed by Wadongo and Abdel-Kader (2014) for contingency factors analyzed in the municipalities of Santa Catarina, we found internal (organizational leadership, structure, and size) and external (environment) contingency factors to influence performance. This result corroborate those reported by Teisman and Klijn (2008), who found that organizations tend to absorb external and internal pressures, impacting both their structure and performance.

Some research adopted the new public management as theoretical basis as it focuses on the implementation of management control systems, accountability, transparency, and performance (Woods, 2009). Contingency factors associated with organizational performance and changes must be observed. For Christensen and Yoshimi (2003), the new public management fails in fully explaining performance, requiring researchers to adopt other lenses – for example, contingency theory.

Our results corroborate those reported by these authors, as we found contingency factors to influence performance. According to Wadongo and Abdel-Kader (2014), the environment is a relevant contingency factor due to the uncertainty or difficulty in forecasting. Our results indicate that environment positively influenced municipal performance in the municipalities of Santa Catarina during the studied period, That is: the higher the MHDI, the better its performance.

Organizational leadership, addressed by the mayor's age, was yet another variable with positive and significant influence. This finding refutes that reported by Avellaneda and Gomes (2015), but corroborates that of George, Van de Valle, and Hammerschmid (2019) in revealing that the mayor's characteristics influence organizational performance. The variable mayor's education level (an organizational leadership contingency factor) exerted no significant influence on performance, diverging from the results reported by Avellaneda and Gomes (2015).

Apart from the organizational leadership variables, we also answered the call of Greenwood & Hinings (1976) by verifying the influence of characteristics of the candidate chosen. The control variable party alignment positively and significantly influenced performance. Municipalities where the mayor's and governor's party is the same have a greater chance of obtaining resources, increasing per capita net current revenue. Other control variables associated with the mayor's characteristics obtained no statistical significance, so mayor's re-election and his party line exerted no influence on the performance of the municipality.

We also found the contingency variables structure and organizational size to exert a positive influence on performance. That is, the higher the personnel expense and population density, the better the municipal performance. Such positive association between structure and municipality performance indicates that cutting personnel expenses will not improve its performance. The amount of available resources for a municipality to manage is directly proportional to its performance (net current revenue). Considering that, further studies should associate per capita personnel expense with the effective and efficient public services provision.

The positive and significant association between population density and municipal performance indicates that municipal urbanization plays a role in increasing its net current revenue. Future studies may approach the influence of urbanization policies on municipal performance. Varela, Martins, and Fávero (2012) studied healthcare in municipalities of São Paulo and found that their urbanization reduces healthcare expenditures but increases municipal performance.

The variable population (organizational size contingency factor) significantly and negatively influenced performance, meaning that the larger the population, the poorer the municipal performance. This result refutes that by Avellaneda and Gomes (2015), who found population to exert a positive influence on the performance of municipalities of Minas Gerais from 2005 to 2007.

As the discussed above suggests, both internal and external contingency factors influence municipal performance. Considering that, subject to the specificities indicated by Woods (2009), the public sector is aligned with the private (Beuren & Fiorentin, 2014; Fagundes et al., 2010) and third sector perspectives (Oliveira & Callado, 2018), owing to contingency factors influence on performance.

5 FINAL CONSIDERATIONS

This study analyzed the influence of contingency factors on the performance of municipalities throughout three government mandates. By evaluating 293 municipalities, we found that the contingency factors environment, organizational leadership, structure, and size significantly impacted municipal performance. The following factors positively influenced municipal performance: MHDI (environment), mayor's age (organizational leadership), per capita personnel expense (structure), and population density (organizational size). The variable population (organizational size) exerted a negative influence on municipal performance.

Regarding control variables, results showed that party alignment between mayor and governor and the GDP per capita exerted a positive and significant influence on municipal performance. The variable mayor's educational level (organizational leadership), and the control variables re-election (former mayor) and party line (right- or left-wing, or center) showed no statistical significance.

This study advances in the literature on contingency theory and on performance appraisal in the public sector, especially by comprising a longitudinal analysis and favoring a quantitative approach. Considering the challenges faced by research with indicators in the public sector regarding the availability of municipal data, this study also represents a support by evincing indicators that may be applied into grasping municipal performance and contingency factors over time.

From a theoretical perspective, we outline the literature dedicated to New Public Management by demonstrating that contingency factors influence (positively and negatively) municipal performance. In that line, Christensen and Yoshimi (2003) show that the new public management alone fails in explaining performance, and suggest the use of various lenses for analyzing it, including contingency theory.

Our study also contributes practically to public management regarding contingency factors that affect structure, organizational behavior (by literature review), and municipal performance (by data analysis). Thus, organizations may seek to align environment and structure to optimize their performance and efficiency (Brignall & Modell, 2000). We provided elements that should be regarded in developing public policies and government actions targeting a better performance of municipalities.

Our study pose some limitations, such as the theoretical choice of variables used to grasp performance and contingency factors, as well as the control variables. As the model explains 77.95% of the independent variable, variables not included also influence municipal performance. Considering that, we suggest further studies to add to the model technology, strategy (Beuren & Fiorentin, 2014), mechanical and organic structure (Fagundes et al., 2010), management practices (Gonzaga et al., 2016), and organizational culture (Oliveira & Callado, 2018).

Our research context, limited to the municipalities of Santa Catarina, also poses a limitation. That happens because internal and external contingency factors may be influenced by location, culture, and specificities of the State. The scale applied for the variable mayor's management capacity, regarding education and party line, is another limitation for being parameterized on ordinal scale, as it characterizes the direct distance between these aspects. This research was also limited by employing the definition of party line established by Carreirão (2006), as it may have changed within the studied period.

REFERENCES

Adhikari, A., Derashid, C., & Zhang, H. (2006). Public policy, political connections, and effective tax rates: Longitudinal evidence from Malaysia. *Journal of Accounting and Public Policy*, 25(5), 574-595. DOI: https://doi.org/10.1016/j.jaccpubpol.2006.07.001.

Avellaneda, C.N., & Gomes, R.C. (2015). Is small beautiful? Testing the direct and nonlinear effects of size on municipal performance. *Public Administration Review*, 75(1), 137-149. DOI: https://doi.org/10.1111/puar.12307.

Avellaneda, C.N., & Gomes, R.C. (2017). Mayoral quality and municipal performance in Brazilian local governments. *Organizações & Sociedade*, 24(83), 555-579. DOI: http://dx.doi.org/10.1590/1984-9240831.

Beuren, I.M., & Fiorentin, M. (2014). Influência de Fatores Contingenciais nos Atributos do Sistema de Contabilidade Gerencial: um estudo em empresas têxteis do Estado do Rio Grande do Sul. *Revista de Ciências da Administração*, 16(38), 196-212. DOI: https://doi.org/10.5007/2175-8077.2014v16n38p195.

Bezerra, V.V.N., & Carvalho, J.R.M. (2018). Avaliação de desempenho por funções de governo através do método PROMETHEE II. Contextus. *Revista Contemporânea de Economia e Gestão*, 16(3), 40-65. DOI: https://doi.org/10.19094/contextus.v16i3.39904.

Boyne, G.A., Meier, K.J., O'Toole, L.J, & Walker, R.M. Where next? Research directions on performance in public organizations. *Journal of Public Administration Research and Theory*, 15(4), 633-639. DOI: https://doi.org/10.1093/jopart/mui037.

Brignall, S., & Modell, S. (2000). An institutional perspective on performance measurement and management in the 'new public sector'. *Management Accounting Research*, 11(3), 281-306. DOI: https://doi.org/10.1006/mare.2000.0136.

Castaldelli, E., Jr., & de Aquino, A.C.B. (2011). Indicadores de desempenho em entidades fiscalizadoras superiores: o caso brasileiro. *Contabilidade Vista & Revist*a, 22(3),15-40.

Carreirão, Y.S. (2006). Ideologia e partidos políticos: um estudo sobre coligações em Santa Catarina. *Opinião Pública*, 12(1), 136-163. DOI: http://dx.doi.org/10.1590/S0104-62762006000100006.

Christensen, M., & Yoshimi, H. (2003). Public sector performance reporting: new public management and contingency theory insights. *Government Auditing Review*, 10(3), 71-83.

Donaldson, L. (2001). *The contingency theory of organizations*. Thousand Oaks: Sage.

Drew, J., Kortt, M.A., & Dollery, B. (2014). Economies of scale and local government expenditure: evidence from

Australia. *Administration & Society*, 46(6), 632-653. DOI: https://doi.org/10.1177/0095399712469191.

Fagundes, J.A., Petri, M., Lavarda, R.B., Rodrigues, M.R., Lavarda, C.E.F., & Soller, C.C. (2011). Estrutura organizacional e gestão sob a ótica da teoria da contingência. *Gestão & Regionalidad*e, 26(78), 52-63. DOI: https://doi.org/10.13037/gr.vol26n78.792.

Fávero, L.P., & Belfiore, P. (2017). *Manual de análise de dados: estatística e modelagem multivariada com Excel, SPSS e Stata*. Rio de Janeiro: Elsevier.

George, B., Van de Walle, S., & Hammerschmid, G. (2019). Institutions or Contingencies? A Cross-Country Analysis of Management Tool Use by Public Sector Executives. *Public Administration Review*, 79(3), 330-342. DOI: https://doi.org/10.1111/puar.13018.

Goeminne, S., & George, B. (2019). New development: Determinants of financial performance in public organizations. *Public Money & Management*, 39(1), 70-73. DOI: https://doi.org/10.1080/09540962.2018.1476309.

Gonzaga, R.P., Frezatti, F., Ckagnazaroff, I.B., & Suzart, J.A.S. (2016). Avaliação de desempenho no governo mineiro: alterações dos indicadores e metas. *Revista de Administração Contemporânea*, 21(spec.), 1-21. DOI: http://dx.doi.org/10.1590/1982-7849rac2017150331.

Gujarati, D.N., & Porter, D.C. (2011). *Econometria básica* (5. ed.). São Paulo: McGraw Hill.

Greenwood, R., & Hinings, C.R. (1976). Contingency theory and public bureaucracies. *Policy & Politics*, 5(2), 159-180. DOI: https://doi.org/10.1332/030557376782842986.

Hedeker, D., & Gibbons, R.D. (2006). *Longitudinal data analysis* (Vol. 451). New Jersey: John Wiley & Sons.

Holzer, M., Fry, J., Charbonneau, E., Van Ryzin, G., Wang, T., & Burnash, E. (2009). *Literature review and analysis related to optimal municipal size and efficiency*. Rutgers-Newark: School of Public Affairs and Administration.

Hood, C. (1991). A public management for all seasons? *Public Administration*, 69(1), 3-19. DOI: https://doi.org/10.1111/j.1467-9299.1991.tb00779.x.

Johnsen, Å. (2005). What does 25 years of experience tell us about the state of performance measurement in public policy and management? *Public Money and Management*, 25(1), 9-17. DOI: https://doi.org/10.1111/j.1467-9302.2005.00445.x.

Jung, C.S., & Kim, S.E. (2014). Structure and perceived performance in public organizations. *Public Management Review*, 16(5), 620-642. DOI: https://doi.org/10.1080/14719037.2012.743576.

Lapsley, I. (1999). Accounting and the new public management: instruments of substantive efficiency or a rationalising modernity? *Financial Accountability & Management*, 15(3-4), 201-207. DOI: https://doi.org/10.1111/1468-0408.00081.

Lei Complementar n°. 101, de 4 de março de 2000. Estabelece normas de finanças públicas voltadas para a responsabilidade na gestão fiscal e dá outras providências. Recuperado de http://www.planalto.gov.br/ccivil_03/leis/lcp/lcp101.htm

Lima, D.V.D., & Aquino, A.C.B.D. (2019). Resiliência financeira de fundos de regimes próprios de previdência em municípios. *Revista Contabilidade & Finanças*, 30(81), 425-445. DOI: http://dx.doi.org/10.1590/1808-057x201908810.

Marques, K.C.M., Souza, R.P. & Silva, M.Z. (2015). Análise de SWOT da abordagem da contingência nos estudos da contabilidade gerencial. *Revista Contemporânea de Contabilidade*, 12(25), 117-136. DOI: http://dx.doi.org/10.5007/2175-8069.2015v12n25p117.

Oliveira, A.S., & Callado, A.A.C. (2018). Fatores contingenciais e o controle gerencial: uma avaliação em organizações não governamentais (ONGS) brasileiras. *Advances in Scientific and Applied Accounting*, 11(1), 092-109. DOI: http://dx.doi.org/10.14392/ASAA.2018110105.

Oliveira, F.B.D., Sant'Anna, A.D.S., & Vaz, S.L. (2010). Liderança no contexto da nova administração pública: uma análise sob a perspectiva de gestores públicos de Minas Gerais e Rio de Janeiro. *Revista de Administração Pública*, 44(6), 1453-1475. DOI: https://doi.org/10.1590/S0034-76122010000600009.

Park, S. (2019). Size matters: Toward a Contingency Theory of diversity effects on performance. *Public Performance & Management Review*. DOI: http://dx.doi.org/10.1080/15309576.2019.1657917.

Parker, L. & Gould, G. (1999). Changing public sector accountability: Critiquing new directions. *Accounting Forum*, 23 (2), 109-135. DOI: http://dx.doi.org/10.1111/1467-6303.00007.

Poi, B., & Wiggins, V. (2001). *Testing for panel-level heteroskedasticity and autocorrelation*. StataCorp LP.

Porporato, M. (2011). Management Control Systems' literature Development: Theoretical Approaches and Critiques Within the Functionalist Paradigm. *Revista Universo Contábil*, 7(2), 146-173. DOI: http://dx.doi.org/10.4270/ruc.20117.

Ramos, M.P., Schabbach, L.M. (2012). O estado da arte da avaliação de políticas públicas: conceituação e exemplos de avaliação no Brasil. *Revista de Administração Pública*, 46(5), 1271-1294.

Schumacher, E.F. (1973). *Small is beautiful: A study of ecomonics as if people mattered.* New York: Vintage.

Teisman, G.R. & Klijn, E. (2008): Complexity Theory and Public Management. *Public Management Review*, 10(3), 287-297. DOI: https://doi.org/10.1080/14719030802002675.

Tribunal de Contas da União (TCU). Acórdão 825/2015, de 15 de abril de 2015. *Atrasos nos repasses a Bancos Federais*. Recuperado abril 08, 2020, de file:///C:/Users/Ilse/Downloads/Atrasos%20nos%20repasses%20a%20bancos%20federais_WEB.pdf

Van der Hoek, M.P. (2005). From cash to accrual budgeting and accounting in the public sector: The Dutch experience. *Public Budgeting & Finance*, 25(1), 32-45. DOI: https://doi.org/10.1111/j.0275-1100.2005.00353.x.

Van de Walle, S., & Hammerschmid, G. (2011). The impact of the new public management: Challenges for coordination and cohesion in European public sectors (review essay). *Halduskultuur – Administrative Culture*, 12(2), 190-209.

Varela, P.S., Martins, G.A, & Fávero, L.P.L. (2012). Desempenho dos municípios paulistas: uma avaliação de eficiência da atenção básica à saúde. *Revista de Administração*, 47(4), 624-637. DOI: https://doi.org/10.5700/rausp1063.

Verbeeten, F.H. (2008). Performance management practices in public sector organizations: Impact on performance. *Accounting, Auditing & Accountability Journal*, 21(3), 427-454. DOI: https://doi.org/10.1108/09513570810863996.

Wadongo, B., & Abdel-Kader, M. (2014). Contingency theory, performance management and organisational effectiveness in the third sector: A theoretical framework. *International Journal of Productivity and Performance Management*, 63(6), 680-703. DOI: https://doi.org/10.1108/IJPPM-09-2013-016.

Woods, M. (2009). A contingency theory perspective on the risk management control system within Birmingham City Council. *Management Accounting Research*, 20(1), 69-81. DOI: https://doi.org/10.1016/j.mar.2008.10.003.

How to cite this paper

Sell, F. F., Beuren, I. M., & Lavarda, C. E. F. (2020). Influence of contingency factors on municipal performance: inferential evidence. *Revista de Contabilidade e Organizações*, 14:e164058. DOI: http://dx.doi.org/10.11606/issn.1982-6486.rco.2020.164058