


MUNICIPAL MANAGEMENT IN BRAZIL: A STUDY FROM MUNICIPAL MANAGEMENT EFFECTIVENESS INDEX - IEGM


LEONARDO COELHO DE ARAUJO

Fucape Business School. Address: Rua Marcos Parente, 13, 1º Andar | Centro | 64600-106 | Picos/PI | Brazil.

 <https://orcid.org/0000-0002-5502-7767>
leonardocontadorpicos@gmail.com


JOÃO EUDES BEZERRA FILHO

Fucape Business School. Address: Rua Ana Camelo, 38 apto 2502 | Boa Viagem | 51.111-040 | Recife/PE | Brazil.

 <https://orcid.org/0000-0001-5009-3418>
joao@fucape.br


ARILDA TEIXEIRA

Fucape Business School. Address: Avenida Fernando Ferrari, 1358 | Goiabeiras | 29075-053 | Vitória/ES | Brazil.

 <https://orcid.org/0000-0002-7697-0439>
arilda@fucape.br

FÁBIO MOTOKI

Fucape Business School. Address: Earlham Rd, Norwich Business School, University of East Anglia, Norwich Research Park | CEPNR47TJ | Norwich/Norfolk | United Kingdom.

 <https://orcid.org/0000-0001-7464-3330>
fmotoki@gmail.com

ABSTRACT

This paper aimed to point out the determinants of the effectiveness of Municipal Management in Brazil. It was a quantitative, descriptive research, with secondary data from 2015 to 2017, available at the Rui Barbosa Institute web site – 11 variables correlated with the effectiveness of management. The sample was comprised of Brazilian municipalities. The results were estimated by logistic regression with balanced panel data and interpreted by the odds ratio criterion. The results showed that population size and the mayor's reelection have a positive and statistically significant relationship to explain the effectiveness of management. On the other hand, the number of candidates for mayors, and disapproved expenses showed a negative and statistically significant relationship to explain the effectiveness. By addressing the effectiveness of municipal management, this article fills a gap in the literature because it brings to the debate the relevance of the evaluation phase of the public management to improve its quality and/or mitigate negative impacts on the population.

Keywords: Municipal Public Management. Municipal Public Management Performance Indicator. Municipal Management Effectiveness Index (IEGM).

Edited in Portuguese and English. Original version in Portuguese.

Presented at the ANPCONT Congress, São Paulo, 2019.

Received on 1/8/2021. **Reviewed on** 2/25/2021. Accepted on 3/16/2021 by the Prof. PhD Sérgio Murilo Petri (Editor-Chief) and Prof. PhD Sandro Vieira Soares (Deputy Editor). **Published on** 4/14/2021.

Copyright © 2021 RCCC. All Rights Reserved. It is allowed to quote part of articles without prior authorization, provided that the source is identified.

1 INTRODUCTION

Public management has undergone a paradigm shift since the 1980s when the countries of the Organization for Economic Cooperation and Development (OECD) decided to adopt accountability as a management practice. This decision has redirected the public administration doctrine's focus towards management responsibility and efficiency, which has led it to face resistance from supporters of previous models – for example, that of the Progressive Public Administration. But, despite resistance and criticism, this movement has brought the agenda of administrative efficiency in the private sector into the public sector, opening some room to seeking and practicing New Public Management (NPM) (Dunsire & Hood, 1989; Aucoin, 1990; Osborne & Gaebler, 1992; Power & Laughlin, 1992; Hood, 1995; Hood & Jackson, 1994; Pollitt, 1996; Broadbent & Laughlin, 1997).

In Brazil the public sector has been undergoing changes in the pattern of conducting its public policies, either due to the economic scenario or to demands from society for effective policies that meet their real needs. There is a lack of results-oriented public management with the provision of quality services that correct social inequalities (TCE/SP, 2017, p. 2). As a result, the public sector is often criticized for its performance (Behn, 2003, p. 603).

For Santos and Hoffmann (2016, p. 88), ensuring the provision of effective public services has been a challenge for public organizations. But, according to Andrews and Walle (2012, p. 5), to assess the public management effects it is necessary to look at its available resources, its degree of adherence to the New Public Management (NPM) and its performance in relation to that of the private sector.

It was along this path that in 2016 Instituto Rui Barbosa, a nonprofit civil association founded in 1973 by the Brazilian General Accounting Offices (TCU) aiming to improve the activities of these General Accounting Offices, launched the Yearbook of the Municipal Management Effectiveness Index (IEGM) with the objective of measuring the management effectiveness of the 5,570 Brazilian municipalities and to provide a complete diagnosis of these managements. This article has called effectiveness of a municipality its efficiency in providing public services that have been promised in full and timely provided for by law.

The Index is estimated from information provided by governments and official sources, by computer-assisted auditing techniques (TAAC) and by city halls by means of completing questionnaires (IRB, 2016, p.8).

This context has raised the following question: What factors lead a municipal management to be classified as effective or not effective in the IEGM? To answer this question, this article has aimed to point out the determinants of the effectiveness of municipal administrations in Brazil.

These management capabilities are justified by the relevance that public organizations' accountability and performance measurement have taken on after the inclusion of the principles of efficiency and transparency to the other public administration's principles: legality, impersonality, morality and publicity.

Their results contribute to improving the municipal public managers' perception regarding the "management evaluation stage" relevance and the adaptation and use of management planning instruments (Frey, 2000, p. 229). Thus, they contribute to situations that lead to an increase or decrease in the public services effectiveness, as proposed by Freitas (2001, p. 60) and confirmed by Ghelman (2006, p. 76), who have identified that, although efficiency and effectiveness are part of the discourse of improving public management, almost all organizations surveyed did not have goals and/or performance indicators for their public policies.

The results also contribute for municipal public managers to get used to using planning in their fiscal management and thus can improve their performance and, consequently, their grades in the IEGM aspects. According to Instituto Rui Barbosa, in 2015 68.3% of municipal administrations were considered ineffective (2,759 municipalities). In 2016 there were 73.2%

(3,267 municipalities) and in 2017 76.2% (3,527 municipalities).

2 LITERATURE REVIEW

2.1 New Public Management (NPM) and effectiveness

According to Ghelman (2006, p. 22), effectiveness is a junction between what motivated the entity's performance and what has been achieved. In other words, it is the association between the real impacts seen by society in relation to the results expected after government action.

For Costa and Castanhar (2003, p. 973), effectiveness is one of the ways of measuring management's performance evaluation, indicating their positive effects on the external environment in which they have intervened in technical, economic, socio-cultural, institutional and environmental aspects. This definition is in line with others frequently used in the literature such as those by UNICEF (United Nations International Children's Emergency Fund) (1990, p. 3), Tribunal de Contas da União (Brazilian General Accounting Office) (TCU) (2000, p. 14), Ghelman (2006, p. 23), Castro (2006, p. 05), Torres (2004, p. 175) and Sano and Montenegro Filho (2013, p. 39).

Castro (2006) conceptualizes effectiveness in public management as a measure for the results of an action that brings benefits to society. It spreads more positive results than efficacy because it indicates whether the objective has been achieved. Efficacy, in turn, shows whether the desired objective has brought improvements to the population.

In the international community, Forsund (2017, p. 93) has addressed public management effectiveness from the distinction between efficiency and efficacy of a given public service and the priority it has received from the management body to maximize the societal value of the final impact on social objectives.

Wallace (2013, p. 9) has identified nine attributes of effective management in the public health sector in Australia. According to the author, although much has been written about the attributes of effective management, little is known about how these attributes fit into the public sector. The nine attributes were selected by interviewees from a list of more than 630 possible ones and the finding was that these managements are: encouraging, transformative, efficient, safe, (non-)evasive, courageous, (non-)convenient, reasonable and reliable.

Andrews and Walle (2012, p. 2) have examined the relationship between New Public Management (NPM) practices and citizens' perceptions of service efficiency, responsiveness, equity and effectiveness of English municipal governments. The authors have found that public-private relations have a negative relationship with the citizens' perception about the four dimensions of local service performance and that a strategic business orientation shows a positive association with them.

According to Diamond and Khemani (2006, p. 110), since 1994 the government of Tanzania has been implementing an ambitious reform program to improve its financial management's effectiveness, which initially focused on adopting effective and efficient budgeting systems and processes and spending management.

Köseçik, Kapucu and Sezer (2003 p. 105) have examined the extent to which the public managers' characteristics in Turkey's new form of management are perceived as significant obstacles to efficient and effective management. Their results show that district governors, in general, are considered good at managing the internal and external components of the organization for which they are responsible. However, they need to develop personal skills in certain aspects.

Analoui (1997, p. 508) has described the profile of an effective manager by interpreting the responses obtained from managers and public servants interviewed (Table 1).

Table 1
Effective managers' attributes/skills

Priority	Attributes/skills	Frequency
1 st	Organized	8
2 nd	Concerned about people and their development	7
2 nd	Team manager/trainer	7
3 rd	Concerned about tasks and people	6
3 rd	Decision maker	6
3 rd	Concerned about products and tasks	6
4 th	Delegates authority and control	5
4 th	Flexible	5
5 th	Well-informed	4
5 th	Capable	4

Source: Analoui (1997, p. 508).

In Brazil the public administrations' effectiveness and their managers' performance have also been a subject of study. Malmegrim and Michaud (2003) have prepared a methodological guide for public management and pointed out that, within a systemic view, efficacy is what determines the achievement of management goals and efficiency is what determines resources optimization.

Osório (2003, p. 43) has considered that efficiency cannot be analyzed without associating it with effectiveness because optimizing public resources without offering good services or solving social problems is incompatible with the values defined in a democracy.

For Amaral (2002, p. 3) the principle expressed in art. 37 of the Brazilian Constitution (1988) addresses only the concept of efficiency, not extending to that of efficacy and that of effectiveness.

For Castro (2006, p. 7-8) the Brazilian Constitution itself (1988) recognizes the difference between efficiency and efficacy and this could be easily seen in reading article 74, which deals with an integrated system of internal control in the Executive, Legislative and Judiciary branches in item II: "Evaluate results and prove the legality regarding budget management efficiency and efficacy (...)." Castro (2006, p. 8) mentions that one cannot accept that the Brazilian Constitution (1988) recognizes the difference between concepts in one text and does not do it in another. Such a situation would be unacceptable.

Every modern managerial theory about the State must be guided by society's needs. Thus, stating that the Brazilian Federal Constitution, in its text, referred only to the means, is an absurdity (Castro, 2006, p. 8).

Brazilian Federal Law no. 10180 (2001), which organizes and disciplines the Planning, Budgeting, Financial Administration, Accounting and Internal Control Systems of the Federal Executive Branch, mentions in its art. 7, item III, that the units responsible for planning activities must "(...) physically and financially follow up the approved plans and programs as well as evaluate them as to their efficacy and effectiveness with a view to supporting the process of allocation of public resources, spending policy and coordination of government actions."

As for Brazilian Federal Law No. 11,653 (2008), which provides for the Brazilian Federal Government's Pluriannual Plan for the period 2008-2011, it mentions effectiveness as a principle to be followed by management, stating that: "Management of the Pluriannual Plan shall observe the principles of efficiency, efficacy and also that of effectiveness."

According to Markić (2014, p. 22), indicators can be a powerful tool for different purposes in the public sector such as assessing the services provision effectiveness. As for Pace, Basso and Silva (2003, p. 39), they state that "good administrators monitor the performance of the systems under their responsibility with the aid of performance measures."

Grateron (1999, p. 6) highlights the importance of management audits in the public sector

when seeking answers to questions such as: Does the government have the means to measure its effectiveness? Are there indicators for measuring public management? Do they correctly apply? It is important that the auditor have extensive knowledge and familiarity about what the indicators and indices are, what they seek to measure and how to correlate them.

For Cohen (1993, p. 50) the first step towards building effective management is the use of management indicators as a way of measuring public entities' performance.

2.2 Municipal Management Effectiveness Index (IEGM)¹

Brazil's IEGM is a permanent index that serves to provide society with views of public administrations on seven aspects extracted from the Brazilian municipalities' budgetary execution: education, health, planning, tax management, environment, protected cities and governance in IT (Information Technology) and other 143 items.

The IEGM is an indicator that measures Brazilian municipalities' management effectiveness and currently it has the adherence of the 27 General Accounting Offices of the states and the Brazilian Federal District. These General Accounting Offices use information collected in Brazilian municipalities, which is subsequently confirmed. These data are collected from the signing of a Term of Adherence to the Network of Brazilian Indicators entered into by Instituto Rui Barbosa and the General Accounting Offices of each state of the Brazilian federation and the Federal District.

This tool also makes it possible to compare performance among municipalities with similar characteristics. Thus, it is possible to identify efficient practices and consequently contribute to better municipal governments' performance (Table 2).

Table 2
Number of Effective Brazilian Municipalities by Regions of Brazil according to the IEGM (2014-2017)

AREA	YEAR	SUPERVISED MUNICIPALITIES (a)	PARTICIPATING MUNICIPALITIES (b)	EFFECTIVE MUNICIPALITIES (c)	% = (c/b) x 100
Midwest	2015	467	236	63	26.7
	2016	467	393	66	16.8
	2017	467	417	116	27.8
Northeast	2015	1794	1195	110	9.2
	2016	1794	1284	75	5.8
	2017	1794	1757	110	6.3
North	2015	450	222	42	18.9
	2016	450	327	27	8.3
	2017	450	393	58	14.7
Southeast	2014	1668	644	604	93.8
	2015	1668	1607	636	39.6
	2016	1668	1401	520	37.1
	2017	1668	966	40	4.1
South	2015	1191	777	427	55
	2016	1191	1061	511	48.2
	2017	1191	1093	773	70.7

Source: Prepared by the authors based on information from Instituto Rui Barbosa (2014-2017).

When comparing the results obtained in the IEGM by regions of the country, it is observed that in 2017 the Southeast region was the one with the lowest proportion of effective municipalities (4.1%) and that the highest proportion of effective municipalities was in the South region (70.7%).

¹This session was based on the 2016 Yearbook of the Brazil's IEGM and the IEGM Manual from the TCE/SP 2017.

According to the Yearbook (2016, p. 68), the Brazil's IEGM has five ranges:

GRADE	RANGE	CRITERIA
A	Highly effective	The IEGM from 90% of the maximum grade and at least five (5) component indexes with grade A
B+	Very effective	The IEGM between 75% and 89.9% of the maximum grade
B	Effective	The IEGM between 60% and 74.9% of the maximum grade
C+	In an Adequacy Stage	The IEGM between 50% and 59.9% of the maximum grade
C	Low Adequacy Level	The IEGM is less than 50%

Figure 1. The Brazil's IEGM Results Range

Source: Anuário (2016, p. 68).

When comparing the IEGM results by results range it becomes clear that most municipalities were not considered effective by the IEGM – they presented grades C+ (in a stage of adaptation) or C (low level of adequacy). In addition, no municipality was able to achieve the maximum grade (Table 3).

Table 3

Brazilian Municipalities Participating in the IEGM by Results Range

RESULTS RANGE	YEAR				TOTAL (a+b+c+d)
	2014 (a)	2015 (b)	2016 (c)	2017 (d)	
A	0	0	0	0	0
B+	198	65	88	47	398
B	406	1213	1111	1055	3785
C+	30	1667	1483	1678	4858
C	10	1092	1784	1846	4732
TOTAL	644	4037	4466	4626	13773

Source: Prepared by the author based on information from Instituto Rui Barbosa (2014-2017).

2.2.1 IEGM's methodology²

Each index that integrates the IEGM's final draft has some weight based on the distribution of the volume weightings of the expenses paid in 2011, 2012 and 2013 linked to a government function (Figure 2) (TCE/SP, 2017, p. 13).

INDEX	WEIGHT
i-Educ	20%
i-Saúde	20%
i-Planejamento	20%
i-Fiscal	20%
i-Amb	10%
i-Cidade	5%
i-Gov TI	5%
TOTAL	100%

Figure 2. Weight of Brazil's IEGM's component indexes

Source: TCE/SP (2017).

Two other criteria have been defined, in addition to those already mentioned above, in relation to the results range:

- The municipality that does not reach 25% with spending on education shall be

²This session was based on the IEGM's 1st Yearbook 2016 and on the IEGM's 2017 Manual from the TCE/SP).

immediately reallocated to the lowest level in the index;

- If there is no observance of what is contained in art. 29-A of the Brazilian Constitution (1988), the municipality shall be relocated to the C results range grade, that is, it shall be considered as having a low level of adequacy.

2.2.2 Assumptions

a) the data collected for calculation of the IEGM are true, even if they were declaratory; b) the IEGM measures the Brazilian municipal administrations' degree of effectiveness.

2.3 Research hypothesis

H₁: Political factors such as reelection and the mayor being from the same political party as the governor and the president of Brazil, have a significant and negative relationship with the IEGM.

According to Ferraz (2007, p. 1), in municipalities governed by reelected mayors, corruption is more likely than in those governed by first-term mayors.

Oliveira and Carvalho (2009, p. 121) have evidenced that belonging to the same party as a governor or the president of Brazil guarantees privileges to mayors such as the reduction of some municipal expenses.

Gonçalves, Funchal and Bezerra Filho (2017, p. 462) have pointed out that left- and center-wings political parties tend to invest more in infrastructure in preelection periods than right-wing parties. Pereira (2006, p. 26) has shown that since the transition to democracy, the left-wing parties have almost always won elections. However, their governments have not served the poorest population's interests.

H₂: Municipal administrations that have had at least one annual accountability disapproved by TCU have a significant and negative relationship with the IEGM.

This hypothesis is related to the variable "Disapproval of Accounts by the TCU" and is an adaptation of the research by Velten (2015, p. 43) which used the variable "appreciation of accounts by the TCE" to study the factors that determine the rejection of accounts of the municipalities in the Brazilian state of Espírito Santo. The author has found that the assessment of municipal mayors' accounts is the result of several analyses.

3 RESEARCH METHODOLOGY

3.1 The data collection

The sources of data collection were the websites of Instituto Rui Barbosa (www.iegm.irbcontas.org.br) (2017), Tribunal Superior Eleitoral (the highest body of the Brazilian Electoral Justice) (TSE) (2018) (www.tse.jus.br), Secretaria do Tesouro Nacional (Brazilian Department of National Treasury) (STN) (2017) (www.siconfi.tesouro.gov.br), Portal da Transparência do Governo Federal (Brazilian government Transparency Portal) (www.portaltransparencia.gov.br), Portal do Fundo Nacional de Desenvolvimento da Educação (Brazilian Fund for Education Development website portal) (FNDE) (2017) (ww.fnde.gov.br/siope), Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics) (IBGE) (2017) (www.ibge.gov.br) and Tribunal de Contas do Estado de São Paulo (General Accounting Office of the Brazilian state of São Paulo) (TCE/SP) (2017) (www.tce.sp.gov.br) in the period from 2012 to 2016. The data for the year 2017 were forwarded by e-mail by Instituto Rui Barbosa.

The whole of this research should be all 5,570 Brazilian municipalities. However, limitations have been found that reduced the sample: (i) there was no adherence by all states' General Accounting Offices to the IEGM methodology in 2015 and 2016; (ii) the states of Mato Grosso (MT), Pará (PA) and Paraná (PR) did not participate in the 2015 edition of the IEGM and the state

of Pernambuco (PE) did not participate in the index 2015 and 2016 editions; (iii) the Federal District did not participate in this research because it did not present municipal characteristics; (iv) there was the exclusion of municipalities that did not deliver the IEGM information to TCE for 2015, 2016 and 2017 on the scheduled date or else they delivered it incompletely, which led to their exclusions from the index calculation and consequently from this research.

Therefore, municipalities of 22 states in 2015 were evaluated by the IEGM, 25 states in 2016 and 26 states in 2017. In the state of São Paulo, only the capital city participated in the index 2017 edition.

Thus, the final samples for 2015, 2016 and 2017 were 4,036, 4,465 and 4,626 managements respectively, corresponding to 13,127 observations.

3.2 The variables

In order to point out which factors are decisive for the municipal management effectiveness in Brazil, national and international literature was used. Variables were selected or adapted when pointed out in works by: Dwyer and Wilson (1989, p. 44); Ryan, Stanley and Nelson (2002, p. 265); Laswad, Fisher and Oyelere (2005, p. 111); Rátis (2012, p. 55); Santos and Santos (2014, p. 06-09) and Velten (2015, p. 43) (Figure 3).

Variable	Type of variable	Answer
IEGM	Dependent	0 – Noneffective municipality. 1 – Effective municipality.
Population (Pop_{m,p})	Independent	Discreet.
Total revenue collected (Rec. Tot_{m,p})	Independent	Continuous.
The mayor's education level (Nív. Esc_{m,p})	Independent	0 – The mayor has no higher education. 1 – The mayor has higher education.
Number of candidates (Q. Cand_{m,p})	Independent	Discreet.
The mayor has been reelected (Pre. Ree_{m,p})	Independent	0 – The mayor has not been reelected. 1 – The mayor has been reelected.
The mayor's political party is the same as the governor's of his/her country state (P. Pr. Gov_{m,p})	Independent	0 – No. 1 – Yes.
The mayor's political party is the same as the president of Brazil's (P. Pr. Pre_{m,p})	Independent	0 – No. 1 – Yes.
Disapproval of accounts by TCU (Rep. Cont_{m,p})	Independent	0 – There were no disapproved annual accounts. 1 – There was at least one disapproved annual accountability.
Political party's ideology (Ide. Par_{m,p})	Independent	0 – The mayor's party is not left wing. 1 – The mayor's party is left wing.
Municipalities' dependence on FPM (Municipal Participation Fund) (D. FPM_{m,p})	Independent	Continuous.
Municipalities' dependence on Voluntary Transfers (this is the delivery of resources to another entity of the Brazilian Federation as cooperation, aid or financial assistance, which does not result from constitutional or legal determinations) (D. TV_{m,p})	Independent	Continuous.

Figure 3. Research variables

Source: Adapted from Rátis (2012, p. 55).

The dynamics of odds ratios was adopted due to the association between two binary variables (Francisco et al., 2008). Aguiar, Teixeira, Nossa and Gonzaga (2012, p. 1-46) have used odds ratios to identify the association between the management incentive system and the practice of management accounting in 150 companies from different economic segments in the Brazilian state of Espírito Santo.

The odds ratio was measured using the following equation (Favero, 2015, p. 104):

$$\text{Chance (odds)}_{Yi=1} = \frac{P_i}{1-P_i}$$

The technique applied to estimate the results was logistic regression. The data were organized in the form of a balanced panel (Gujarati & Porter, 2011, p. 587). The Durbin–Wu–Hausman test (also called Hausman specification test) has shown that the best way of estimating the model was the Fixed Effect – Equation 1.

$$IEGM_{m,p} = \beta_0 + \beta_1(\log. \text{Pop.}_{m,p}) + \beta_2(\log. \text{RT.}_{m,p}) + \beta_3(\text{For. Pro.}_{m,p}) + \beta_4(\text{Q. Cand.}_{m,p}) + \beta_5(\text{Pre. Ree.}_{m,p}) + \beta_6(\text{P. Pr. Gov.}_{m,p}) + \beta_7(\text{P. Pr. Pre.}_{m,p}) + \beta_8(\text{Jul. Con.}_{m,p}) + \beta_9(\text{Ide. Par.}_{m,p}) + \beta_{10}(\text{D. FPM}_{m,p}) + \beta_{11}(\text{D. TV}_{m,p}) + \varepsilon_{m,p} \text{ Equation (1)}$$

4 RESULTS AND ANALYSIS

4.1 Descriptive Statistics

Table 4 below presents the continuous and discrete variables descriptive statistics of the study.

Table 4
Descriptive statistics 2015-2017

	Log Pop	Log RT	Q. Cand.	ID-FPM	ID-TV
Notes	9352	7428	9353	7415	6620
Average	4.05	7.83	2.64	0.69	0.04
Medium	4.01	7.62	2.00	0.25	0.00
Standard Deviation	0.50	0.83	1.06	4.57	0.39
Minimum	1.04	-2.00	1.00	0.00	0.00
Maximum	7.09	1.08	1.20	2.45	2.44

Source: Research data.

It is noticed that the lowest average is found in the variable that measured voluntary transfers to the municipalities (M = 0.04). This may have occurred because in some municipalities this variable has shown absence or error in the information disclosed, a fact that has reduced its number of observations.

On the other hand, when analyzing the municipalities' total revenues, it becomes clear that this variable had a higher average (M = 7.83). This is because, although many of Brazilian municipalities are dependent on the Municipal Participation Fund (FPM) for not having strong economic activities, a considerable portion of municipal revenues is distributed by means of transfers, which are resources collected especially in municipalities with strong economic activities (Mendes, 2004, p. 421-461).

4.2 Econometric regression

Table 5 shows the statistically significant variables of the logistic regression model with data on a panel, developed to answer hypotheses H_1 and H_2 .

Table 5
Logistic Regression for the Determinants of Effectiveness in Brazilian Municipalities – 2015-2017

Variables	Odds ratio (OR)	P Value
Constant	0.094	0.0000
Log. Pop.	1.390	0.0000
Q. Cand.	0.907	0.0008
Pref. Ree.	1.130	0.0202
Rep. Con.	0.800	0.0090

Source: Research data.

It is possible to admit, with a significance level of 5%, that all the variables that influence the Brazil's IEGM results have proved to be statistically significant. (LOG POP) and (PREF.REE) have a direct relationship with the IEGM. This means that when they increase, they contribute to this index growth in the municipality, that is, its effectiveness. Concomitantly, their odds ratios coefficients indicate that the population growth (LOG POP) increases the chances of the municipality reaching effectiveness by 39% in relation to other municipalities and that the mayor's reelection (PREF. REE) increases those chances by 13%.

But the number of candidates to the position of mayor (Q CAND) and having disapproved accounts (REP. CONT) impairs compliance with the IEGM index because they reduce the chances of effectiveness by 9.1% and 8%, respectively. With these results it was not possible to accept H_1 , which assumed that the mayor's reelection has a significant but negative relationship with the IEGM; but it was possible to accept H_2 , which assumed that disapproval of accounts (REP. CONT) has a significant but negative relationship with the IEGM.

The results of (LOG POP) coincide with the findings from Gomes and Mac Dowell (2000, p. 11) who have also found a positive relationship when researching the population of Brazilian municipalities as a measure of size and as an important factor in increasing their own revenues.

Regarding the variable (PREF. REE), the results partially diverge from the findings from Ferraz (2007, p. 23) when realizing that municipalities with reelected managers have a negative influence on increasing the chances of corrupt practices. However, the same author also points out that there is practically no difference among managers reelected or not in those municipalities where there is a judge or local media in the form of radio or newspaper.

The findings for the variables Quantities of Candidates (Q. CAND.) and Judging Accounts (JULG. CONT.) presented evidence of a negative relationship with the municipal management effectiveness. Thus, the increase in the number of candidates for the position of municipal mayor reduces 0.907 times or 9.1% the chances that this municipality's management shall be considered effective by the IEGM (H_1). And managements that has had at least one annual accountability disapproved by the General Accounting Office (TCU) have reduced the chances of being considered effective by the IEGM by 0.800 times or 8% (H_2).

Results obtained for (Q CAND) coincide with the research by Laswad et al. (2005, p. 116) who, when examining the determining factors for the disclosure of financial reports by municipal authorities in New Zealand, have found that this variable was quite significant.

Regarding the findings of the variable "Disapproval of Accounts" by TCU (REP. CONT.), it is observed that these corroborate those found by Velten (2015, p. 72) and by Crisóstomo et al. (2015, p. 246), who have researched the degree of approval and disapproval of public accounts of the municipalities of the metropolitan region of Fortaleza in the Brazilian state of Ceará and found

that 28.57% of the opinions issued by the General Accounting Office of the state of Ceará were for the disapproval of municipal managers' accounts. These results, in part, are the result of noncompliance with the Brazilian Fiscal Responsibility Act (LRF), the Brazilian Federal Constitution of 1988, the Brazilian State Constitutions and the Brazilian Federal Law no. 4,320 (1964) (Crisóstomo et al., 2015, p. 241).

Thus, in view of the results already presented and taking into account that the variables Total Revenue (LOG. RT.), mayor's education level (NIV. ESC.), mayor's political party is the same as the governor's of his/her state (P. PR. GOV), the mayor's party is the same as that of the president of Brazil (P. PR. PRE), municipalities' dependence on FPM (ID-FPM) and the municipalities' dependence on voluntary transfers (ID-TV) have not been considered significant by the research, the following analyses are justified.

The results from (Log.RT) coincide with the findings by Rátis (2012, p. 62), who has also found no significance in the above variable when researching factors that influence the delay in disclosure of annual public accounts of the municipalities of the state of Espírito Santo. This can be explained by the fact that most of the Brazilian municipalities that are effective by the IEGM do not always have a large financial collection volume as they are cities with a population below 10,000 inhabitants and with little of their own collection and in which the city hall is the main entrepreneur (Santos & Santos, 2014, p. 12)

As for the variable results (NIV.) they can be explained by the fact that many managers, even without higher education, maintain excellent advisory teams in their staff (Velten, 2015, p. 72). Rátis (2012, p. 63) has found that the level of education has no influence on the number of days for disclosure of municipal accounts of the Brazilian state of Espírito Santo by the General Accounting Offices.

The probable cause of the results obtained for (P. Pr. Gov.) may be due to the fact that belonging to the same political party as the governor's may even grant some privileges to the mayor and therefore represent reduced expenses (Oliveira & Carvalho, 2009, p. 131). However, this is not enough to ensure management effectiveness. It is worth mentioning that this variable has also been considered insignificant in research by Rátis (2012, p. 63) and Velten (2015, p. 72).

For the same reason the variable (P. PR. PRE) was not significant.

Results for "Political party's ideology" (Ide.Par.m.p) coincide with those by Rátis (2012, p. 62-63) and can be explained by the various scandals involving the political class in Brazil released by Brazilian and foreign media after the so-called Brazilian operation Lava Jato (Operation Car Wash, a criminal investigation by the Federal Police of Brazil) (Ciocari, 2015, p. 59-63).

Even with FPM growth, year after year in the period from 2007 to 2014, the nonsignificant results of the variable (ID. FPM) may have occurred due to the global economic crisis in 2009 and the various exemption decrees of the IPI (Brazilian federal value-added tax on manufactured goods) in Brazil, which ended up directly impacting municipal accounts (National Confederation of Municipalities (CNM), 2015, p. 40).

As for the results found for the variable (ID-TV), they coincide with the findings by Rátis (2012, p. 63) and can be explained by the fact that many municipalities are not qualified to receive federal and state covenant installments due to presenting projects which are irregular or inadequate and with low quality of the objects to be conceived (D'Abadia, 2015, p. 5)

Therefore, responding to the research problem initially proposed, it can be admitted, with 95% confidence, that the Population, the Quantity of candidates for the position of mayor of a municipality, Reelection and Disapproval of annual accounts by TCU are factors that explain the differences in the municipal management effectiveness.

5 CONCLUSION

The present study has aimed to point out the municipal administrations' effectiveness determinants in Brazil and to explain the results of the IEGM in Brazil in the period from 2015 to 2017. It has been pointed out that the size of the population and the mayor's reelection can contribute to the effectiveness better performance when they grow up. In other words, they are factors that differentiate effective from noneffective municipalities, as well as the number of candidates for the position of mayor and the disapproval of accounts by TCU which make it difficult to achieve this objective. Both, if they increase, reduce the chances of the municipality's effectiveness.

The search for effectiveness must start from the control of public spending exercised by society, by external and internal control bodies and by improving the governmental information transparency. It is also essential to intensify the inspection of the TCE by means of audits to monitor the municipal administrations. The prevailing audit model in Brazil today, unfortunately, does not detect corruption at its beginning but rather after the fait accompli (management assessment audit).

Therefore, it is necessary to invest in the qualification of its advisors to improve the presentation of municipal public accounts.

It is also necessary that the General Accounting Offices of the states and municipalities participating in the IEGM create mechanisms for comparing the information provided by the municipalities so that the real fiscal and financial situations of these entities can be identified and consequently improve the decision criteria and the level of transparency of these accounts.

Despite the results that this article presented, it has had its limitations. One of them is that the period studied (2015-2017) is very short; the other is the incompleteness of data. There is no full and voluntary adherence on the part of public managers to create a complete database which is capable of subsidizing studies whose results improve the municipal managers' decision criteria, which are the sample of this article. A small database compromises the results robustness. The imprecision of the results favors inopportune and/or wrong decision-making. The LRF has been approved in the early 2000s but most Brazilian municipalities have only started to have complete data from their tax reports as of 2015. This article has managed to gather data from 2015 to 2017, part of them incomplete. However, we are already in 2021. Thus, it is suggested that future research replicate this article methodology for a larger sample in terms of time period and municipal participation.

REFERENCES

- D'Abadia, B. M. (2015). A Problemática das Transferências Voluntárias. *Consultoria Legislativa, Câmara dos Deputado*, Brasília, DF, Brasil, 03.
- Aguiar, A. B. D., Teixeira, A. J. C., Nossa, V., & Gonzaga, R. P. (2012). Associação entre sistema de incentivos gerenciais e práticas de contabilidade gerencial. *Revista de Administração de Empresas*, 52(1), 40-54. Recuperado de <http://www.producao.usp.br/handle/BDPI/38235>
- Amaral, A. C. C. (2002). O princípio da eficiência no direito administrativo. *Revista Diálogo Jurídico*, (14).
- Analoui, F. (1997). How effective are senior managers in the Romanian public sector? *Journal of Management Development*, 16(7), 502-516. Recuperado em 02 janeiro, 2018, de <https://doi.org/10.1108/02621719710169602>

- Andrews, R., & Walle, S. V. (2012). New public management and citizens' perceptions of local service efficiency, responsiveness, equity and effectiveness. *COCOPS Working Paper*, (7).
- Aucoin, P. (1990). Administrative Reform in Public Management: paradigms, principles, paradoxes and Pendulums. *International Journal of Policy and Administration*, 3(2), 115-137.
- Behn, R. D. (2003). Why measure performance? Different purposes require different measures. *Public Administration Review*, 63(5), 586-606.
- Constituição da República Federativa do Brasil de 1988* (1988). Brasília: Câmara dos Deputados, Coordenação de Publicações, 2002. 427 p.
- Broadbent, J., & Laughlin, R. (1997). Evaluating the New Public Management' Reforms in the UK: a constitutional possibility. *Public Administration*, 75(3), 487-507.
- Castro, R. B. (2006). Eficácia, eficiência e efetividade na administração pública. *Anais do Encontro da Associação Nacional de Pós-graduação e Pesquisa em Administração*, Salvador, BA, Brasil, 30.
- Cioccari, D. (2015). Operação Lava Jato: escândalo, agendamento e enquadramento. *Revista Alterjor*, 12(2), 58-78.
- Cohen, S. A. (1993). Defining and measuring effectiveness in public management. *Public Productivity & Management Review*, 17(1), 45-57.
- Confederação Nacional dos Municípios (CNM). (2015). *Estudo Técnico: volume 7*. Recuperado em 12 agosto, 2018, de [https://www.cnm.org.br/cms/biblioteca/Estudos%20Tecnicos%20-%20Volume%207%20\(2015\).pdf](https://www.cnm.org.br/cms/biblioteca/Estudos%20Tecnicos%20-%20Volume%207%20(2015).pdf)
- Costa, F. L., & Castanhar, J. C. (2003). Evaluating public programs: methodological and conceptual challenges. *Revista de Administração Pública*, 37(5), 969.
- Crisóstomo, V. L., Cavalcante, N. S. C., & Freitas, A. R. M. C. (2015). A LRF no trabalho de controle de contas públicas – um estudo de pareceres prévios conclusivos de contas de governos municipais. *Revista Ambiente Contábil*, 7(1), 233-253.
- Diamond, J., & Khemani, P. (2006). Introducing Financial Management Information Systems in Developing Countries OECD. *Journal on Budgeting*, 5(3).
- Dunsire, A., & Hood, C. (1989). *Cutback Management in Public Bureaucracies: popular theories and observed outcomes in whitehall*. Cambridge University Press.
- Dwyer, P. D., & Wilson, E. R. (1989). An empirical investigation of factors affecting the timeliness of reporting by municipalities. *Journal of Accounting and Public Policy*, 8(1), 29-55.
- Favero, L. P. (2015). *Análise de dados: modelos de regressão com Excel, Stata e SPSS*. Rio de Janeiro. Editora Elsevier.

- Ferraz, C., & Finan, F. (2007). Electoral accountability and corruption in local governments: evidence from audit reports. *American Economic Review*, 101(4), 1274-1311.
- Forsund, F. R. (2017). *Measuring effectiveness of production in the public sector*. Department of Economics, University of Oslo, Norway Norwegian Defence Research Establishment (FFI), Norway.
- Francisco, P. M. S. B., Donalisio, M. R., Barros, M. B. D. A., Cesar, C. L. G., Carandina, L., & Goldbaum, M. (2008). Medidas de associação em estudo transversal com delineamento complexo: razão de chances e razão de prevalência. *Revista Brasileira de Epidemiologia*, 11(3), 347-355.
- Freitas, C. A. S. (2001). Auditoria de gestão e estratégia no setor público. *Revista do Serviço Público*, 52(4), 57-70.
- Frey, K. (2000). Políticas públicas: um debate conceitual e reflexões referentes à prática da análise de políticas públicas no Brasil. *Planejamento e políticas públicas*, (21), 211-259.
- Fundo Nacional de Desenvolvimento da Educação (2017). *Sistema de Informações sobre Orçamentos Públicos em Educação – SIOPE*. Recuperado em 10 janeiro, 2018, de www.fnnde.gov.br/index.php/siope-relatorios-municipais.
- Ghelman, S. (2006). *Adaptando o balanced scorecard aos preceitos da nova gestão pública*. Dissertação (Mestrado em Sistema de Gestão pela Qualidade Total) – Universidade Federal Fluminense, Niterói.
- Gomes, G. M., Dowell, M., & Cristina, M. (2000). *Descentralização política, federalismo fiscal e criação de municípios: o que é mau para o econômico nem sempre é bom para o social*. Texto para discussão, Brasília, nº 706, 2000.
- Gonçalves, L. G., Funchal, B., & Bezerra Filho, J. E. (2017). The Influence of Political Cycles on Public Investments in Infrastructure: A Study of Brazilian States from 2003 to 2014. *Revista de Administração Pública*, 51(4), 462-481.
- Grateron, I. R. G. (1999). Auditoria de gestão: utilização de indicadores de gestão no setor público. *Caderno de estudos*, (21), 01-18.
- Gujarati, D. N., & Porter, D. C. (2011). *Econometria Básica* (5a ed.). São Paulo: AMGH Editora LTDA.
- Hood, C. (1995). Emerging Issues in Public Administration. *Public Administration*, 73(1), 165-183. <https://doi.org/10.1111/j.1467-9299.1995.tb00822.x>
- Hood, C., & Jackson, M. (1994). Keys for locks in administrative argument. *Administration & Society*, 25(4), 467-488.
- Instituto Brasileiro de Geografia e Estatística – IBGE (2017). *População*. Recuperado em 08 dezembro, 2017, de www.ibge.gov.br/home

- Instituto Rui Barbosa – IRB. (2016). *1º Anuário do IEGM Brasil 2016 (Índice de Efetividade da Gestão Municipal): aplicado aos Municípios Brasileiros*. Minas Gerais. p. 7-13.
- Instituto Rui Barbosa – IRB. (2017). *Índice de Efetividade da Gestão Municipal (IEGM)*. Minas Gerais. Recuperado em 06 outubro, 2017, de <http://iegm.irbcontas.org.br/index.php/site/dadosAbertos>
- Köseçik, M., Kapucu, N., & Sezer, Y. (2003). Becoming an effective public manager in the global world: District governors in Turkey. *Ana Sayfa*, 18(1), 105-129. Recuperado em 11 novembro, 2017, de https://iibfdergi.deu.edu.tr/index.php/cilt1-sayi1/article/view/141/pdf_132
- Laswad, F., Fisher, R., & Oyelere, P. (2005). Determinants of voluntary Internet financial reporting by local government authorities. *Journal of Accounting and Public Policy*, 24(2), 101-121.
- Lei nº 11.653, de 7 de abril de 2008* (2008). Dispõe sobre o Plano Plurianual para o período 2008/2011. Diário Oficial da União, Brasília, DF, nº 67, terça-feira, 8 de abril de 2008. Seção 1, p. 5.
- Lei nº 4.320, de 17 de março de 1964* (1964). Institui normas gerais de direito financeiro para Elaboração e Controle dos Orçamentos e Balanços da União, dos Estados, dos Municípios e do Distrito Federal. Diário Oficial da União, Brasília, DF.
- Lei nº 10.180, de 06 de fevereiro de 2001* (2001). Organiza e disciplina os Sistemas de Planejamento e de Orçamento Federal, de Administração Financeira Federal, de Contabilidade Federal e de Controle Interno do Poder Executivo Federal. Diário Oficial da União, Brasília, DF.
- Markić, D. (2014). A Review on the Use of Performance Indicators in the Public Sector. University of Zagreb, Faculty of Organization and Informatics, Pavlinska 2, Varaždin. *Croatia TEM Journal*, 3(1), 22-28.
- Mendes, M. (2004). Federalismo fiscal. In Arvate, P., & Biderman, C. (Org.). *Economia do Setor Público no Brasil*. Rio de Janeiro: Editora Elsevier. pp. 421-461.
- Malmegrim, M. L., & Michaud, C. (2003). *Modelagem Organizacional para ação e controle estratégico: Guia Metodológico*. Brasília:[s.n.].
- Osborne, D., & Gaebler, T. (1992). *Reinventing Government*. New York, NY: Penguin Press, 405 pp. ISBN 045226942-3
- Oliveira, K. V., & Carvalho, F. A. A. (2009). A contabilidade governamental e o calendário eleitoral: uma análise empírica sobre um painel de municípios do Rio de Janeiro no período 1998-2006. *Revista de Contabilidade e Organizações*, 3(5), 121-141.
- Osório, V. L. T. (2003). *A utilização do balanced scorecard no aperfeiçoamento da administração pública gerencial: estudo de caso de uma autarquia municipal*. Dissertação (Mestrado profissional em Gerência de Serviços), Curso de Pós Graduação em Engenharia, Universidade Federal do Rio Grande do Sul, Porto Alegre.

- Pace, E. S. U., Basso, L. F. C., & Silva, M. A. D. (2003). Indicadores de desempenho como direcionadores de valor. *Revista de Administração Contemporânea*, 7(1), 37-65.
- Pereira, L. C. B. (2006). O paradoxo da esquerda no Brasil. *Novos Estudos-CEBRAP*, (74), 25-45.
- Pollitt, C. (1996). Antistatist Reforms and New Administrative Directions: public administration in the United Kingdom. *Public Administration Review*, 56(1), 81-87.
- Power, M., & Laughlin, R. (1992). Critical theory and accounting. *Critical Management Studies*, 21(5), 441-465.
- Rátis, S. P. N. (2012). *Determinantes para o atraso na divulgação das contas públicas anuais dos municípios do Estado do Espírito Santo*. Dissertação de Mestrado apresentada ao Programa de Pós-Graduação em Ciências Contábeis, da Fundação Instituto Capixaba de Pesquisas em Contabilidade, Economia e Finanças (FUCAPE), Vitória.
- Ryan, C., Stanley, T., & Nelson, M. (2002). Accountability disclosures by Queensland local government councils: 1997–1999. *Financial Accountability & Management*, 18(3), 261-289.
- Sano, H., & Montenegro Filho, M. J. F. (2013). As técnicas de avaliação da eficiência, eficácia e efetividade na gestão pública e sua relevância para o desenvolvimento social e das ações públicas. *Desenvolvimento em Questão*, 11(22), 35-61.
- Santos, K. G. B., & Santos, C. E. R. (2014). Dependência municipal das transferências do fundo de participação dos municípios: uma análise para os municípios do sul da Bahia entre 2008 e 2012. *Anais da Semana do Economista da Universidade Estadual de Santa Cruz*, Ilhéus, BA, Brasil, 4.
- Santos, G. F. Z., & Hoffmann, M. G. (2016). Em busca da efetividade na administração pública: proposição de uma metodologia para design e implementação de serviços públicos no município de Florianópolis. *NAVUS – Revista de Gestão e Tecnologia*, 6(1), 88-105.
- Secretaria do Tesouro Nacional (Brasil) (2017). *Finanças do Brasil – Receitas e Despesas dos Municípios (2012 e 2016)*. Recuperado em 12 janeiro, 2018, de <http://www.tesouro.fazenda.gov.br/contas-aneais>.
- Tribunal de Contas do Estado de São Paulo – TCE/SP. (2017). *Índice de Efetividade da Gestão Municipal (IEGM)*. São Paulo. Recuperado em 06 outubro, 2017, de <https://www4.tce.sp.gov.br/6524-índice-aponta-efetividade-gestao-mais-4-mil-municipios-brasil>.
- Tribunal de Contas da União – TCU. (2000). *Manual de Auditoria Operacional*. Brasília. Recuperado em 19 dezembro, 2017, de www.portal.tcu.gov.br/lumis/portal/file/fileDownload.jsp?fileId
- Tribunal Superior Eleitoral (2018). *Eleições Anteriores*. Recuperado em 12 fevereiro, 2018, de www.tse.jus.br/eleicoes/eleicoes-ant anteriores/.

Torres, M. D. F. (2004). *Estado, democracia e administração pública no Brasil*. Rio de Janeiro: Editora FGV.

UNICEF. (1990). *Guide for monitoring and evaluation: making a difference?* New York: Unicef.

Velten, S. R. (2015). *Determinantes da rejeição das prestações de contas anuais dos municípios capixabas pelo tribunal de contas do Estado do Espírito Santo*. Dissertação de Mestrado apresentada ao Programa de Pós-Graduação em Ciências Contábeis, da Fundação Instituto Capixaba de Pesquisas em Contabilidade, Economia e Finanças (FUCAPE), Vitória.

Wallace, G. (2013). *Attributes of effective managers in the public health sector*. Tasmânia: University of Tasmânia, August.