


The accountability influence on state capacity, allocation of public resources and socioeconomic development in Brazilian municipalities


A influência da accountability na capacidade estatal, na alocação dos recursos públicos e no desenvolvimento socioeconômico em municípios brasileiros

La influencia de la responsabilidad en la capacidad del estado, la asignación de recursos públicos y el desarrollo socioeconómico en los municipios brasileños

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Abstract

The article aimed to verify the influence of accountability and state capacity in the allocation of public resources and socioeconomic development in Brazilian municipalities. By adopting state capacity as an intervener in this relationship, a system is formed in which accountability (in the general concept) and control (in a specific way) are understood to influence municipal capacity. The latter, in turn, prepares the budget and invests the resources in compliance with both tax legislation and social demand and, thus, generates positive results for society. For that, a Municipal Capacity Index was elaborated from a factor analysis and applied on the Structural Equation Modeling. The results thus prove that capacity is influenced by accountability and influences the allocation of public resources.

Keywords: Accountability; State Capacity; Control

Resumo

O artigo teve por objetivo verificar a influência da *accountability* e da capacidade estatal na alocação dos recursos públicos e no desenvolvimento socioeconômico em municípios brasileiros. Ao adotar a capacidade estatal como um interveniente dessa relação, forma-se um sistema em que se entende que a *accountability* (no conceito geral), e o controle (de forma específica), influenciam a capacidade municipal. Esta, por sua vez, elabora o orçamento e aplica os recursos atendendo tanto a legislação fiscal, quanto a demanda social e, assim, gera resultados positivos para a sociedade. Para tanto, foi elaborado um índice de Capacidade Municipal a partir de uma análise fatorial e aplicado sobre a Modelagem de Equações Estruturais. Os resultados, assim, provam que a capacidade é influenciada pela *accountability* e influencia a alocação dos recursos públicos.

Palavras-chave: Accountability; Capacidade Estatal; Controle

Resumen

El artículo tuvo como objetivo verificar la influencia de la rendición de cuentas y la capacidad estatal en la asignación de recursos públicos y el desarrollo socioeconómico en los municipios brasileños. Al adoptar la capacidad del estado como interviniente en esta relación, se forma un sistema en el que se entiende que la responsabilidad (en el concepto general) y el control (de una manera específica) influyen en la capacidad municipal. Este último, a su vez, prepara el presupuesto e invierte los recursos de conformidad con la legislación fiscal y la demanda social y, por lo tanto, genera resultados positivos para la sociedad. Para eso, se elaboró un Índice de capacidad municipal a partir de un análisis factorial y se aplicó en el Modelo de

ecuaciones estructurales. Los resultados demuestran que la capacidad está influenciada por la rendición de cuentas e influye en la asignación de recursos públicos.

Palabras clave: Responsabilidad; Capacidad del estado; Control

1 Introduction

Brazilian municipalities, endowed with political and administrative autonomy, need to reconcile social demands and their state capacity. This reconciliation aims at the formulation and implementation of public policies in search of maintaining the state and the well-being of the population. In order to understand the concept of state capacity, several concepts were developed (Pires & Gomide, 2016; Guillén & Capron, 2016; Rogers & Weller, 2014; Gibler & Miller, 2014), which became sources for the understanding of this study, consisting of a set of skills and competences – political and administrative – necessary for the formulation of goals, the allocation of resources, the efforts and implementation of actions to achieve the desired results.

To this end, as Cingolani (2013) points out, state capacity involves political and bureaucratic elements for the various points that comprise it, among them the legal, coercive and fiscal aspects, which is related to the collection capacity. In this sense, state capacity is linked to the volume of funds raised, considering its need for the maintenance of the state and the implementation of public policies (Leon-Moreta, 2017).

However, it is important to note that, given the configuration of the Brazilian federative model, municipalities consist of the federated entity with the lowest collection volume (Baião, Cunha, & Souza, 2017). Thus, municipalities with low economic activity and small size have difficulties in collecting and making investments, even with the transfers from other federated entities (Leon-Moreta, 2017). This situation amplifies the limitation of state capacity, since the fiscal targets established by the Federal Constitution of 1988 and by the current legislation must be consistent with the volume of available resources.

While the targets must be proportionate to the resources available, the legislation establishes conditions for their application. Thus, if, on the one hand, there are efforts by the state to meet demands with a focus on achieving planned results, on the other, there is a need to comply with tax legislation.

In this sense, the reconciliation between state capacity and social demand and compliance with tax legislation becomes complex. Tax rules are intended to maintain the balance of public accounts, trying to guarantee, even if resources are scarce and social needs are growing, the financial health of the municipality.

Thus, in order to assist this maintenance, control mechanisms arise. These mechanisms are based on the *Accountability* approach, which aims to monitor management activities, establishing conditions for state capacity and the allocation of public resources.

It is noteworthy that *accountability* occurs in several ways. The horizontal (using state control mechanisms, equipped with technical knowledge) and vertical (based on the electoral process) models can be considered. In addition to these, there is also the social or societal model, in which the actions of the State are controlled by civil society organizations and other entities.

Even with the different forms of action of the control mechanisms, it is important to understand that their actions must occur together. There are, on the one hand, the established technical bodies, such as legislative power, courts of auditors and public prosecutors, for example, endowed with technical knowledge while, on the other hand, there is the society that corresponds to the main interested part in the actions of the State, being directly affected by its action or inaction, and it is up to it to act in the electoral process and in social controls outside the electoral period, presenting demands and verifying the quality of the services provided (O'donnell, 1994).

Thus, in view of the above, the present research aims to verify the influence of *accountability* and state capacity in the allocation of public resources and socioeconomic development in Brazilian municipalities. This study will take the municipalities of Minas Gerais as an object, considering the economic crisis that it experienced during the decade of 2010, which limited the transfer of state resources to the municipalities, as well as the large volume of municipalities present in the state (853), being that the vast majority (55.92%) has less than 10 thousand inhabitants, which can reduce the municipal tax collection.

Several studies aimed to analyze the influence of state capacity in public management, either through the implementation of policies or in the conduct of the government (Grin et al., 2018; Souza, 2017; Asadullah & Savoia, 2018; Gomide & Pires, 2014; Gibler & Miller, 2014; Pires & Gomide, 2016). Others aimed to analyze the effects of *accountability* on public management performance (Brinkerhoff & Wetterberg, 2015; Sell et al., 2018; Justice, Melitski & Smith, 2006).

From these studies, it could be noted that the performance of public management depends on the municipality's state capacity and *accountability*, considering the performance of the control mechanisms. Thus, the present study seeks to advance the literature by investigating how the elements of *accountability* control relate to municipal capacity, considering the different ways in which *accountability* works in order to promote performance in the allocation of municipal public resources.

2 Theoretical Reference

2.1 State capacity as an influencer of public actions

The actions to allocate public resources for the development of the State involve state capacity and the quality of expenditures, considering the government's performance and control to meet the minimum application limits.

The idea of state capacity arises from two approaches. The first emerges in the 1960s, concerned with state autonomy and recognizing the State as an actor in the stabilization of the relationship between capital and labor, based on a more macro or exogenous model of the State's vision, concerned with conflict resolution between governmental and non-governmental groups and in the construction of governmental apparatus. The second emerges between the 1970s and 1980s and is based on approaches of bureaucratic models, which two characteristics become central: the importance of the coercive power of a central administration and the professional training of public servants. This second refers to a micro and endogenous approach, considering the presence of specialists, financial and organizational resources in the implementation of public policies; in other words, it focuses on the "State in action" (Pires & Gomide, 2016; Cingolani, 2013).

From these approaches to state capacity, several concepts were used (Asadullah & Savoia, 2018; Guillén & Caprón, 2016; Pires & Gomide, 2016; Silva, 2015; Gibler & Miller, 2014; Roger & Weller, 2014; Huerta, 2008; Fukuyama, 2004). For the present study, state capacity will be treated as the set of bureaucratic elements, which involve political and administrative skills and competencies in the formulation of goals, in the allocation of resources, in efforts and in the implementation of policies to achieve the planned results.

The importance of addressing state capacity is to consider that the wishes of public agents are not sufficient to achieve the objectives, requiring complementation by mechanisms capable of making the State's actions viable (Souza, 2017). In Brazil, with the promulgation of the 1988 Federal Constitution and administrative reforms for economic and fiscal control, the public administration environment has become complex due to the increase in the bureaucratic and political apparatus.

During this period, legislation and control institutions were expanded, highlighting the importance of *accountability* as an instrument that influences state capacity. This expansion can be seen within the discourse of Grindle (1996), by portraying, in the institutional dimension of state capacity, the concept of *accountability*.

Thus, *accountability* corresponds both to the aspect of internal actions of public management (related to accountability, transparency and responsiveness) and to the aspect of external actions (such as the control and accountability of the public actor). Therefore, the *accountability* discourse as an element of institutional capacity, described by Grindle (1996), part of the internal actions of public management, with external bodies having horizontal, vertical and social control.

In Brazil, aspects of external actions of *accountability* have gained strength since the 1990s, with the remodeling of the institutional architecture, considering the disputes of interest within the social, political, bureaucratic and economic fields. This fact, and in particular the requirement for fiscal solvency guarantees imposed by international funds, culminated, in 2000, in the creation of the Fiscal Responsibility Law (LRF), which focused on elements of control and accountability of the public actor that uses financial resources to their activities.

With the public budget delimited by legal instruments, the political coalition model becomes an important instrument to obtain support for political decision-making, considering that the public budget is evaluated and voted by politicians present in the legislative chambers.

In this way, the decisions made by managers do not always correspond to the initial ideas, but are the result of a political relationship, demanding from leaders the ability to deal with these interest groups, a central issue of political capacity being the ability to form fronts to situations friction (Gaitán & Boschi, 2016). These discussions between different parliamentarians from different parties, bureaucrats from different powers, civil society groups, among others, demand specific institutional arrangements (Pires & Gomide, 2016).

In this sense, considering the different actors involved in state capacity, the instruments of *accountability* and control cannot be limited to technical and regulatory elements, but must involve political and social elements. Thus, the role of each form of control is emphasized, seeking to direct the capacity of the State and its competences in order to expand the provision of public services.

This political-administrative relationship as an influence on state capacity was not observed only in the Brazilian context, but in other environments that aimed at democratic mechanisms for management, since autocratic environments weakened the state's capacity to formulate public policies and would slow the development process of the countries (Knutsen, 2013; Ward, Cao, & Mukherjee, 2014).

In this sense, in order to understand state capacity, it is important to consider the set of bureaucratic and political relations that surround the management process, as well as the control of bureaucracy as a way to meet the needs of society.

2.2 The system for allocating public resources

This research was structured considering a system of influence on the allocation of public resources.

This system is based on the premise that, for the maintenance of the State, it is necessary to have the availability of resources, whether human or financial. To this end, Alesina and Perotti (1999) warn that the public budget is not restrictive, since public services need resources for its implementation.

Although it is necessary for the application to be carried out efficiently, the restriction of resources can compromise the provision of public services and the advancement of human development (Mendes et al., 2018). According to Oliveira and Araújo (2019), public resources cannot be used in any way, without planning, since it can compromise in maintaining the fulfillment of social demands, such as health, education and income.

This fact attributes to the State the need to pay attention to the distributive function as a role to be served. It is understood that, from the financial contribution of all individuals, made from the collection of taxes, the State is able to apply these resources to generate public policies that have general benefits, either directly or indirectly (Musgrave, 1959).

Thus, it recognizes the existence of inequality between the municipalities, as well as considers that the public budget must form a planning instrument, distributing the collected resources in order to prioritize the fiscal need, in order to minimize these differences (Baião et al., 2017). In other words, due to the distributive function, elements of socioeconomic characteristics are considered, in order to promote local development, in its multiple dimensions, as described by Sen (2010), with emphasis on health, education and employment and income.

In this sense, both the Federal Constitution of 1988 and the tax legislation established minimum limits of resources to be spent on health and education, with the aim of, when seeking fiscal balance, areas of social development not being harmed by cuts in resources and, consequently, reduce its quality over the years.

This relationship between public resources and the economy influencing human development was discussed by Mendes et al. (2018) who identified that the resources collected by the municipality and those from transfers, in addition to the fractioned GDP by Industry, Agriculture and Services, have positive influences on human development, highlighting the role of the availability of revenues in the promotion of socioeconomic conditions, in special Health, Education and Employment and income, measured by the IFDM.

These transfers of resources are sources of non-own revenue that the federated system has, and may be already established by law or by the interest of the political agent in distributing this resource.

Thus, for the public administrator and the government to be able to create political force in the application of the government plan and compliance with the norms established by the legislation, it is necessary to create partnerships between political agents, in order to maintain governance and the attraction of resources (Pires & Gomide, 2016).

In this sense, the State must carry out administrative (managing problems and resources) and political (identifying the role of each elective actor in the construction, maintenance and improvement of society's well-being) efforts. For these actions, Grindle (1996) categorized them as administrative and political dimensions of state capacity. However, it is important to note that they do not occur in isolation, on the contrary, they are always linked to each other.

The relationship between the administrative and political dimensions can be intensified, considering that the municipalities, because they are the federated entity with the lowest collection volume and, consequently, the least attraction force for civil servants with higher levels of technical training, need support from the State and the Federal Government to complement their resources and maintain the public machinery. Thus, in order to expand these resources, political actors create alliances in the different spheres and powers of the State.

These alliances occur in a system of coalition, interaction of interests of different actors, which aims to achieve a certain objective, being in the public field, the development of public interest (Gaitán & Boschi, 2016). If, on the one hand, this interaction raises the strength of the governor, on the other, it requires *accountability* and its control elements to minimize the risks of mismanagement, from social means (from social, economic and non-profit organizations controls), or from state control mechanisms (considering the legislative power, the public prosecutor and the court of auditors).

For Arantes et al. (2010), control is an element of *accountability* with the aim of trying to ensure that public and political agents act as representatives of the people. *Accountability* aims to understand the purposes and stakeholders of public actions that are carried out (Holzer & Schweser, 2011), as well as to recognize the responsibilities of public agents for these actions.

To understand *accountability*, two approaches are predominant: the Horizontal and the Vertical (O'Donnell, 1994). While Horizontal *accountability* consists of evaluation and control mechanisms performed by entities of the same level, related to networks formed by autonomous institutions, capable of indicating paths or even punishing their peers, based on formal rules and norms, the Vertical model is based on electoral process as a form of control and approval of public actions carried out.

Horizontal control in Brazil gained strength after the promulgation of the LRF in 2000, which established the role of each federated entity in executing the resources, as well as the Courts of Accounts and the legislative power to inspect this execution. Rocha (2013) indicates that, due to the autonomous nature of the Courts of Accounts, they have become what should be an example of an *accountability* instrument.

Smulovitz and Peruzzotti (2000) presented a third approach to complete those described by O'Donnell

(1994), called social *accountability*. This third perspective considers that vertical *accountability* has a great focus on the electoral process, so social *accountability* has tried to focus on social control actions based on organizations, associations and other forms of society union aiming at improving public actions (Smulovitz & Peruzzotti, 2000). Ali and Pirog (2019) suggest that social *accountability* has more influence on public policies when the voice of the citizen and the state's capacity to listen to it reinforce each other.

In this sense, while the control by technical mechanisms, based on horizontal *accountability*, has physical and human capacity to identify flaws in the management process and in the non-compliance with the current legislation (Arantes et al., 2010), the social control, of the media and of other non-governmental bodies, based on Social *accountability*, use their ability to recognize demands and, being closer to the problem, can observe the execution of public actions (Smulovitz & Peruzzotti, 2000; Ali & Pirog, 2019).

Social *accountability* encompasses the monitoring and supervision of citizens in the public and private sectors, the system of access and dissemination of public information centered on the user, public mechanisms for repairing complaints, as well as citizen participation in decision-making about resource allocation (Fox, 2015). According to Chasukwa, Chiweza and Chikapa-Jamali (2014), social control can be understood as an advance in the electoral context, allowing citizens to assist in decision-making and charging for management improvements. On the other hand, these mechanisms may be flawed, highlighting the superficiality in which the topics are treated as well as the barriers encountered so that decision-making occurs in fact (Magalhães & Xavier, 2019; Chasukwa et al., 2014) with little useful discussions for management control, attempts at coercion, lack of time to deepen the debate and barriers in the deliberations.

These control mechanisms, both social and state, together with state capacity, direct efforts so that resources are allocated according to social need without, however, deviating from the prerogatives provided for by the current legislation.

As expressed by Brinkerhoff and Wetterberg (2015), *accountability*, especially social *accountability*, reflects the performance and the way in which public resources are allocated. State capacity is part of this model as a conciliator between the demand for resources and their availability. As Pires and Gomide (2016), Guillén and Caprón (2016) and Rogers and Weller (2014) demonstrate, state capacity corresponds to the state's ability to achieve goals, according to available resources. It is the "bridge" between what is available to public management and how it will be applied to achieve the results that aim at social benefit.

In addition to the allocation of resources, it is important to analyze their form of distribution, in order to promote the improvement of socioeconomic conditions. In this case, both the fiscal need influences how resources will be distributed by municipalities, and the allocation of these resources tends to promote improvements in socioeconomic conditions, which is its purpose when choosing to carry out divergent distributions, prioritizing municipalities with lower levels of socioeconomic development.

In view of the above, it is possible to consider the decisions to allocate resources as a complex system, with several interactions in which political and managerial actions are related in order to direct resources, while state capacity acts as an instrument at the center of the system that it regulates operations, expanding or limiting the actions to be taken and directly influencing the results to be found. In addition, the control mechanisms aim at the adequacy of the resources applied for the fulfillment of legal and political goals adopted in government agendas and programs.

3 Methodological Procedures

3.1 Data collection

To meet the proposed objective, the 853 municipalities of Minas Gerais were taken as individuals for statistical analysis, of which only 412 municipalities consisted for the sample due to the absence of data available for the other individuals.

All data were collected from secondary sources. For the TRE-MG data correspond to the electoral result data of 2012 (for municipal elections and identification of the party of elected councilors and mayors) and 2014 (for state and federal elections, for identification of the party of deputies, senators and heads of the executive elected).

Gross revenue and the allocation of public resources were collected from the FINBRA database, made available by the National Treasury website. For the analysis of the bureaucratic body of the municipalities, the data were consulted on the MUNIC base of IBGE, in the years 2014 and 2015, since some of these variables were only available for one of those years analyzed.

For the variables that made up the "horizontal control", individual analyses of the government accounts reports of the municipalities were performed, which had transcribed the opinions of the technicians, the Public Ministry of accounts and the TEC-MG plenary. The results of the trials of the plenaries of the municipal chambers were also made available by the TCE-MG website.

Social control data were collected in the IMRS base. The vertical control consisted of the confrontation between the 2008 and 2012 elections (both in municipal elections), with the possibility of verifying the re-election of mayor or party, both collected from the site of the Tribunal Regional Eleitoral – Minas Gerais.

All variables correspond to the year 2015, except the variables whose base consists of TRE data

(since they are data from the municipal election) and the variables Educated Server and Advisory, whose most recent data base corresponds to the year 2014. The period choice is due to the availability of the data set that contemplated, in greater quantity, the constructs of state capacity, *accountability*, resource allocation and development.

3.2 Creation of the State Capacity Index

At first, a Capacity Index was carried out for the Minas Gerais municipalities. For the creation of this index, the data collected were available by official government electronic tools, being investigated on a set of dimensions, described in Figure 1. Although lagged, compared with the other variables, we chose to use them considering that the variation of 1 year may be low, and the absence of these variables may not contemplate the maximum of the municipal reality.

For the construction of this index, an exploratory factor analysis was performed, whose objective of this analysis is to find a relationship between the variables capable of reducing them into a smaller set of statistical variables (factors), with the least loss of information (Marôco, 2006; Hair Jr. et al., 2009). Due to the different scales adopted, for the factor analysis procedure, the variables were standardized, in *score-z*, so that they were on the same scale with mean 0 and standard deviation equal to 1.

With factor analysis, the factor scores were extracted to be used in the construction of the capacity indicator and then the scores were transformed so that they are in the same quadrant (Sabioni et al, 2016), using the equation:

$$F_{IJ} = \frac{(F - F_{min})}{(F_{max} - F_{min})} \quad (2)$$

Where F_{min} and F_{max} are the minimum and maximum factor loads observed, respectively, for the Minas Gerais municipalities. The construction of the indicator used the equation in which the p factors obtained are aggregated:

$$Capacity_j = \frac{\sum_{i=1}^k p_i F_{ij}}{\sum p_i} \quad (1)$$

In which, each indicator is the index for the i -th municipality, p is the number of factors extracted in the analysis, ij is the index for the j -th municipality, p_i is the weight of the i -th variable, F_{ij} is the factor load of the i -th factor for the j -th municipality. K is the number of municipalities. All indicators were parameterized, so that the highest value received a grade 1 and the others were proportional to the highest grade as suggested by Sabioni et al. (2016).

Variable	Description	Year	Base	Source
State Chamber Party Ratio	Ratio of the number of state deputies from the same party as the mayor, by the total number of state deputies (77 elected)	2012/ 2014	Gaitán and Boschi (2016)	TRE - MG
State Chamber Coalition Ratio	Ratio of the number of state deputies belonging to the same coalition of which the mayor's party is part, to the total number of state deputies (77 elected)	2012/ 2014		TRE - MG
Federal Chamber Party Ratio	Ratio of the number of federal deputies elected in Minas Gerais affiliated to the same party of the mayor, to the total number of federal deputies of Minas Gerais (53 elected)	2012/ 2014		TRE - MG
Federal Chamber Coalition Ratio	Ratio of the number of federal deputies elected in Minas Gerais affiliated to the same party of the mayor, to the total number of federal deputies of Minas Gerais (53 elected)	2012/ 2014		TRE - MG
Gross Revenue Per Capita	Proportion of own revenue divided by the population volume recorded by IBGE in natural logarithm.	2015		Tes. Nac.
Employees per capita	Proportion of civil servants in municipal public administration by population volume registered by IBGE	2015	Grin et al. (2018)	MUNIC IBGE
Outsourced activities	Scale added by the binary variables on the contracting of outsourced activities, even if partially, of household solid waste collection services, hospital solid waste collection, industrial solid waste collection, cleaning in municipal administration building units, urban cleaning, security of the building units of the municipal administration and public lighting, being, for each of these variables 1 for contractor and 0 for the opposite, the scale can take from 0 to 7 points	2015		MUNIC IBGE
Taxes	Scale added by the binary variables on the collection of fees, these fees being for public lighting, garbage collection, fire or disaster control, urban cleaning, police power and other types of fees, being, for each of these variables 1 for charging and 0 for the opposite, the scale can take from 0 to 6 points	2015		MUNIC IBGE

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Variable	Description	Year	Base	Source
Consortia	Scale summed by the binary variables on the interinstitutional articulation, considering the participation in consortium in the areas of education, health, assistance and social development, Tourism, culture, housing, transport, environment, urban development, basic sanitation, water management and solid waste management, being, for each of these variables, 1 to participate and 0 to the contrary, the scale can assume from 0 to 12 points	2015	Grin et al. (2018)	MUNIC IBGE
Educated Server	Number of civil servants with at least complete elementary school divided by the total number of civil servants	2014		MUNIC IBGE
Advisory	Scale added by the binary variables on hiring advisory, considering to carry out activities for hiring employees, to carry out activities for the payment of employees, legal, accounting/financial, cartographic and to prepare projects for fundraising, being, for each of these variables, 1 for own and 0 for the opposite, and the scale can take from 0 to 6 points	2014	Grin et al. (2018)	MUNIC IBGE
Computerized activities	Scale added by the binary variables on computerized activities, considering registration and/or database of health, education, wealth, employees, budget execution and payroll, being, for each of these variables, 1 for own and 0 for the contrary, the scale can take from 0 to 6 points - MUNIC	2015		MUNIC IBGE
Average annual salary	Annual expenditure on personnel expenses, made available by the TCE, divided by the total number of employees, made available by IBGE in the MUNIC survey. In natural logarithm.	2015		MUNIC IBGE/ TCE
Municipal planning legislation	Scale added by the binary variables on the existence of legal instruments of urban planning, considering legislation on special area and/or zone of social interest, zone and/or area of special interest, urban perimeter, land parceling, zoning or use and occupation of the land, soil created or onerous grant of the right to build, improvement contribution, urban consortium operation, neighborhood impact study, construction code, legislation on environmental zoning or ecological zoning, administrative easement, tipping, conservation unit, special use for housing purposes, special adverse possession of urban property, surface law, land regulation, legitimation of ownership and prior environmental impact study, with each of these variables 1 for owning and 0 for the opposite, with the scale ranging from 0 to 20 points	2015		MUNIC IBGE

Figure 1: Variables applied for capacity index construction

Source: Elaborated by the author.

The variables referring to politicians considered the electoral result, even if it was not from 2015, since the legislature would be in force in 2015. Data related to civil servants' instruction and advisory were only disclosed by IBGE for the year 2014. As it considers that the actions of the previous year still reflect the actions of the current year, as well as the difference of 1 year may be minimal.

3.3 Analysis of the system of relations by Modeling Structural Equations

After creating the capacity Index, a model of structural equations (SEM) was estimated in *Path Analysis*, whose set of variables can be observed in Figure 2. This technique is used to test the validity of theoretical models that define causal relationships between variables (Marôco, 2010). It is a technique that is based on multiple linear regression and factor analysis models, but differs from them by verifying relationships of mutual dependence and interrelationships between variables (HAIR JR. et al., 2009). For the implementation of SEM, all variables and coefficients were standardized in order to equalize measures.

Considering that development is observed in dimensions (such as health, education, employment, income, sanitation, among others), whose results are sensitive to indicators after a certain period after public policy actions, as exposes Sen (2010), the indicators of Health, Education and Employment and income used in the studies were those collected for the year 2016.

The use of lagged variables to justify socioeconomic conditions can be observed in Bernardo, Almeida and Nascimento (2020) and Oliveira and Araújo (2019), who used variables from previous periods to explain the socioeconomic condition and the development of municipalities.

Variable	Description	Year	Source
Capacity	Indicator of state capacity of the municipalities of Minas Gerais, ranging from 0 to 1 in which the closer to 1 the greater the capacity.	2015	Research results
Horizontal Control	Scale summed up by binary variables on the approval and disapproval of municipal accounts by the Technical Body of the TCE, Plenary of the TCE, Public Prosecutor's Office of Accounts and municipal legislative power. Code: 1 for approved and 0 for the other way around, and the scale can take from 0 to 4 points	2015	MPC e TCE MG
Social Control	Scale formed by binary variables on the existence of municipal public policy councils in sports activity, health, education, culture, food security, defense of the rights of children and adolescents, the elderly, people with disabilities and sanitation or correlated. Code: 1 for observed and 0 for the other way around, and the scale can take from 0 to 9 points	2015*	IMRS
Vertical Control	Scale summed up by binary variables on the re-election of the executive branch, considering the re-election of the mayor and the re-election of the party. Code: 1 for re-elected and 0 for the other way around, and the scale can take from 0 to 2 points	2012/2008	TRE
Allocation of public resources	Sum of per capita expenditures on health and spending on education, natural logarithm.	2015	Tesouro Nacional
Municipal GDP	Valor per capita of GDP produced by the municipality, in R\$1.00, in natural logarithm.	2015	IBGE
Health	FIRJAN Municipal Development Index in the Health context	2016	FIRJAN
Education	FIRJAN Municipal Development Index in the Education context	2016	FIRJAN
Employment	FIRJAN Municipal Development Index in the Employment and Income context	2016	FIRJAN

Figure 2: Variables applied in the model

Note: * dummy variable for people with disabilities and sanitation was registered for 2014.

Source: Elaborated by the author.

Figure 3 consists of the path diagram of the proposed structural equation model, whose paths and signs correspond to the hypotheses to be tested. The ϵ correspond to the estimation errors. The validation of the model will occur by several indicators, being considered the set proposed by Acock (2013).

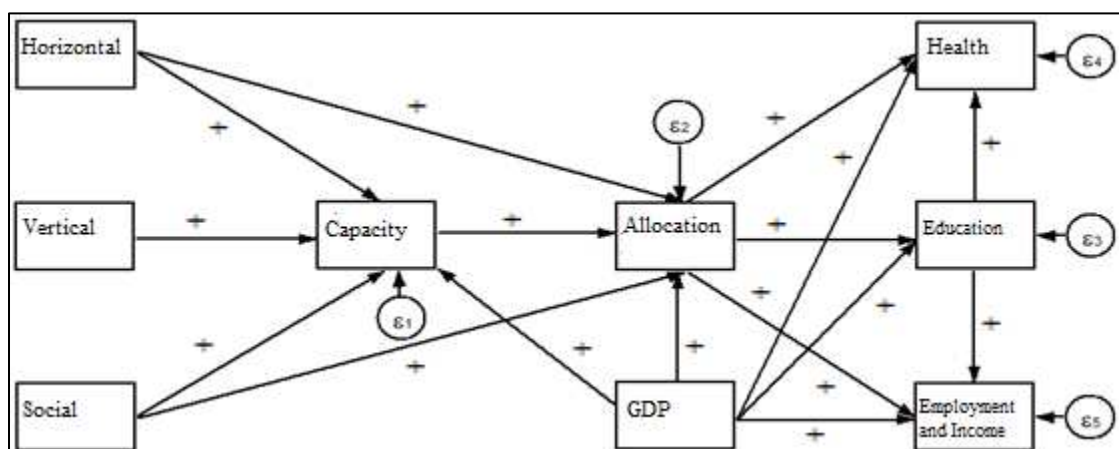


Figure 3: Path diagram

Source: Elaborated by the author.

For absolute adjustment measures, Chi-square tests on degrees of freedom (χ^2 / GL) and *Root Mean Square Error of Approximation* (RMSEA) were used. For the comparative adjustment measures, the *Tucker-Lewis Index* (TLI) and the *Comparative Fit Index* (CFI) tests were applied. Finally, the square root test of the mean squares of approximation errors (SRMR) for the parsimony measures was performed.

4 Results and Discussions

Of the 853 municipalities of Minas Gerais, 588 were the subject of this study, because they had data available for the year under study, and for them the Municipal Capacity Index was calculated. However, of the municipalities analyzed, only 412 legislative chambers carried out, until April 2019, the judgment of the accounts. Due to the absence of judgment of the account in the plenary of the city council, the Horizontal Control variable, calculated as a summed scale of the decisions of the TCE, City Council, Public prosecutor's office and the court of auditors' technicians, obtained 412 observations. Descriptive statistics can be observed in Table 1.

From these variables, in order to obtain a *proxy* of state capacity, a factor analysis was performed, whose KMO sampling adequacy measure was 0.602, confirming its adequacy. 6 factors related to state capacity were extracted, including Political Capacity, Administrative Capacity, Planning, Cooperation, Instruction and Bureaucratic Support.

After the Factors were extracted, the Capacity index was established. Thus, the factors Political capacity, administrative capacity, planning, institutional relations, education and bureaucratic support were considered together in an index and the municipalities of Minas Gerais were classified according to their capacity. In order to understand the distribution of the Capacity Index, the values were reparametrized, considering the highest value as 1. The minimum value of the index found corresponds to the municipality of Chalé, a municipality with a development index (IFDM) of 0.697 and GDP per capita of R\$10184.73, while the municipality with the highest value corresponds to the municipality of Araporã, with GDP per capita of R\$206730.62 and Development Index (IFDM) of 0.813, which is considered a high development value.

After calculating the Capacity Index, the technique of Modeling Structural Equations in *path analysis* was performed. The model adequacy tests validated its quality, as can be seen in Table 2, and presented coefficient of determination (R^2) of 0.510. This coefficient indicates that the adopted variables have explanatory power of 51%, which demonstrates their importance to guide policies and actions in the public sector with potential effects on the response variables.

Table 1:
Descriptive statistics of the variables applied in the factorial and SEM models

	Min.	Max.	Mean	Stand. Dev.	
Creation of the Capacity Index	State Chamber Party Ratio	0,000	0,130	0,074	0,045
	State Chamber Coalition Ratio	0,013	0,299	0,210	0,109
	Federal Chamber Party Ration	0,000	0,189	0,085	0,058
	Federal Chamber Coalition Ration	0,000	0,396	0,287	0,146
	Gross Revenue Per capita 2015	1482,518	12195,169	2851,084	1235,324
	Employees per capita	0,000	0,157	0,032	0,018
	Outsourced activities	0,000	7,000	1,998	1,181
	Taxes	0,000	6,000	2,743	1,317
	Consortia	0,000	12,000	1,974	1,787
	Educated Server Advisory	0,000	1,000	0,979	0,065
	Computerized activities	0,000	5,000	2,221	0,909
	Average annual salary	0,000	1,000	0,993	0,082
	Municipal planning legislation	2966,849	34123,406	14715,534	4353,826
	Social Control	0,000	20,000	5,828	4,458
	SEM	Horizontal Control	0,000	9,000	4,257
Vertical Control		1,000	4,000	3,524	0,900
GDP 2015		0,000	2,000	0,461	0,727
Allocation of public resources		5083,579	206730,600	14942,510	12844,830
Education 2016		610,265	4468,468	1263,972	442,194
Health 2016		0,603	0,947	0,810	0,053
Employment and income 2016		0,357	0,972	0,767	0,109
	0,208	0,747	0,436	0,100	

Fonte: research data

The estimated coefficients of the model were described in Figure 4. Due to the non-normality of the variables, Acock (2013) recommends the estimation by robust standard errors, which was performed. Given the results, it is possible to realize that the state capacity of the municipality is influenced by Social and Vertical control mechanisms.

Table 2:
Model adjustment indexes

Criteria	Desirable Parameters	Suggested Model
χ^2	-	17,572
g.l.	-	14,000
$\chi^2 / g.l.$	$\leq 5,000$	1,255
CFI	$\geq 0,800$	0,991
TLI	$\geq 0,900$	0,981
SRMR	$\leq 0,080$	0,022
RMSEA	$\leq 0,080$	0,025

Note: Parameters based on Hair Jr. et al. (2009), Marôco (2010), and Acock (2013).

The fact that municipal capacity is influenced by the strength of society, both by voting power and by the evaluation of the governmental process, can be explained by Gaitán and Boschi (2016), according to which state capacity needs coalitions, whether between social or political and economic groups to seek development.

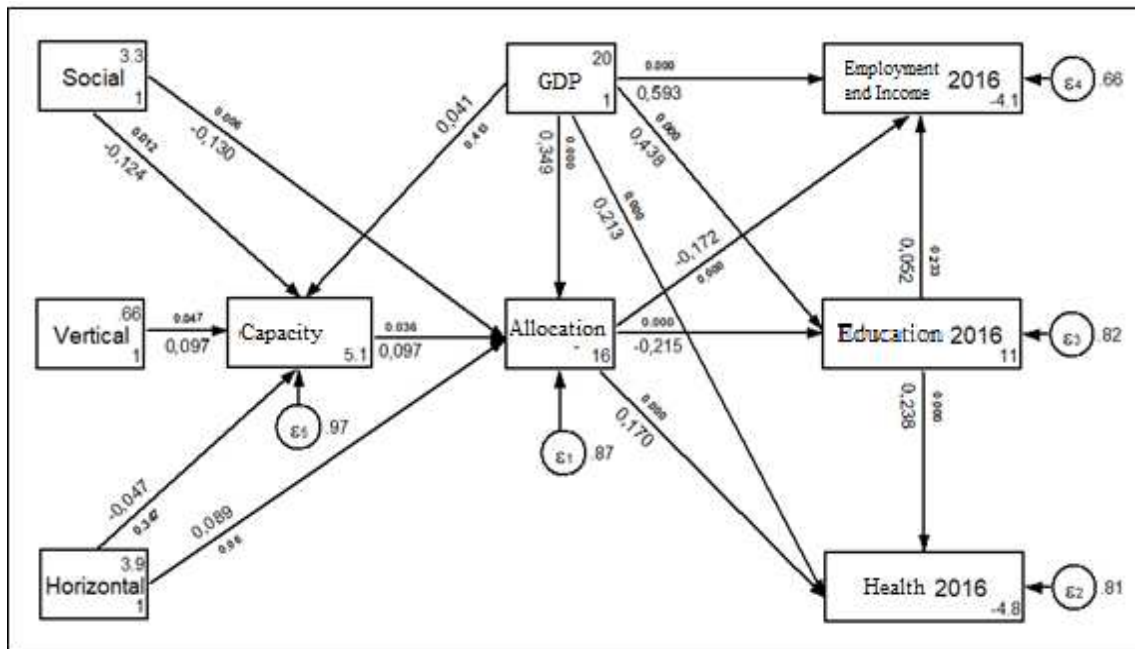


Figure 4: path diagram with estimated model

Note: The estimated coefficient (in larger font) and p-value (in smaller font) are present in the lines. The ϵ corresponds to the random error. In the variables are the estimated mean (in the upper right corner) and the estimated variance (in the lower right corner)

Also, considering that both models of Social and Vertical Control correspond to social actions in front of the government, it is noted that democracy is an important instrument to influence the Capacity of public management. According to Ali and Pirog (2019), the performance of the population tends to promote the improvement of public services, since they act on the problems that directly affect them.

However, the Control models showed divergent influences. While Vertical is positive, and can be interpreted both by the maintenance of the political structure that previously ruled, and by the influence on relations in political capacity, one of the dimensions of state capacity, the social one is shown in an inverse way.

This inverse relationship with capacity can be understood by the inability of municipal public management to respond to the population. Fox (2015) associates social *accountability* as a relationship of “voice” and “tooth”, the voice being the situation of society transmitting its interests to public bodies, and the tooth the state’s responsiveness to voices. Because they do not fully meet the public interests, the teeth can correspond to the fact of the “cut”, the “bite”, which can be painful for the population. In addition, as Chasukwa et al. (2014) and Magalhães and Xavier (2019) highlight, control systems may present a lack of articulation of members, attempts at coercion and barriers in deliberations, weakening decision-making guidelines and the role of these mechanisms.

Thus, it can be understood that, in the Brazilian scenario, specifically in the municipalities of Minas Gerais, the state cannot meet the “voices” presented by the population, presenting difficulties in meeting the demands presented. The fact that the relationship of Horizontal Control and capacity has not presented statistical significance can be explained due to the nature of horizontal control, which occurs on compliance with legislation in relation to public spending. Arantes et al. (2010) also report the difficulty of control mechanisms acting on bureaucracy and state policy, elements that make up the measurement of state capacity.

Thus, understanding that *accountability* acts with internal actions of accountability, and external actions of control, it is noted that the actions of society are more incisive on the public agent. Such a fact occurs due to the power of society in choosing the political agent to exercise an elective mandate and, consequently, its government plan. In addition, because it is primarily interested in the good application of resources, its implications may go beyond compliance with tax legislation (measure adopted by horizontal mechanisms), but for the good application and/or meeting the needs of the population.

It is noted that the variable capacity of the municipality exerts a positive and significant influence at the level of 5% in the allocation of resources with social expenses. This situation confirms the relationship

proposed in the path diagram and indicates that, the greater the capacity of the municipality, the greater the investment made for social purposes, especially with health and education. In addition, the greater performance of Horizontal Control has a positive effect on social spending. Considering that horizontal control mechanisms have influence on public accountability, as well as the Federal Constitution of 1988 established minimum limits on spending on health and education, it is noted that the actions of horizontal control mechanisms consist in verifying the application of the law, in which case greater spending on health and education increases the chance of the municipality complying with the legislation.

In other words, horizontal control is aligned with fiscal balance, while establishing parameters to ensure minimum investments in social areas of health and education. In this sense, the horizontal control has as its focus the expansion of spending on health and education and reduction of spending on payroll, transfer to the legislative power and opening of credits.

In addition, the technical, legal knowledge, the possibility of creating punishments on public management and the autonomy given to horizontal control elements raised their capacity to act, becoming the main means of supervision of public actions (Arantes et al., 2010). Another fact corresponds to the strengthening of tax legislation, especially the tax liability law, which increased the obligation of municipalities to comply with the limits established by the legislation, considering the possibility of punishment (Araújo, Santos Filho, Gomes, 2015; Cruz & Afonso, 2018).

However, it is important to emphasize that the legislation does not establish qualitative and performance criteria and, therefore, the evaluation of horizontal mechanisms is limited to understanding whether the application of resources met the constitutional minimum. Although some performance analyses are present in the TCE-MG reports, such as compliance with the goals of the National Basic Education Plan, these comments correspond only to alerts to public managers, and cannot be applied as punishment factors. This fact becomes a criticism also carried out by Rocha (2013) in the reports of the TEC of Santa Catarina, however they warn that the benefit-cost analysis of the applied resources is up to society to evaluate and consider, with greater ownership, the results found.

Thus, in order to make public spending well managed, Social Control is present, although in this study this aspect has presented a negative relationship. This relationship reinforces what Smulovitz and Peruzzotti (2000) stated, regarding that the institutions of Social Control have modified the relations between society and public management, achieving greater control and supervision of corruption, as well as being able to depose politicians, all in the search for improvements in public spending, exerting more and more influence on the actions of the state. On the other hand, there is still a lack of engagement from society to make the deliberations become practical, as Magalhães and Xavier (2019) highlight. Despite the failures of the councils, the importance of this environment of democratic discussion, as a field of occupation of legitimized social space, is still reinforced (Chasukwa et al., 2014).

The influence of social spending was significant for the three dimensions of development (Health, Education and Employment and Income), however positive only for Health and negative for the others. Such a situation, for health, can be explained by the fact that the results of investment in health are more immediate. Considering that the focus of municipalities is on primary care, with health prevention, the investment in this area reduces the number of individuals who will need more complex care such as hospitalizations and surgeries (which are more costly to public coffers), expands health monitoring, controls the flow of health care, all resulting in more immediate increases for municipal public health.

On the other hand, due to the fact that education results are seen through a generation, the improvement of their quality, to be sensitive to indicators, occurs in the long term. Thus, in the short term, the applied expenses are treated as lack of efficiency in the application, generating negative results for the performance of education.

Another fact can be interpreted as scale gain, since education activities are carried out in a collective, so that teacher training, expansion of classrooms and schools, for example, affect the same group of individuals who are attended by the same teacher and the same classroom. In addition, the result of education, which is knowledge, in addition to available resources, depends on the interaction between the teacher and the student. Although this negative relationship of spending on education was not expected, it was observed by other authors, such as Neduziak and Correia (2017). These authors also indicated the possible capture of inefficiency with spending in a short period.

However, when checking the temporal aspect, Blankenau, Simpson and Tonljanovich (2007) and Mattei, Bezerra and Mello (2018) found that spending on education generates improvements in their assessment. These studies reinforce that spending on education has a long-term effect, indicating that the application of resources in the current year will only have effects on education in future periods.

For employment and income, in turn, the growth of spending can result in imbalance of public accounts and result in the fall of investment within the municipality and, consequently, in the fall of employment opportunity. Finally, it is noted that GDP, except for the Capacity Index, was significant and positive for all relations, indicating that the greater the economic activity in the municipality, the greater the development in its various dimensions (health, education and employment and income), as in the expansion of per capita spending, since it tends to increase public revenue and enable investments to be made with greater intensity.

As for indirect (mediation and moderation) and direct effects (see Table 3), it should be noted that

capacity, moderated by Allocation, has a positive effect on Health, but negative for Education and Employment and income, as was observed in the general relationship of Allocation with socioeconomic indicators.

The negative relationship between ability and education can be caused due to one-year education being an indicative of capabilities and efforts made in the past. Therefore, higher investment compared to short-term results, as in the study, may indicate negative relationships. For such proof, however, it is recommended that analyses be made with longer time periods.

Table 3:
Coefficients of indirect (mediation and moderation) and direct effects

	Direct	Robust Stand Dev.	Indirect	Robust Stand Dev.
Allocation				
Capacity	0,097**	0,114	(Direct Only)	
Vertical	(Indirect Only)		0,009	0,003
Horizontal	0,089*	0,016	-0,005	0,002
GDP	0,349***	0,030	0,004	0,003
Social	-0,130***	0,011	-0,012	0,002
Health 2016				
Allocation	0,170***	0,017	-0,051***	0,004
Education 2016	0,238***	0,103	(Direct Only)	
Capacity	(Indirect Only)		0,012**	0,005
Vertical	(Indirect Only)		0,001	0,000
Horizontal	(Indirect Only)		0,010	0,001
GDP	0,213***	0,012	0,146***	0,007
Social	(Indirect Only)		-0,017*	0,001
Education 2016				
Capacity	-0,215***	0,008	(Direct Only)	
Vertical	(Indirect Only)		-0,021*	0,004
Horizontal	(Indirect Only)		-0,002	0,000
Horizontal	(Indirect Only)		-0,018*	0,001
GDP	0,438***	0,005	-0,076***	0,002
Social	(Indirect Only)		0,030**	0,000
Employment and Income 2016				
Allocation	-0,172***	0,014	-0,011***	0,001
Education 2016	0,052	0,081	(Direct Only)	
Capacity	(Indirect Only)		-0,018**	0,007
Vertical	(Indirect Only)		-0,002	0,000
Horizontal	(Indirect Only)		-0,016*	0,001
GDP	0,593***	0,010	-0,042	0,005
Social	(Indirect Only)		0,026**	0,001
Capacity				
Vertical	0,097		(Direct Only)	
Horizontal	-0,047		(Direct Only)	
GDP	0,041		(Direct Only)	
Social	-0,124**		(Direct Only)	

Fonte: research data

Bernardo et al. (2020) also verified that fixed salaries and advantages (elements related to the bureaucratic body and state capacity) have a negative influence on education, besides not having found significance for skilled labor. On the other hand, the authors identified that the quality of education is affected by infrastructure in education and investments applied to health, elements related to an external body not measured in the present study.

For employment and income, municipal capacity may be indicative of the effort of public officials, who had greater investment in their career, but have different remuneration and stability from that coming from private initiative. On the other hand, employment and income are related to the economy, as indicated by the results with a direct and positive relationship.

The relationship of the economy with socioeconomic conditions proved to be strong. For Health, it was identified that GDP had an indirect effect, moderated by Allocation, positive. In addition to the indirect effect on Health, there was also a direct effect for this variable, as well as for Education and Employment and Income. The positive and strong coefficients of GDP corroborate the study by Mendes et al. (2018), which indicated that the economy, measured by GDP, corresponds to a strong element of influence on the improvement of human development.

5 Findings

This study aimed to verify the influence of *accountability* and state capacity on the allocation of public

resources and socioeconomic development in Brazilian municipalities, considering horizontal, vertical and social control as elements of *accountability*. Given the results presented, it is noted that the state capacity of the municipality is an important instrument for the allocation of public resources. Its influence is given by the set of elements that make up the ability, to consider the political, administrative and bureaucratic elements. It is also noted that the capacity of the municipality is directly influenced by democratic instruments of control, either by electoral instruments captured by Vertical Control, or by instruments of Social *accountability*, captured by Social Control.

However, although vertical instruments exert positive influence, possibly by maintaining the political structure of state capacity, social control instruments provide negative influence, and may be the result of the various demands presented by society, which are increasing, and can increasingly hinder the performance of public management. In addition, other factors can generate this effect, such as the characteristic of social control, which exercises embargoes and impediments in the implementation and investment of public policies, mainly aimed at quality in the provision of services and compliance with legislation.

These results reinforce the need to strengthen the democratic apparatus within Brazilian municipalities, in order to promote the state capacity of the municipalities, direct resources and point out demands. Horizontal Control proved significant only to positively influence social spending. Considering that horizontal control instruments are interested in compliance with the legislation, the increase in health and education spending increases the municipality's chance to comply with the Federal Constitution in relation to social spending.

On the other hand, Horizontal Control was shown to have an indirect and negative influence on socioeconomic conditions, reinforcing the discussion that, although it presents the technical apparatus, in addition to the ability to carry out surveys and audits, horizontal control is limited to fulfilling only what is provided for by legal norms, reducing its formal action with the real transformation of the public resource into some good for society.

These results broaden the literature by highlighting that *accountability* in its three modes of action (horizontal, vertical and social) has an influence on state capacity, both in terms of control and accountability. Also, the relationships found allow to infer about the importance of each *accountability* model on both management and its actions. The multifaceted view of *accountability* allows us to observe that its operations diverge in areas, with the horizontal one focused on the technical apparatus, the vertical one in the field of election and the social one within the interests of society. These operations, on the other hand, are completed by seeking to improve social results through state capacity and allocation of resources.

Highlights, in this scenario, the role of municipal capacity on the allocation of public resources. This fact shows that all the effort of Public Management is valid to extend the improvement of social conditions. Moreover, given the systemic model, it is possible to infer that, more than valid, the role of the State as a promoter of socioeconomic development is fundamental, being central within the scenario of allocation of public resources. It also highlights the influence of education on health, indicating that development occurs in a systemic way, whose investment employed in one area will influence another.

This evidence increases the responsibility of the public manager to expand the capacity of his bureaucratic body in order to respond to society about what is in the public interest. Furthermore, any deviation of conduct will be evaluated both by horizontal and social control (influencing the allocation of resources), as well as by the judgment of accountability by horizontal control that affects capacity.

Healthy economy represents an important element within the construction of development, considering that it affects both the resources to be applied and the conditions of health, education and employment and income. This reinforces the care that the public administration must take in creating policies to encourage the local economy, which must be sustainable in the creation and distribution of wealth.

Per capita social spending, as predicted, positively affects the performance of public health, but negatively influences the performance of education. For health, the influence may be due to the results of public health policies that have an effect in a shorter period of time, with a reduction in deaths, hospitalizations and expansion of access to primary health care services, which are preventive and cost less than those carried out curatively.

On the other hand, education is seen as a generating element whose results of improving access will have a long-term effect. In this sense, even taking a period of 1 year to capture the effect on education, the results were negative, indicating that a longer period is needed to verify if there are benefits caused by investment in this area. However, what is expected is that the result of investments in the current year is sensitive in the long term, considering that it is capable of interfering with the knowledge structure of the student. However, for such a finding it is necessary to carry out a long-term verification.

As for employment and income, the increase in social spending also had a negative effect, which may be due to the growth of expenses without considering revenues, which may cause imbalance in municipal accounts and disinterest private capital investment within the municipality, reducing employment and income of the population.

Given these limitations of the study, for future research, it is recommended to verify the long-term effects of social investment on the quality of education and improvement of employment and income. It is also important to investigate the relationship of the proportion of spending on social programs by the volume of

revenues, considering the maintenance of the fiscal health of the municipality.

Finally, the present study shows the complexity of municipal public management, highlighting the importance of the state capacity of the municipality as an actor in the improvement of social conditions. In addition, it highlights the performance of control mechanisms as a way to seek compliance with legislation and the good application of public resources.

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The data set that supports the results of this study is not publicly available.

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