The literature on the Bolsa Família Program has focused on issues such as the impact on poverty and inequality, the effects related to the electoral process and the role of conditionalities. However, the Bolsa Família Program is also associated with a problem of principal-agent relationship, because it requires the effective control of a set of rules for its operation. In the national literature, little has been produced on the effect of formal rules as instruments for political actors' behavioral modeling. The proposal here is to explore the role of the federal and local bureaucracies in public policies management in a highly decentralized federation. In order to test how factors of policy, institutional and geographical nature influence the intersectoral management of the program, the study uses multiple linear regression models for a comparative analysis between about 5,500 cities. The results show that variables such as political competition and regional location positively impact the quality of management. The study concludes that the effective application of rules was crucial to generate institutional learning among actors involved in the policy. **Keywords:** principal-agent; rules; control; Bolsa Família Program.
1. INTRODUCTION

This article explores the effect of applying formal rules to decentralized public policies, and analyzes the importance of actors and institutions in the process of formulating and implementing policies related to bureaucracy control. Lupia and McCubbins (1994) point out that some researchers identify a number of obstacles preventing monitoring of the bureaucratic apparatus, whereas others see advances regarding this issue. It is also important to consider that, in general, the provision of public goods by the state to society results in some level of mutual dependency between subnational and national actors. Such dynamics require the establishment of a governance model with administrative capacity to reduce problems regarding cooperation and coordination. In this perspective, the decentralization, the design of the country as a federation of states, and the role of the government agency to be monitored play a crucial role in the definition of the tools used to supervise and monitor the bureaucracy. This decision-making process proves to be critical given that governance models in the public sector pose a challenge to the policy and to the bureaucratic apparatus of the state.

Therefore, the study described in this article analyzes how the federal administration controls the performance of municipal governments in Brazil. The Brazilian case is exceptional, since the units of the federation are clearly different in political, institutional, economic and geographical aspects. The Bolsa Família Program (BFP) was selected because of two attributes. The first is that the governance model of the BFP is hierarchical, i.e. it follows a vertical logic in which the central government establishes rules and regulations for contracting subnational governments. The second is that the program presents a complex federative arrangement due to its inter-sectorial management, which results in governance in multiple levels of interaction involving several government agencies requiring mutual control (Charbit, 2011). These attributes characterize the phenomenon as ‘agency costs’ problem. Based on this conception, the research problem seeks to understand why a policy with a legally binding contract shaped the behavior of bureaucracy and improved inter-federative coordination among subnational governments.

The general hypothesis of this article is that BFP was successful because the rules were applied through systematic operational supervision and incentives to the agents’ cooperation. In this sense, intergovernmental relations present a typical case of principal-agent problem with the federal government in the role of “principal” and the local governments in the role of “agents”. Since the 1988 Constitution, the country has adopted new models of administrative decentralization, which has resulted in different degrees of federal autonomy. However, as Bichir (2011) argues, coordination of the Union, local capacity of the state, and the characteristics of the political system, remain crucial factors in explaining the outcome of policy implementation. As a contribution to the field of public management, the study described here seeks to understand how institutional designs adopting formal rules of accountability (by means of contracts) between governments, impact on the implementation of governance as mandatory decision-making in the public sphere.

1 This article does not intend to discuss an ideal model of governance. The purpose is to show that one among several models of governance was adopted in the contract that rules the Bolsa Família Program. The article adopts the concept by Hooghe and Marks (2003) of governance as mandatory decision-making in the public sphere.

2 Cigno and partners (2000), Kaufmann and Ferrara (2013), and Stolk and Patil (2013) analyzed principal-agent relationship showing how rule enforcement is important for the quality of policy implementation.
of decentralized public policies. In order to conduct this research, an econometric model was developed to test the determinants of the BFP’s management among the more than 5,500 municipalities in Brazil.

The knowledge on factors that affect the behavior of public agents is a theme that has received important contributions from authors such as Cavalcante and Ribeiro (2013), Estrella and Ribeiro (2008), Bichir (2010), Hall (2012), Silva (2013), Silveira and partners (2014); Araújo and partners (2015). Araújo and partners (2015) have contributed to this theme with greater concern in understanding the performance of the BFP focusing on the actors’ behavior. Together, the work of these authors is fundamental in order to understand the performance of BFP from factors linked to bureaucratic actors.

Nevertheless, these important studies do not consider that the performance of public policies may be the result of a combination between the modeling of bureaucratic behavior and endogenous and exogenous factors in the political system, as argued by Rodden (2005) and Bardhan and Mookherjee (2005). This is precisely the purpose of this study: to observe how the rules of public policy and the characteristics of the political system affect the performance of a public policy such as the BFP. Thus, this study uses a mixed approach, focusing on the institutional design of the policy and on the elements of the local political system.

The hypothesis, therefore, is aligned with what is explored in international literature: the outcome of a public policy depends on the behavior of actors, which is directly affected by the rules of politics and by the characteristics of the political system (Rodden, 2005; Bardhan and Mookherjee, 2005).

The article is structured in five sections along with this introduction. Section 2 presents a theoretical review of the literature on control focusing on the principal-agent problem, aiming at demonstrating how the theory has been substantially adapted from the economy to the phenomena of public administration and public policies. Section 3 describes the design of the Bolsa Família Program and the role of institutions and actors in the control policy. Section 4 presents the methodology and the research explanatory model, and section 5 discusses the results of the analysis. Finally, the last section presents the conclusions.

2. PRINCIPAL-AGENT PROBLEM

The literature on bureaucracy offers a set of theoretical strands and analytical views regarding the motivations of individuals operating in the public area. A central question is to know to what extent bureaucrats are controlled by politicians. Several studies have already undone the false dichotomy between politics and bureaucracy (Campbell, 1988; Derlien, 2003; Loureiro and Abrucio, 1999; Olivieri, 2007; Page, 1992). When observed in a more realistic and empirical way, the interaction between the politics and bureaucracy reveals disputes on the control over public policies — especially in the implementation phase — which can be examined. According to Shepsle and Bonchek (1997), three lines of thought provide explanations about bureaucratic behavior. They were developed based on the rejection of the economist Niskanen (1971) to the general sense that bureaucracy is a department devoted to public interest. Niskanen’s proposition compares government agencies with private firms and bureaucrats with managers, both interested in maximizing the budgets of the departments in which they operate. From this classic foundation, Niskanen (1971) proposes modeling bureaucratic behavior and three different but complementary lines of thought arise.
The first assumes that the bureaucracy uses its informational advantages to demand an increase of the programs’ budget and the expansion of the personnel, as well as other compensations. The second also calls for an increase in the budget in an environment in which bureaucrats intend to gain prestige in their agencies, as they feel great appreciation for their positions. The third is relatively opposed to short-term individual gains and consists of fulfilling the institutional mission and providing services to the population as a means to achieve career progression. However, as in the previous examples, there is the aim of increasing the agency’s financial capacity in order to achieve goals. The similarity connecting these lines of thought is that bureaucracy pressures the political system to increase the budget of administrative agencies. This similarity is determinant in the behavior of the bureaucratic agencies towards politics. From the perspective of rational choice theory, politicians seek to maximize their gains with the least possible efforts. In other words, politicians interested in re-election wish to benefit their constituencies, but do not want to dispute and allocate large sums in the budgets. Therefore, there is a clear distinction of preferences. The issue would be to idealize how the two politics and bureaucracy would act uniformly. Weber (1958) identified that in the political world there is an asymmetrical relationship in which the power of authority is allocated on one side and the informational advantages on the other. Waterman and Meier (1998) emphasize that the combination of changes in coalitions and bureaucratic procedures creates potential conflicts between parties when goals and objectives are at odds. The authors point out that politicians’ strategies seek to change existing legislation, in order to serve interests of coalitions. As for bureaucracies, they try to maintain the monopoly on implementation and modify the original design of programs in order to reduce politicians’ expertise on how programs should be implemented.

In the same way as in economic science where original models were developed to explain the behavior of sellers and buyers based on contractual relations, the field of public policy began to observe, in a more critical way, the dynamic process of interaction between politicians and bureaucrats. To a certain extent this has occurred because relations between governments are contractually guided in the form of laws, procedures, resolutions, and norms that establish the responsibilities of the parties involved. The literature shows that the contract is a tool for analysis that makes it possible to verify the fulfillment of the policy objectives. The fundamental question is that compliance with the activities signed in the contract varies significantly and the performance is associated with the characteristics of the political system, the nature of the public policy and the profile of the actors. The mapping of these problems and the empirical observation of the bureaucracy under the control of the institutions allowed the field of public policy to analyze the parties’ contractual relationship as a principal-agent problem. In general, the researchers in this field are consensual in pointing out two essential elements for the application of the principal-agent problem: conflict of goals and information asymmetry (Eisenhardt, 1989; Kassim and Menon, 2003; Miller, 2005; Lupia and McCubbins, 1994; Charbit, 2011). The first occurs due to disagreements on established goals, or actions. The second is understood as a problem of privileged access to information in the hands of agents, a condition that allows the actor the possibility of strategic behavior. Shepsle and Bonchek (1997) point out that monitoring is the key to balance the relationship. In this scenario, the aim of the ‘principal’ is to ensure that the ‘agent’ will com-
ply with the agreements reached, confirming the principal’s preferences and not stray from their obligation to seek benefits.

Lupia and McCubbins (1994), in studying the American Congress, address the issue of the consequences of delegation to legislatures, when legislatures interact with the demands of the bureaucracy. The authors identify two enforcement mechanisms applied by the ‘principal’ (legislative) to ‘agents’ (bureaucracy): police patrols and fire alarms. In short, the first mechanism works as direct monitoring where legislators gain insider knowledge and information about the bureaucracy’s proposal to eventually make amendments according to the bureaucracy interests. The second is an indirect oversight mechanism in a situation where the ‘principal’ receives information from third parties as warning signs about bureaucracy’s proposals. In the view of Kassim and Menon (2003), the two mechanisms impose costs on the ‘principal’ for the time spent on the process and the amount paid to monitor the steps of the ‘agent’. These costs are proportionally larger, the more complex the policy institutional designs are, which denotes a trade-off between monitoring practice and future gains in limiting non-compliance. In this sense, the focus of literature on the principle-agent problem rests on the ideal contract that will “tie” the parties in order to minimize conflicts. Contracts can be based primarily on agents’ behavior or expected policy outcomes (Hooghe and Marks, 2003). When the principal satisfactorily monitors the actions of the agents, they assume a contract based on the agents’ foreseeable behavior. The opposite situation occurs in cases where it is not possible to know exactly the degree of dedication of the agents, which requires a contract based on results and sanctions. Since agents have conflicting goals and the principal cannot infer how much their contractors will work to fulfill their tasks, the rules to be written in the contract gain considerable relevance to the principal-agent problem. The so-called agency problems arising from these hazy scenarios are moral hazard and adverse selection. Thus, moral hazard problems refer to the misconduct of agents whilst working on their duties. As literature commonly ascribes, as a rule, agents shirk and practice opportunistic behavior. The problem of adverse selection occurs because of the inefficiency of the agency in selecting competent personnel for complex tasks, or because there are no instruments to evaluate the agents who claim superior positions in the hierarchy of a government agency. In these terms, in a contract of intergovernmental relations, principal’s goal is to select a “compliant agent”. The key for a successful relationship would be in the state’s ability to put together a governance structure considering a mix between centralized authority and modern governance, where crucial mechanisms such as command and central control, combined with the participation of multiple centers of authority would form an administration model democratically legitimate and institutionally strong. Efforts to achieve such a result would bring rewards such as the durability of policies and mechanisms that contain the constant attempts to change policy legislation. Eisenhardt (1989) points out that the principal will have a better chance of learning about agent behavior from long-term contractual relations. Therefore, the stability of the policy and of the governance model is central to the adjustment of control mechanisms.

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1 In this case, the agent activities can also be more technically complex in comparison to the first type of contract. Theoretically in this example, the agents are more adverse to risks because they are heavily monitored (and more likely to be punished).
It is important to mention at this point that this study is limited by the epistemological perspective adopted, recognizing that, as far as the understanding of bureaucratic performance is concerned, the issue of stability of the policy goes far beyond the design of the rules. Noteworthy are variables such as institutional capacities, which influence the outcome of policies because they involve important elements such as technical, bureaucratic and political resources, as argued by Bichir (2011:33, 57). Aligned with the perspective from Bichir (2011), Lotta (2014) explains how the practices implemented by bureaucrats influence the performance of the policies, when examining the case of the Programa Saúde da Família (Family Health Program). Complementary to the dimension of “state capabilities”, the literature of political science and public choice considers that other dimensions also affect the implementation of public policies. The approach investigates how the political competition affects the provision of public goods. Specifically, the studies explore how the electoral dispute between parties generates positive effects on public management and on the behavior of public agents (Lake and Baum, 2001; Keefer and Khemani, 2003; Melo, 2007).

3. CONTROL OPERATIONAL DESIGN OF THE BOLSA FAMÍLIA PROGRAM

The BFP was launched in 2003 and it was considered an institutional innovation in terms of public policy management. The cash transfer programs such as Bolsa Escola (monthly grant to keep children at school), Auxílio-Gás (allowance to buy gas), Bolsa Alimentação and Cartão Alimentação (both programs related to food and nutrition), administered by the Ministries of Education, Mines and Energy and Health, were put together in one program, the BFP. The new model followed a logic of intersectoral management, with emphasis on the coordinating actions of the Ministry of Social Development and Fight against Hunger (MDS). Aiming at the concentration of actions to fight poverty, the MDS was structured to replace and connect the policies until then carried out by the Extraordinary Ministry of Food and Nutrition Security (Mesa), the Ministry of Social Assistance (MAS) and the Executive Secretariat of the BFP Inter-ministerial Management Council. One of the main advances observed after more than a decade of implementation is the universalization of the access of the target public to the program in all regions of the country. The evolution of the social protection network was extremely significant, from 3.2 million families in 2003, to 13.8 million in 2012 (Brazil, 2012). In addition to the importance of increasing the number of beneficiaries, studies show that the program is a determining factor in reducing social inequality and poverty (Soares et al., 2010; Soares and Satyro, 2009). A specific component of policy implementation lies in the program’s guidelines regarding the monitoring of teachers, school principals, and health and social care workers, street bureaucrats who play an important role in dealing directly with the beneficiaries of the policy at the local level. The areas of education and health follow similar flows in terms of institutional attributions, but different in terms of periodicity and volume of information. The flow of education management begins with the submission by the MDS of the list of beneficiaries

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4 The provisional measure no. 132 of 20 October 2003, is a normative act that established the Bolsa Família Program. The law creating the program is law number 10.836, of 9 January of 2004.
5 A systematic analysis on street bureaucrats was conducted by Lipsky (1980).
6 For education, the period of monitoring is every two months, except during January and December. As for health, the monitoring occurs every six months, except during January and July.
between the ages of six and 17 to the Ministry of Education (MEC). The ministry is responsible for systematizing and passing on the database of school attendance to municipalities. The municipalities, through local management, register the student’s attendance information and send it to the MEC in order to consolidate such results and forward them to the MDS. MDS identifies the number of families with problems of noncompliance with the rules to proceed with notifications or sanctions that, in practice, means the blocking, suspension or temporary cancellation of financial transfers to the beneficiary. Families receive a notification via their bank statement and through the local manager at the city council they can present a justification for noncompliance. At this stage, the notified families are assisted at the Social Assistance Reference Centers (Cras). The flow of health management begins with sending the list of beneficiaries aged up to seven years old and potential pregnant women between 14 and 44 years old to the Ministry of Health (MS) in order to organize the base of beneficiaries and make it available to the municipalities. The municipal administrations, through the healthcare professionals, register the information in the Food and Nutrition Surveillance System (Sisvan) and send it to MS/DataSus, which consolidates the numbers and informs the Ministry of Social Development and Fight against Hunger (MDS). The ministry is responsible for identifying noncompliance and initiating the notifications or sanctions to families who, after receiving notification, contact the municipal administration to justify noncompliance. As in the area of education, families are referred for family support services at Cras. The monitoring is conducted based on the Decentralized Management Index (DMI) — an index to calculate a financial transfer to municipalities — and the grants are transferred directly from the federal government to the municipality. The DMI is calculated based on the number of follow-up of health and education conditionalities, and the number of people registered and actually validated in the Cadastro Único (CadÚnico), a unified social database. The municipal administration is responsible for managing the financial transfers made available based on the DMI through two actions: a) supervision of the database (CadÚnico) and b) focalization. The registering activities refer to the updating of the number of beneficiaries and potential beneficiaries of the program (families with income up to minimum wage per capita) and the database revalidation every two years. As for the focalization, the aim is to keep information about the conditionalities regarding education and health (school enrollment and attendance for education and infant immunization, prenatal care of pregnant women and nutritional monitoring of children for health). The DMI varies on a scale of 0 to 1 and is calculated by means of a simple average of these four indicators, and the result is called the Operation Factor. Considering such a complex arrangement, during the implementation the actors involved face real problems such as asymmetry of information and potential discretionary attitudes that deceive the contract.

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7 DMI was established in 2006 by decree MDS/GM n. 148. In 2009, it was regulated by law n. 12.058. In 2010, it was changed by decree MDS/GM n. 754 and in 2011 by decree MDS/GM n. 319.

8 From 2010, the factors a) inclusion in the unified system of social assistance (Suas); b) information on the presentation of the receipts of expenditures related to the resources transferred based on the DMI; and c) information on total approval of the receipts of expenditures related to the resources transferred based on the DMI by the Municipal Council on Social Assistance (CMAS); were included in the calculation of the DMI. Fulfilling these requirements multiplies the Operation Factor by 1 (Araújo et al., 2015).
3.1 FEDERAL GOVERNMENT AS ‘PRINCIPAL’: POLICE PATROL

The strategy of responsive governments in public policies is to ensure control and to limit deviation from the ‘agent’. However, the rationale of the decision will take into account agency costs. In making choices to rigidly control some programs over others, the central government has an important institutional task, which is to delegate functions of the State to subnational governments to ensure the performance of public management. In the case of the BFP, the launch of the policy in 2003 and the rapid municipal and state participation revealed a scenario of operational difficulties and problems of implementation gaps. Between 2004 and 2005, the program went through a critical period. The crisis was caused by a series of accusations made by the media about the violation of the selection rules and the accumulation of benefits by some politicians and local public civil servants (Britto, 2008). In this period, therefore, it is possible to identify the first example of how the ‘principal’ monitors the ‘agents’ by means of fire alarm mechanisms. With the support of the media and control bodies such as the Prosecutor’s Office and the Managing Councils, affected social groups triggered the ‘fire alarms’ and expressed criticisms of the program’s administration failures. In an attempt to control its agents, the federal government pointed out that there were still millions of families not registered in the database (CadÚnico) and therefore requested more efficiency from municipalities, even implementing some temporary financial incentives. However, at that time, the contract between the parties did not establish mechanisms of selective incentive or punishment, and discretionary and deviant behavior alerted the ‘principal’. From the ‘fire alarms’, the principal re-examined the contract and established ‘police patrol’ in the form of the DMI. At the same time, the mechanism generated incentives through financial transfers, and the principal modeled the behavior of the agents. The institutional results can be evidenced in the way the original design of the program was kept, undergoing some changes when incremental adjustments were required. The adjustments eventually worked as positive feedback and minimized conflicts and asymmetries of information. The adjustments can also be thought of in terms of the quality of the written rules, relatively simple to be applied by the bureaucracy and understood by the target audience. Although the BFP was created by a provisional measure in a typical top down model, the team responsible for defining the contract had the ability to dialogue with policy sectors and minimize transaction costs. According to Waterman and Meier (1998), the relations between politics and bureaucracy are not a cauldron of conflicts because the environment of interaction is dynamic and the conflicts vary according to the degree of information that the parties have. It seems that this have been the process that occurred with the BFP, observed from the point of view of the principal-agent problem.

In addition to the DMI, other procedures were contractually established to monitor the responsibilities and functions of managers. The BFP establishes strict rules, such as the power to terminate the contract with the municipality in case of non-compliance with the management of the conditionalities procedures, and also prohibits municipalities from imposing other sanctions on families or setting other rules than those provided by the program.10

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9 The participation of the units of the federation is 99% of the municipalities. Source: Brazil (2005b).
10 Articles 10 and 11 of decree GM/MDS n. 551 2005 (Brazil, 2005a).
3.2 LOCAL GOVERNMENTS AS AGENTS: REACTION AND SUPPORT TOWARDS LOCAL CONTROL MECHANISMS

Municipal agents are central actors in the BFP since a series of attributions have been assigned to them, such as the selection of families, updating the social database, exercising shared management and accountability regarding the conditionalities. In 93% of city councils, the inter-sectoral coordination of the program is carried out by the bureaucracy responsible for the social assistance, which also organizes the CadÚnico in 97% of the municipalities. This universe is formed by approximately 48 thousand bureaucrats who take up roles of coordination, supervision and operation of systems in 9,143 service stations of the policy (Brazil, 2015). As can be seen, the front line of action is carried out by managers at the local level, who fulfill the mission of controlling the public goods of the program and at the same time are controlled by the ‘principal’. Two possible problems arise from this dynamic. Institutional fraud sponsored by bureaucrats or politicians and fraud by the beneficiaries themselves through the issuing of false information. According to Oliveira (2012), the discretionary power of the bureaucrats who work in the reception of the service stations, in the wards of healthcare units, in the classrooms and on the streets is decisive in the implementation of public policies. The institutional response to control the discretion of the ‘agents’ comes from the rules of the BFP and of agencies or instruments of municipal inspection. The social control management councils have the important task of informing the MDS of irregularities detected, such as misuse of resources or inappropriate selection of beneficiaries. As an example of this instrument, the annual accounts of the Social Assistance Funds of the states, municipalities and Federal District should present in a specific item the budget execution of the BFP (Brazil, 2004). Although at the beginning of the implementation there was resistance to the BFP model, the local bureaucracy experienced a gradual process of assimilation and knowledge of the rules of the program, which resulted in cooperation and improvement of coordination over time. Institutional inclusiveness has evolved significantly between 2003 and 2012, with the number of CRAS increasing from 454 to 7,445. In the direct application of the control, together with notifications, interruptions, suspensions and cancellations referring to the noncompliance of the conditionalities by the families, a significant increase of the action is observed. This indicator increased from 419,210 cases in 2006 to 1,654,253 in 2011. In a similar period, the cancellation of cash transfers increased from 23,525 in 2007 to 86,497 in 2011. As for the municipal DMI, this indicator increased from 0.71 in 2007 to 0.82 in 2013 (Brazil, 2013). In the results of Decentralized Management Index (DMI), beyond its positive evolution, what should be observed is the maintenance of this indicator of the management quality, which varies from 0 to 0.54 (very low), 0.55 and 0.69 (weak), 0.70 and 0.84 (good) and 0.85 and 1.00 (excellent). Contrary to the disordered processes of decentralization, the extension of the program generated a sort of spillover effect in which the cooperative and supervising behavior of the actors spread out, resulting in the adjustment and control of the policy.

11 The conditionalities are, in education: a) enrolling children between 06 and 15 years old in regular schools; b) attendance of over 85% of the school hours per month during the school year; c) informing school transferring and change of class. As for health, the conditionalities are a) pregnant and breastfeeding women must attend prenatal and other medical consultations; b) take part in meetings with healthcare teams; c) keep children's vaccination updated; d) follow nutritional guidelines. Youngsters of 16 and 17 years old must present school attendance of over 75%. Source: Brazil (2005a).
4. METHODOLOGY

The methodology of the study seeks to measure the degree of implementation of the legislation of the Bolsa Família Program (BFP) from the results of the Decentralized Management Index (DMI). Two periods were established in order to conduct a comparative analysis of the DMI performance. The comparison at different moments allows identifying the effect of ‘police patrol’ and the degree of control that the ‘principal’ exercises over the ‘agents’. Thus, a cross-sectional analysis comprising the years 2007 and 2013 was conducted. The justification is that the DMI was launched in 2006, but its effective implementation took place in the following year. The year 2013 represents the last period in which data is available for analysis. The research adopts the statistical model of multiple linear regression, which allows to explain the result of a dependent variable considering its linear relation with a set of independent variables (Gujarati, 2006).

4.1 ANALYTICAL STRATEGY: HYPOTHESIS AND EXPLANATORY MODEL

The strategy of analysis to explain how the federal government controlled the municipal agents includes both the control approach and the determinants of public management. From this perspective, the dependent variable DMI was used to test the effect of political and institutional mechanisms on policy control. The specialized literature has tested the political, institutional and socioeconomic dimensions, as well as spatial characteristics such as geographical location to explain the variation in the results of public policies. Therefore, based on these analytical aspects, specific hypotheses were proposed in order to test the influence of multiple factors on the quality of BFP management. The studies consider that electoral dispute is a determining factor for the behavior of elected politicians, and therefore, it is expected that greater electoral competition results in greater control of policies and incentives for quality public management (Coêlho, 2012; Cavalcante, 2016). Based on this assumption, this study tests the influence of electoral competition on the results of the DMI.

Hypothesis 1: The greater the degree of municipal political competition (% of votes of the elected candidate), the better the result of management.

As far as ideology is concerned, the theoretical premise is that left-wing political parties are more likely to offer social programs in comparison to center-right parties (Przeworski, 1985; Mainwaring et al., 2000). Thus, the study tests whether the ideology variable affects the indicator of program management.

Hypothesis 2: Left-wing municipal governments perform better in managing the BFP when compared to municipal governments positioned as center or right-wing.

The alignment between the levels of government (national, state and municipality) is described in the literature as an important element for subnational governments backed by a central government to more appropriately solve implementation problems, such as the qualification of bureaucracy (Cox and McCubbins, 1993). Observing this assumption, the explanatory model tests the possible correlation between political alignment and DMI management.

Hypothesis 3: Municipalities politically aligned with the federal government achieve better Decentralized Management Index (DMI).
When it comes to institutional dynamics, two fiscal and economic hypotheses are tested. From the fiscal point of view, the literature suggests that a positive performance in tax collection allows managers to define a portfolio of social policies that is more extensive to the population (Tullock, 2005). Given this situation, it is expected that local fiscal capacity has an effect on the management of public policies.

**Hypothesis 4:** The greater the fiscal capacity of the municipality, the better the management of the BFP.

As for economic attributes, the assumption is that governments who manage large sums of resources are likely to have better capacity to manage public affairs. Veloso (2011) identifies the financial issue among the four key areas for municipal management, where economic indicators directly affect the institutional structure of municipalities. In this sense, the association between local economic activity and the management of social programs is tested.

**Hypothesis 5:** Greater GDP per capita in the municipality positively affect the performance of the BFP.

The geographical characteristics of the municipalities were used as control variables. The geographical distinction gained importance in the analysis due to the great social and economic differences of the regions, territories and population. Studies and official data from the government have identified an association between geographic factors, poor populations and quality in the management of BFP (Estrella and Ribeiro, 2008; Monteiro et al., 2008; Cavalcante and Ribeiro, 2013). The assumption is that vulnerable populations living in less developed regions, such as the Northeast of Brazil, demand greater access to education and public health. In this sense, there would be a positive response from the municipal bureaucracy to social demands and policy control. According to this point of view, the study tests the validity of these findings for different periods of policy implementation and includes more variables for comparison with the other territories.

**Hypothesis 6:** Municipalities located in the Northeast region have better DMI compared to other municipalities in the country.

**Hypothesis 7:** Municipalities with a smaller urban area positively influence the management of the DMI.

The variables “metropolitan region” and “population” are used to control the differences in location and demographic density in order to ensure a more accurate comparison between the municipalities. Based on these hypotheses, the study defines two multiple regression models to test the effect of political, institutional and geographic factors on the results of BFP management in the years 2007 and 2013.

The two models present a dependent variable \( y \) and \( n \) independent variables \( x_i \), where the purpose is to determine the coefficients of the equation of the line through the ordinary least squares method used to minimize the sum of the squared deviation of the covariates in relation to \( y \). This allows the adjustment of the models (Wooldridge, 2011), represented by the following equation:

\[
y = a + b_1x_1 + b_2x_2 + \ldots + b_nx_n + \varepsilon
\]

Where,
\( y \) = the dependent variable (DMI 2007 and DMI 2013);
\( a \) = the intercept with the parameter to be estimated;
\( b_1 \) = parameter vector that measures the relative effects towards the covariates of the matrix \( X \) for all covariates;
\( X \) = matrix of the covariates;
\( \varepsilon \) = error (other non-observable factors);
The models present the following equations:
DMI 2007 = α + β1 (Political competition) + β2 (ideology) + β3 (political alignment) + β4 (fiscal capacity) + β5 (GDP per capita) + β6 (Northeast region) + β7 (urbanization rate) + β8 (metropolitan region) + β9 (population) + ∈.
DMI 2013 = α + β1 (political competition) + β2 (ideology) + β3 (political alignment) + β4 (fiscal capacity) + β5 (GDP per capita) + β6 (Northeast region) + β7 (urbanization rate) + β8 (metropolitan region) + β9 (population) ∈.

4.2 ORGANIZATION OF DATA AND VARIABLES

The organization of the data was systematized in the statistical software package Stata 12. The sources used for the operationalization of the variables of the research are the MDS, other government institutions such as the Brazilian Institute of Geography and Statistics (IBGE) and the Finances of Brazil report (Finbra) of the Secretary of the National Treasury (STN). The universe analyzed comprises about 5,500 cases, equivalent to 98% of the municipalities in the country.

Dependent variable: Result of the DMI in 2007 and in 2013.

The dependent variable of the model is the DMI. Using a scale that varies from 0 to 1, the DMI shows the capacity of the bureaucracy to comply with the rules defined in the institutional design of the program. A maximum value means that education and health conditionalities are being duly fulfilled and that the re-registration of beneficiary families is perfectly carried out by the bureaucracy.

Independent variables: political, institutional and geographical dimension.

(i) Political competition (% of votes of the elected candidate)

Dichotomous variable that defines the degree of political competition in the municipality. The value 1 is given to municipalities with competitive elections (where the elected candidate wins the contest with less than 45% of the valid votes). The value 0 is informed for municipalities with non-competitive elections where the elected party wins the contest with more than 45% of valid votes. For the DMI 2007, the study considered the percentage of votes cast by the 2004 elections. The study considered the average percentages of votes of the winning candidate in 1996, 2000, 2004 and 2008 were considered for the DMI 2013.

(ii) Ideology

The variable considers the ideological scale developed by Power and Zucco (2009) and reflects the perception of members of the congress in the period from 1990 to 2005 on the ideological position of the parties. The continuous type scale ranges from 0 to 1; The minimum value indicates the leftmost position and the maximum value, the rightmost position.

(iii) Political alignment

Dichotomous variable that measures the influence of alignment between the different levels of government (national, state and municipality). The value 1 informs that the municipal government has aligned politically with the federal government and the value 0, informs that there has been no alignment.

(iv) Fiscal capacity

Variable that reflects the municipal revenues per capita between 1997 and 2010 based on the sum of resources collected from the tax on service (ISS), urban land tax (IPTU), tax on real state transactions (ITBI) and other revenues such as fees and contributions. The total amount is divided by the number of inhabitants. For the DMI 2007, the study considered the indicator of 2004. As for the DMI 2013, the study used the average percentage of the period.
(v) GDP per capita
Continuous variable that measures the distribution of the total revenue of the municipality divided by the population. For the DMI 2007, the study considered the indicator of 2004. As for the DMI 2013, the study used the average percentage of the period between 1996 and 2008.

(vi) Northeast Region
A dummy variable that tests the effect of municipalities located in the Northeast region on the management of the policy.

(vii) Urbanization rate
The variable urbanization rate consists of the percentage of the population living in urban areas for the years 1996, 1999, 2007 and 2010. For the DMI 2007, the study considered the indicator of 2004. As for the DMI 2013, the study used the average percentage of the period.

(viii) Metropolitan Region
Control variable that assumes the value 1 for municipalities located in metropolitan regions and the value 0 for the other municipalities.

(ix) Population
Control variable that aims at reducing demographic differences in order to adjust the comparison between units that are markedly different in terms of population.

5. ANALYSIS OF THE RESULTS: TESTING THE EFFECT OF THE INTERNAL ATTRIBUTES AS INDIRECT CONTROL MECHANISMS

Table 1 and table 2 present the coefficient obtained from the estimation as well as the p-value of the variables in the two models of multiple linear regression.

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coefficient</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political competition (% of votes of the elected)</td>
<td>0.0263491</td>
<td>0.041*</td>
</tr>
<tr>
<td>Ideology</td>
<td>-0.0006098</td>
<td>0.425</td>
</tr>
<tr>
<td>Political alignment</td>
<td>0.0064822</td>
<td>0.060*</td>
</tr>
<tr>
<td>Fiscal capacity</td>
<td>-0.000034</td>
<td>0.010*</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>3.05e-07</td>
<td>0.115</td>
</tr>
<tr>
<td>Northeast region</td>
<td>0.031368</td>
<td>0.000***</td>
</tr>
<tr>
<td>Urbanization rate</td>
<td>-0.005313</td>
<td>0.312</td>
</tr>
<tr>
<td>Metropolitan region</td>
<td>-5.09e-08</td>
<td>0.000***</td>
</tr>
<tr>
<td>Population</td>
<td>0.716164</td>
<td>0.000***</td>
</tr>
</tbody>
</table>

Note: * p < 0.1, ** p < 0.05, ***p < 0.01. N = 5185.
Source: Elaborated by the authors.
The model presented in table 1 illustrates that most of the selected variables affected the management of BFP for 2007. Of the three political variables tested, two of them presented statistical significance. The municipal political competition measured in terms of the percentage of the votes obtained by the elected candidate, proved an important factor to measure the policy control since the first years of implementation of the DMI. In other words, the results show that there is a positive correlation between a strong electoral dispute and the improvement of program management. Likewise, local governments politically aligned with the federal government achieved better results in terms of control management. The ideology variable did not generate control effects, which means that, for this period, the fact that there were left-wing parties in government did not change the DMI. Regarding the institutional variables, the coefficients show different results for fiscal capacity and GDP per capita. While the first variable is relevant significant with negative value, the second has no influence on the dependent variable. This means the municipalities with highest fiscal capacity are those with worse results in control management, corroborating the findings of other studies that point to a greater need to improve BFP management for more socioeconomically developed municipalities. Regarding geographic aspects, the regression results show that belonging to the Northeast region is a highly correlated factor with the conditionalities compliance index. In comparative terms, it can be inferred that municipalities located in the Northeast region obtain better results than the other municipalities in the country. Regarding the urbanization rate, more developed municipalities with less rural area have lower DMI. Control variables illustrate that the fact that the municipality is located in the metropolitan region does not interfere with the administration of the policy and that larger population means less control capacity of the local administration.

As for the model presented in table 2, which tests the same covariates for DMI 2013, results were different from those of DMI 2007. However, it is important to note that the variable `political com-
petition’ remained an explanatory factor of the success of the DMI during the period. Moreover, the statistical significance of the variable achieved a maximum value, which empirically allows affirming that municipalities with competitive elections are those that had better supervision over the BFP. In turn, the political alignment factor no longer has positive effects on policy management. Once again, the non significance of the ideological spectrum is confirmed, i.e. a municipality managed by a leftist government does not affect local performance. Institutional factors were not statistically significant. The fiscal capacity is not influenced negatively by the DMI, which allows inferring that the municipalities with the higher fiscal capacity also started to improve their levels of management. Once again, GDP per capita did not change the behavior of managers. The geographical aspects were partially reconfirmed in this second model. Location in the Northeast continues to guarantee better management results compared to other regions. As for the rural or urban aspect, it ceases to be an explanatory factor for the policy. In part, this result combined with the fiscal capacity reinforces the argument that the more developed municipalities have improved the management of the program. Finally, the analysis of the control variables shows that, surprisingly, the units located in metropolitan areas started to have lower DMI and the population size becomes irrelevant.

In general, the temporal analysis reveals the usefulness of the two econometric models to comparatively explain the results of the DMI. It is important to highlight that the adoption of multiple linear regression allowed illustrating which variables proved to be crucial to test the effect of indirect mechanisms of policy control. Since the institutional characteristics of the units are insufficient to guarantee the quality of the implementation of public policies, indirect control mechanisms are central to the principal’s purposes in relation to agents. In other words, the design of the rules matters, but certain endogenous attributes positively impact the ‘police patrol’ and the behavior of management bureaucracy. Although the correlation of the other variables changed over time, it is possible to conclude that the municipalities that complied with the program rules had the following profile: located in the Northeast and with competitive local elections.

6. CONCLUSION

Analyzing the institutional arrangement of the Bolsa Família Program and the aspects of the political system was fundamental to understand the importance of adopting legally binding contracts in the Brazilian federation. To explain the management results, this study examined the normative acts of the program as well as characteristics of the local political environment. The study revealed that the behavior of bureaucracy is modeled directly by rules and indirectly by endogenous factors. By using a historical perspective, the article presents results of comparative policy that are rarely found in the literature. From the theoretical point of view, analysis based on the principal-agent problem has proved useful in contributing to the debate on policy control among different spheres of government. It was observed that it is possible to adapt the framework to capture the dynamics of relations between the actors through the identification of fire alarm mechanisms and police patrol. The study identified that as the contract time extended, these mechanisms were activated. First fire alarms occurred early in the implementation, in which “contract failures” became evident as agents strayed from their roles and demanded more budget to increase the number of families in the social database (CadUnico). The ‘principal’ learned about the behavior of the ‘agent’ and adjusted the contract by establishing
police patrol in the form of the Decentralized Management Index (DMI), in addition to adopting sanction instruments for beneficiary entities and families. Such action generated positive results for the policy. It is possible to say that learning in ‘political games’ regulates the relationship between the ‘agents’ and the ‘principal’, which contributes to the reduction of conflicts and the asymmetry of information. Based on these findings, the principal-agent problem takes a first look at analysis that aim to understand the constraint of the State when decentralizing the policy, by supervising the performance of bureaucracies. Therefore, the study presents a new interpretation on the impacts of multilevel governance models, deconstructing the traditional view that explains the performance of public management as a result exclusively associated to the so-called islands of excellence.

With regard to the hypotheses, the effect of multiple factors on bureaucracy behavior was tested. The DMI, the main indicator of policy control, was taken as the unit of analysis. Multiple linear regression models revealed that the quality of BFP management is directly associated with the political and geographical dynamics of municipalities. The effect generated by politically competitive environments and the effect by belonging to the Northeast region of the country were maintained over the analyzed period. Therefore, it is possible to infer that there is a positive relationship between election results, geographic location and control of public policies. The effect of political alignment proved to be statistically significant only in the first moment of the analysis, suggesting a scenario in which government relations did not contribute decisively to the improvement of the policy, denoting that the design of the program minimized this aspect of Brazilian federalism. The econometric results corroborate previous findings in the literature, insofar as it has been partially confirmed that municipalities with higher fiscal capacities, urbanization rates and population size, have lower management indicators. An unexpected result revealed that in the most recent period, metropolitan municipalities started to obtain lower DMI, which probably indicates that this specific group has other characteristics that negatively interfere in the management. The other variables did not influence the DMI results.

Finally, it is important to point out that the cost of modeling behavior is greater when there is a large number of ‘agents’, because their characteristics and strategies matter in the dynamics of the relationship with the ‘principal’. In the case of the BFP, the rules have been improved and consistently applied, therefore minimizing administrative disparities between governments. The fact that the program was led by the same ‘principal’ helps to explain the success of the control instruments on the various ‘agents’ implementing the policy. Thus, it is remarkable that, even after three municipal administrations, the quality of the implementation of the program has been maintained, confirming that rules matter.
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