

Government Advertising, Political Behavior, and Electoral Effects in Brazil

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Political communication and advertising are not performed only by politicians and parties. Governments around the world also invest in advertising at the national, subnational, and local levels. However, the study of government advertising has deserved little-to-no attention in political science. In this dissertation, I aim at filling this gap and try to answer four interrelated questions. First, what is the content of government advertising? Second, how does government advertising affect citizens' political attitudes and behavior? Third, what factors explain governments' expenditures with advertising? Fourth, does government advertising have political impacts on outcomes that matter for incumbent governments, more particularly electoral outcomes? This dissertation shows how government advertising matters by using Brazil as a case to be studied. Here, I argue that incumbent governments invest in advertising with the goal of building a reputation for accomplishments and also to signal effort to the electorate. Concerning the impact on attitudes and behaviors, I contend that government advertising and partisan advertising interact with the information environment to realize effects on voters.

The dissertation is organized around a literature review on government advertising, a theoretical chapter, and four empirical chapters. The first empirical chapter carries out a content analysis of more than 400 ads from the state of Minas Gerais and its municipal governments and proposes a classification scheme for government ads. The second conducts an online survey experiment on 1,800 Brazilians to verify how government advertising affects the attitudes and behaviors of voters. The third chapter studies the determinants of and the impact of government

advertising spending at the subnational level, in the state of Minas Gerais. Finally, the fourth empirical chapter analyzes the impact of government advertising in Brazilian municipalities and takes into account the effect of government advertising in conjunction with campaign spending.

The results show that government advertising matters politically, with relevant impacts on incumbent's vote share, turnout, and other measures of campaign effects in the experimental inquiry. The study has implications for the study of political communications, campaign effects, campaign spending, and incumbency (dis)advantage. It also helps understand better the Brazilian competitive political system.

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Preface

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1.0 Introduction

In political science, political communication plays an important role in attempts to explain and understand individuals' acquisition of attitudes and display of certain political behaviors. Communication research has long been concerned with the question of why and how people use mass media (Cho 2008). The effect of the media on citizens and the media's capacity to influence or shape citizens' thoughts have been the object of concern in the most important research work in the field (e.g., Lazarsfeld et al 1944; Berelson et al. 1954; Converse, 1962). Of particular interest to this literature, studies on political advertising, campaign advertising, and campaign effects have produced a voluminous amount of research with important implication about the impact political messages can have on citizens. In general, many studies since the beginning have found "minimal effects" of campaign efforts and concluded that vote choice decisions have been determined by some set of stable predictors, such as party identification, the state of the economy, or assessments of the incumbent government or party (Hillygus, 2005a). In spite of that, there has long been a disconnect between the conventional wisdom of political scientists and the campaign behavior of political operatives. Later, experiments on agenda setting and media priming had a profound effect on the fields of political science and political communications (Iyengar and Kinder 2010; Iyengar et al., 1984). A more recent and growing body of political science research has argued, though, that these campaign efforts do in fact influence an individual's likelihood of voting and other political and electoral phenomena. Among such efforts, political advertising has been of particular importance.

Despite some scholarly skepticism, political advertising has been found to exert indirect effects (e.g., on learning) and direct effects. Specifically, political advertising has been found to

increase voters' campaign knowledge and shape political decision making and vote choice. A sizable body of research has investigated political ad effects on voter turnout, generating mixed findings (see Lau et al., 1999). While some have found that political advertising, particularly negative tactics, fosters cynicism and further demobilizes the electorate (Anscombe, Iyengar, and Simon, 1994), others have suggested that political advertising promotes participation. The main focus of the studies on media effects and political advertising has been on the impact of political messages through parties, politicians, or advocacy coalition and interest groups, especially during campaign periods. Further, most studies on the effects of political advertising have been applied to the US context, with some exceptions (e.g., Desposato 2006 and 2008).

However, political communication in general and advertising, in particular, are not carried out only by the media or by politicians and parties. Governments also invest in communication. Chief executives such as presidents "go public" (Kernell, 1997) and try to influence the course of events by shaping how citizens view certain issues (framing), which considerations they hold when evaluating the government (priming), or which issues should occupy the public agenda (agenda setting) (Chong and Druckman, 2007; Chong and Druckman, 2011). One particular form of government communication, though, has deserved little-to-no attention in political science: government advertising. Far from being an obscure or irrelevant tool, government advertising is broadly used by several governments worldwide, at the national, subnational, and local levels.

Research on government advertising remains a lacuna in political science in general and political communication research in particular. So far, scholars have only mentioned government advertising in discussions about democracy and political communications without discussing it more thoroughly (e.g., Levitsky and Way, 2010; Canel and Sanders, 2016). Most works that mention

or study government advertising in social sciences are case studies of specific countries and their media markets. Empirical work on the topic is limited to just a handful of studies (more in the review of government advertising scholarship in the following chapter). No study to date tries to develop a comprehensive theory to explain why governments spend on advertising, how government advertising can affect individuals' behavior, and whether government advertising results in any electoral result to incumbent politicians. Also, there have not been studies discussing what types of government ads are run (i.e., the content of government ads).

Thus, this dissertation project aims at providing answers to both gaps above and wants to answer four questions. First, **what is the content of government advertising?** Second, **how does government advertising affect citizens' political attitudes and behavior?** Third, **what factors explain governments' expenditures with advertising?** Fourth, **does government advertising have political impacts on outcomes that matter for incumbent governments, more particularly electoral outcomes?** This dissertation is the first attempt to explain the determinants of and the impact of government advertising at the individual and the aggregate levels. It uses Brazil to verify the determinants of government advertising in the state of Minas Gerais from 2003 to 2014 and its impact in the state for three elections (2006-2010-2014). Moreover, it studies the effects of government advertising in Brazilian municipalities for three elections (2008-2012-2016). Finally, the dissertation also examines the content of more than 400 ads from the state of Minas Gerais and carries out an experiment with more than 1,800 participants.

The dissertation on government advertising provides several scholarly contributions. The study of government advertising allows us to verify the impact of government's communication (other than presidential rhetoric) conveyed by the government outside the campaign periods and their information environments. More importantly, in many cases, government advertising is

devoid of many cues that help voters process political information, such as party symbols, open ideological statements, a political personality (e.g., candidate, elected official) and negativity. Thus, it is unknown to us how citizens process government communication in the absence of such cues and how other messages in the media can (or do not) help voters process the information they find in government ads, and the effects. Moreover, the findings from this project would allow us to put credence or not in the importance that some observers attribute to government advertising. Despite the large sums of resources spent on advertising in several countries, including Brazil, there is limited academic empirical evidence that advertising does change citizens' attitudes and does benefit incumbents electorally. Last but not least, the study of government advertising can expand our understanding of presidential politics, economic voting, and accountability in Latin America. If government advertising benefits incumbents, does it benefit citizens as well by making them more informed and better capable of holding incumbents accountable? Or does government advertising hinder horizontal accountability (O'Donnell, 1994) and further buttressing the worse features of presidentialism in Latin American (Linz, 1990)? This project will be a first step to answer these questions.

In normative terms, the study of government advertising leads to important implications. On the one hand, it is possible to argue that government communication about policies is part of the democratic process. Citizens may demand to know what their elected governments are doing in their favor. Government entities must communicate about changes in laws, public safety issues, and a broad range of issues that may affect people (Liu et al., 2012). Hence, by informing the public about its policies and actions, the government may be fulfilling its obligation to be held accountable by its citizens.

As a rule, though, the distinction between government advertising used for public policy purposes and party-political advertising for partisan advantage can become blurred (Kerr et al., 2008, p.161). Governments can use advertising for propaganda purposes rather than as a non-partisan public relations tool (Gelders and Ihlen, 2010, p.61). In countries with weak bureaucracies or authoritarian rules, it is reasonable to expect that the citizenry may perceive most or all government public relations as forms of propaganda and fundamentally distrust all the communication efforts (op. cit., p.60), while in more democratic countries citizens may perceive governmental communication efforts less as propaganda. Nonetheless, public distrust is severe in many countries and can be difficult to be overcome with advertising (Liu et al. 2012).

When governments advertise, they can use taxpayers' money to achieve purposes that may be contrary to the interests of at least some of those taxpayers (Mullen and Bowers, 1979). For example, governments can sponsor cash transfer programs that may be detrimental to citizens who oppose redistributive measures. Additionally, governments are not necessarily compelled to ensure truth in their advertising. Several claims stated in government ads may be impossible or difficult to prove (e.g., when an ad states that a country's economy improved once the government promoted monetary policy changes). Thus, government advertising can potentially promote political aims and not be simply factual in its statements.

Furthermore, governments can use advertising to build incumbency advantage (Levitsky and Way, 2010). Many incumbent governments increasingly use advertising as an office perk to advantage them over political competitors who cannot afford similar media access to get their message across (Young, 2003 and 2005b). Access to advertising may help incumbents limit competition. It also means that many incumbents can propagate their message outside the campaign period, allowing them to conduct "de facto", unofficial, permanent campaigning.

Therefore, government advertising can be a powerful tool at the hands of incumbent governments. By using advertising, governments can potentially distort citizens' evaluations and hinder accountability indirectly (by influencing the media to provide a better image of the government), or directly (by shaping citizens' attitudes and opinions about the government). Theoretically, a government could use both in tandem, making itself difficult to be held accountable, especially in countries with small or restricted media markets. Moreover, governments can use advertising to influence citizens' evaluations and therefore affect the evaluation citizens make about government performance. For instance, advertising can be used by governments to deflect blame, to remove the public opinion's attention away from issues and policies unfavorable to the government while redirecting their focus towards issues and policies the government is better evaluated.

1.1 Dissertation Outline

The rest of the dissertation proceeds as follows. Chapter 2 provides a conceptualization of government advertising and a literature review of the scholarship on government advertising worldwide. It also reviews relevant empirical work on government communication and government advertising and points to research gaps in the literature that the dissertation will tackle.

In Chapter 3, I present the theoretical arguments for the empirical chapters. It is divided in six sections. In the first section, it is stated that government advertising is used by incumbents to signal competence about their administrations and build a personal reputation. In the second section, addressing the content analysis of government advertising, I lay out categories under which government advertising can be classified. The organization criterium of ads is goal-oriented,

that is, it takes into account the goal of the message in the advertising. There are three categories: information provision, credit claiming, and behavioral change. In the third section, I theorize about the impact of government advertising at the individual level. I develop a theory informed by attribution theory (Kelley, 1967) and ad sponsorship to explain how individuals process information from government ads and state how government advertising can impact citizens' attitudes. Next, the chapter presents theoretical considerations about the determinants of spending with government advertising. The fifth section presents the theory about the effects of government advertising at the municipal level in Brazil, while the sixth section of the chapter addresses the role played by government advertising on electoral participation.

Chapters 4 to 7 are the empirical chapters. Chapter 4 analyzes the content of government advertising from the state government of Minas Gerais and its City Halls. I present the methodology adopted in the coding of government ads and descriptive results.

In Chapter 5, I propose and implement a between-subjects online factorial experiment to study the impact of government advertising vis-à-vis party advertising on four dependent variables: responsibility attribution, intention to vote for reelection, ad's effectiveness, and performance in office. The chapter is organized as follows. I describe the experimental method used, the data, the experimental design and procedures, measures, manipulation checks and dependent variables. Next, I present the results, which consist of difference in means' tests, ordered logistic model, analysis of variance (ANOVA), and ordinary least squares (OLS) regression models. Lastly, I present a conclusion for the chapter.

In Chapter 6, I evaluate how government advertising is allocated and its electoral effects. It uses the Brazilian state of Minas Gerais (MG) to test the proposed hypotheses on the determinants of government advertising spending. I present a brief overview of the recent political

history of the state. Next, the chapter presents descriptive statistics of the dependent variable. Further, the empirical strategy and results from the multivariate analyses are presented. In the section that deals with the effects of government advertising, I also present descriptive statistics of the main independent variable of interest, present the independent and dependent variables, and lay out the empirical strategy. Estimations rely on panel random effects models and two-stage generalized least squares random effects models. After that, I present the results, followed by a conclusion.

Chapter 7 analyzes the impact of the spending with government advertising by the Brazilian municipalities. I provide descriptive statistics for the main independent variable of interest, the spending with government advertising. I also describe the independent and dependent variables to be used in the empirical analysis. In the sections that follow, I describe the empirical models to be used. I make use of panel random effects models. Additionally, I use two-stage generalized least squares random effects models and Heckman probit to account for the endogeneity between campaign spending and government advertising spending with the error term. The Heckman model is used to address the fact that the mayors who run for reelection may not constitute a random draw of all Brazilian mayors. The decision to run for reelection needs to be appropriately taken into consideration in the models for proper parameter estimation. The next section presents the results and a conclusion.

In Chapter 8, I conclude with a review of the main findings and a discussion of the implications of the study's results.

2.0 Literature on Government Advertising

2.1 Conceptualizing Government Advertising

Broadly speaking, government advertising is a communication instrument employed by governments whose purpose is to promote, persuade, inform, or communicate government policies, actions, or goals to citizens. It can include "...the promotion of government services, changes in legislation, as well as social marketing campaigns" (Kerr et al. 2008, p.157). It may also be used to persuade a receiver to adopt some behavior change (e.g., to quit smoking) or to take some action, now or in the near future (e.g., gun buyback program). Government advertising can be used alone or in conjunction with other government communication efforts, such as presidential speeches (Canel & Sanders, 2016). It allows governments to communicate with citizens directly, without intermediaries.

Government advertising is different from other types of advertising in several regards, most notably from commercial and political advertising, including campaign advertising. First, differently from commercial advertising, government ads' "products" or policies do not convey price information for they cannot be acquired on the market as commercial products can. Second, while the sponsors of commercial ads usually face competition on the market, the sponsor of government ads (i.e., national, subnational or local governments) do not face competition from challengers' ads. Third, commercial ads tend to be aired continuously over time in a given year. Political ads, on the other hand, may be aired by political parties during non-election years. Campaign ads may or may not be aired in non-election years depending on each country's electoral regulations. Regarding government ads, they are usually aired in off-year elections and

sometimes even in election years, but not necessary during a country's electoral campaign period, depending on a country's electoral regulations. In Brazil, for instance, governments at all levels are prohibited from airing ads during the three months preceding the election day. Fourth, unlike commercial and political (including campaign) ads, government ads do not ask or allow citizens to purchase a product or cast a vote for a candidate or party. Governments can use advertising, however, to inform citizens about policy benefits they may be entitled to or try to persuade them to adopt a socially desirable behavior, such as using seatbelts while driving. Last but not least, while political ads may convey political and ideological messages and symbols, government ads face more restrictions regarding message content. In many countries, including Brazil, government ads cannot openly endorse a political party or candidate or propagate messages with clear electoral purposes. Such restrictions do not mean, though, that governments do not try to promote themselves and extract electoral gains from advertising their deeds, as the content analysis of government advertising indicates.

2.2 Government Advertising Worldwide

To this date, there is little scholarly work focused on government advertising. Scholarly work examining government communication, in general, is also limited (Canel & Sanders, 2016, p.3). Most research consists of individual or regional case studies that are descriptive. The studies that cover less developed and newer democracies tend to focus more on the ways governments use advertising spending and the state power to force or induce the media to cover the government more favorably. Studies in other countries focus on media ownership and the governments' attempts to influence the media's coverage.

In many countries, especially in Latin America, even where the private media exist, they are highly dependent on the state. For instance, the government is the biggest advertiser in many Central American countries (Rockwell and Janus, 2002, p.332; Kodrich, 2008, p.65). States in this region control many enterprises that spend considerable sums on advertising that are important for media outlets to stay afloat. Governments also exert considerable regulatory powers that affect media's interests. Other instruments that the state can use to put pressure on the media include "official state subsidies, control of paper supplies, government-led advertising boycotts and the development of monopolistic television industries with close ties to state power" (op cit 2002, p.348). Hence, governments can use regulatory tools and the threat of advertising boycotts to influence the media's coverage. In closed media systems, such as those in Central America, the states' control over advertising can be harmful to the development and evolution of a free media. Advertising spending can be used as a tool to induce indirect censorship on media vehicles.

The influence of government advertising on the media is also visible in other parts of the continent. In Mexico, the federal and the state governments spend large sums of funds on advertising. Hughes and Lawson (2004) investigated the sources of partisan bias in television coverage in Mexico and found that the relationship between private media and politicians is marked by collusive arrangements and by the propagandistic use of state-run stations.

In Argentina, the federal government has arbitrarily awarded advertising funds to economically vulnerable print media (Macrory, 2013, p.187). Governments such as the Menem's administration have retaliated against media sources that broke major scandals by attempting to cut state advertising. (Waisbord, 1994, p.27). More recently, Cristina Kirchner's administration retaliated against media sources critical of her government, such as the Clarin Group, by using different means such as stricter control of paper supplies, approval of controversial media law, and

the redistribution of advertising funds from media sources critical to the government to sources supportive of the government¹ (Di Tella & Franceschelli, 2011).

The employment of advertising by the government has also been detected in Anglo-Saxon countries. In Australia, government advertising has been extensively used by the central government. The Australian government has been known for using sizeable amounts in advertising campaigns². Some scholars such as Young (2003) believe government advertising has given the Australian government an important advantage over the competition and became “one of the greatest benefits of incumbency” (Young, 2003, p.13-14). In the United Kingdom, debates about the government’s use of ‘spin’ – i.e., presentation of policy – dominated the media during Alastair Campbell’s years as Tony Blair’s communication chief (Franklin, 2004; Canel and Sanders, 2016). More recently, the British government has used advertising as an instrument to induce citizens to “do the right thing” by encouraging (or “nudging”) subtle behavioral changes and, therefore, achieve objectives such as to “reduce the carbon footprint” or get people “to pay their road tax”³.

Government advertising has also been widely used by the Canadian government and subnational governments (such as Alberta – Kiss, 2009) for different purposes. For instance, on anti-smoking campaigns and the dissemination of information about budgetary changes (Rose 2001).

Lastly, in the United States executive agencies have also employed advertising to promote the Executive’s policies (Kosar, 2005) and would have the potential to exacerbate “the natural communication advantage that the president has over Congress and the courts, which may threaten

¹ Nejamkis, G., & Esposito, A. (2013). Argentina’s Supreme Court Upholds Controversial Media Law. Retrieved from <http://www.reuters.com/article/us-argentina-clarin-court-idUSBRE99S0U820131029>

² For instance; it spends \$ 174.7 million on advertising campaigns. See Hickman, A. (2016). Australian Government Spends near-record \$175m on Advertising. Retrieved from <http://www.adnews.com.au/news/australian-governmentspends-near-record-175m-on-advertising>

³ Krebs, Lord. (2012). Sometimes a nudge from the government is just not enough. Retrieved from <https://www.theguardian.com/science/2012/sep/06/nudge-government>

the balance of power between the branches" (op. cit 2005, p.786). Curiously, there is little-to-no work recently done on the subject in political science or related fields.

In conclusion, government advertising is a worldwide phenomenon, not restricted to one specific group of countries or regions. In Latin America, incumbent governments have widely used government advertising for political purposes. Latin American governments have demonstrated considerable ability at directing advertising money towards supportive media outlets and withholding money from outlets seen as more hostile or less pliant to the government. By giving or withdrawing advertising funds, governments can powerfully influence the media's behavior (Levitsky and Way, 2010, p.64-65). Also, governments can use advertising to influence citizens directly, by establishing communication with them without intermediaries.

These scholarly works illustrate the importance of government advertising and give us indications of its potential uses and effects. Nevertheless, they do not inform, theoretically, how government advertising works. The empirical evidence is also limited.

2.3 Empirical Work on Government Communication and Advertising

Despite the paucity of empirical studies on government communications (and government advertising more specifically), there are exceptions that are relevant to the project. They illustrate governments' capacities and limitations to affect the media's coverage of the government and to influence citizens' attitudes.

Two studies (one in Kosovo, another in Argentina) assess the impact of government advertising on corruption coverage by the media using aggregate data. In Kosovo, Miftari (2014) conducted a content analysis in two newspapers at two stages of the post-conflict period in Kosovo

and found that as reporting on corruption increased, government advertising declined. Similarly, In Argentina, Di Tella & Franceschelli (2011) studied the extent that daily newspaper coverage of corruption scandals in four main newspapers is affected by the amount of spending on ads in each newspaper by the government from 1998 to 2007. Overall, they found that adverse coverage was negatively correlated with government advertising in the newspapers.

Three other studies evaluate the capacity governments have to influence citizens' attitudes. Concerning the privatization of water services in Argentina, Di Tella et al. (2012) studied people's beliefs about the benefits of privatization of water services. They assessed the capacity of political entrepreneurs to persuade individuals about the privatization and the degree to which individuals' views were affected by reality (i.e., the first-hand experience observing the investments made by the privatized company). Subjects were primed with two treatments, that is, statements by the president and statements by a company regarding firm investments, plus a control group. They found that individuals who observed investments made by the privatized company in their neighborhoods had a better opinion of water privatization (relative to other privatizations) than those who did not gain access to water. The authors also found evidence that the presence of firm investments makes people's beliefs about the benefits of privatization more resistant to the effects of propaganda.

Government messages can be used to promote government policies and convince citizens about their effectiveness. In another study, Romero, Magaloni, and Díaz-Cayeros (2015) studied the circumstances under which pro-government messages influence citizens' thoughts about the effectiveness of government efforts to capture criminal organizations' bosses in Mexico. By submitting subjects to experimental frames, they found that crime victimization "immunizes" individuals from the influence of pro-government messages on crime.

As the last two studies indicate, governments can face obstacles when trying to communicate and influence individuals. One of those, studied by Marvel (2016), is the implicit bias that many individuals have regarding the governments' performance. Specifically, many citizens tend to automatically and unconsciously associate the government with inefficiency. In a study using three survey experiments, Marvel assessed the individuals' evaluations of United States Postal Service (USPS) performance and confirmed that many citizens hold unconscious unfavorable views about public sector organizations. Citizens' skepticism about government communications may affect how they evaluate government advertising as well.

Finally, two M.A. dissertations assess the role of government advertising in Brazil. Kopp (2017) studied the political effects of local-level expenditures with advertising and discussed the implications of such types of spending for government advertising regulation. Using a nearest neighbor matching approach, he found that, on average, mayors who win reelection spend 33% more on government advertising than losers. Higher expenditures on government advertising improve the electoral prospects of local Brazilian incumbents. It was also found that the effect of government advertising is more pronounced in municipalities with poorer human development indicators and in larger cities (Kopp 2017, p.23). In another dissertation, Barboza Ribeiro (2017) studied the determinants of and the impact of central government expenditures on advertising in Brazil. In this study, the author investigates the political motivations behind the allocation of the advertisement budget by the Brazilian federal government and its political impact. By borrowing insights from the literature on distributive politics and using panel data methods, he found that even though past presidential election outcomes predict where in the territory the government spends with ads, voters would not seem to be electorally persuaded or influenced by the ads to favor the incumbent party.

Even though the two aforementioned studies are statistically well-executed, both present some gaps that the current study fills. Kopp (2017) analyzes 1,446 municipalities through matching, which means that the impact of more than 4,000 municipalities is disregarded. The criteria to decide which municipalities are included in the matching is not well explained. Further, Kopp's study lacks an encompassing theory. Most importantly, both Kopp and Barboza Ribeiro (2017) do not study the impact of government advertising on turnout. They also do not evaluate the impact of government at the individual (i.e., voter) level. Finally, they do not study the content of advertising. In this dissertation, all the last three aspects are studied.

2.4 Conclusion

Overall, those studies provide significant information about government communication (and advertising) regarding its possible impacts, as well as gaps. First, government advertising can be successful at influencing media coverage. The two studies surveyed here (Di Tella and Franceschelli, 2011; Miftari, 2014) had a focus on the issue of coverage of corruption, though. To date, there are no studies analyzing the impact of government advertising on other dependent variables at the macro level. Most importantly, we do not know whether government advertising can affect political variables of interest to incumbent chief executives such as executive approval, turnout and vote share. Second, at the individual-level, government communication does not necessarily change people's attitudes. Individuals hold priors determined by information, ideology, or direct experiences that condition their sensitivity to frames and persuasion attempts (Druckman, 2001). Third, three individual-level studies previously reviewed (Di Tella et al., 2012; Romero, Magaloni, and Díaz-Cayeros, 2015; Marvel, 2016) conduct experimental

situations in which subjects do not receive additional or competing information. In the real world, individuals receive government communications and advertising alongside messages from other sources, especially the media, and use these messages to process the messages.

As a result, to understand why governments spend on advertising and how government advertising affects individuals and electoral results, it is necessary to devise a theory that explains a) how political and local circumstances shape the allocation of budgetary resources to advertising by incumbent politicians, b) how government advertising can be used to influence voters' assessments of incumbents, and the resulting effects of those efforts, and c) the reasons and motivations individuals have (or not have) to pay attention to advertising. That is, the studies fail to explain the circumstances under which they may process government advertising and be affected by it, and how government and non-government (i.e., media) messages jointly affect how individuals use and process the messages they receive. That is the goal of the next chapter.

3.0 Theorizing about the Determinants of and the Effects of Government Advertising at the Aggregate and the Individual Levels

3.1 Introduction

How is government advertising used by incumbent politicians? With what purpose? Under what circumstances can the investment in advertising foster the incumbent's political goals, at the aggregate and the individual levels? In this theoretical chapter, I propose and develop the idea that government advertising aims at fostering the incumbent's⁴ personal reputation of competence, which favors his or her personal vote and chances of reelection.

In this dissertation, I argue that government advertising is a tool used by incumbent officeholders to influence citizens' perceptions about the incumbent's performance or competence in office. Incumbents use government advertising to promote governmental policies and public works and, therefore, to claim credit for governmental deeds. Regardless of its content, government advertising conveys governmental action and performance information, which can be used by citizens to form retrospective evaluations about the incumbent. More specifically, observed government advertising can be used by voters to infer the competence of incumbent politicians.

The chapter is organized in six sections. In the first section, I affirm that government advertising aims at nurturing the incumbent's personal reputation as an effective officeholder. Government advertising can be used by incumbents to convey competence about their

⁴ In this dissertation, the term *incumbent* refers to executive incumbents, or non-legislative incumbents, that is, the occupants of subnational executive offices (i.e., mayor and governor). The terms *incumbent* and *executive incumbent* are used interchangeably.

administrations and to pave the way for reelection. Further, it is used to signal effort to the electorate. In the second section, I focus on the content of government advertising itself and describe the categories under which government advertising can be organized according to three different goals, that is, information provision, credit claiming, or behavioral change. In the next section, I concentrate on the individual level and develop a theory informed by attribution theory (Kelley, 1967) and ad sponsorship that aims at explaining how individuals process information from government advertising and how government advertising can affect citizens' attitudes. In the fourth section, I theorize about the determinants of the spending with political ads and lay out the conditions under which incumbent governments will invest more in advertising. In the fifth section, I address the effects of government advertising and campaign spending in the Brazilian municipal elections. Finally, in the last section, I theorize about the effects of government advertising on electoral participation.

3.2 Government Advertising and Personal Reputation

Government advertising constitutes an important means by which the incumbent can earn personalized electoral support and help cultivate a personal vote. Here I use the same concept of personal vote than Cain, Ferejohn, and Fiorina (1987). The personal vote refers to "*that portion of a candidate's electoral support which originates in his or her personal qualities, qualifications, activities, and record*" (Cain et al 1987, p.9). Adding to that, Kitschelt (2000) stated that "*The personal vote is the effect of a candidate's personal initiatives on his or her electoral success, net of aggregate partisan trends that affect partisans as members of their parties*" (Kitschelt 2000, p.852). As a result, the personal vote is a product of the candidate's *personal* initiatives that

originate in his or her *personal* qualities. The premise that incumbents have the incentive to cultivate a personal reputation rests on an important assumption: that incumbent politicians are motivated by the desire to seek reelection (Mayhew, 1974; Cain et al, 1987; Carey and Shugart, 1995, p.418). By cultivating a personal reputation of competence (which can be either administrative competence or competence at delivering particularized benefits, among other types), executive incumbents can cultivate a personal vote.

In the Brazilian electoral context, executive incumbents have incentives to cultivate a personal reputation (and, by extension, a personal vote). Brazil's national and state-level political system are characterized by a weakly institutionalized party system, high fractionalization, low capacity of parties to exercise discipline over their members, and a lack of strong ideological platforms (e.g., Ames, 2001a; 2001b; Mainwaring, 1993; Mainwaring, 1999; Samuels, 2003). Additionally, they are elected under plurality rule (or 50% or more of the valid vote in constituencies with more than two hundred thousand inhabitants, otherwise elections are disputed in a runoff between the top two contenders). Mayors are elected in single-member districts, the municipality, and governors are elected in states. The executive incumbents have geographical areas to call their own, which helps create the motivation for relationships between incumbents and voters that is more personal and particularistic.

That said, how can government advertising foster an incumbent's personal reputation and personal vote? I argue that government advertising is a tool used by incumbent officeholders to influence citizens' perceptions about the incumbent's performance or competence in office. Incumbents use government advertising to promote governmental policies and public works and, therefore, to claim credit for governmental deeds. Regardless of the content type of government advertising (e.g., the announcement of new public works, a smoking ban campaign, or about local

tax payment information, to name a few), all types of government advertising convey governmental action, that is, the idea that the government is doing something in favor of the citizenry. All these types of advertising can be used by incumbents to demonstrate to voters that he or she is doing something in society's favor at large, or in favor of specific groups of citizens (e.g., the handicapped, the elderly, women, etc.). In all cases, more or less explicitly, government ads convey positive information about governmental action and performance information, which can be used by citizens to form retrospective evaluations about the incumbent. Also, government advertising is used to signal effort to the electorate before the election. By informing voters about goods and services provided to them, the incumbent can show that he or she is a "doer", an active elected official.

More specifically, observed government advertising can be used by voters to infer the competence of incumbent politicians. By promoting government advertising, incumbents expect to shape voters' views and expectations about their competence in office. The effect of government advertising is not supposed to be instantaneous, though (i.e., to be effective based on just a few ad campaigns), but cumulative. That is, continuous inflows of government advertising over the course of a mandate aim at building the views among citizens that the government is doing something on their behalf. Even advertising that is merely informative can be beneficial to incumbent officials, for it conveys the idea that the government is being accountable and transparent to citizens.

3.3 The Content of Government Advertising

Scholarly work on political advertising usually focuses on the indirect (e.g., learning) and direct (e.g., voting decision) impacts of advertising on outcomes of interest. Much progress has

been achieved at understanding the effects of advertising in recent decades, especially in the U.S. context. The key independent variable in these studies has been advertising exposure. Despite the importance of exposure in studies of political advertising, studies focused on exposure as primary independent variable find some empirical limitations. Advertising is a multifaceted phenomenon, conveying information in complex ways. To understand advertising more thoroughly, researchers must dedicate efforts at understanding the content of advertising. Concerning political advertising, some studies have made use of content analysis, particularly in the United States. For instance, Spiliotes and Vavreck (2002) analyzed the content of ads to explain whether political parties act as a constraint on candidates' commitments, and the role a constituency's partisanship has in determining the kinds of commitments candidates make in their advertising. They found that parties are a constraining factor on the kinds of commitments candidates make. Also, Sides and Karch (2008) examined whether the issue content of campaign appeals mobilize particular subset of voters. By matching survey respondents to media markets and then to relevant campaign advertising data for three elections, they found that campaign effects vary in their magnitude and importance for the mobilization of issue publics. These studies have allowed the examination of the impact of factors such as tone and issues on variables of interest such as party vote, turnout, issue emphasis, economic voting (Hart 2016), among others. However, concerning government advertising, no work (to the author's knowledge) has analyzed the content of government ads, much less developed a theoretical framework to analyze their content.

The ordinary typologies of political ads are unable to express the content of government ads correctly. For instance, Geer (2006) divides the ads into appeals that raise "doubts about the opposition" (i.e., negative) or [state] why a candidate is worthy of your vote (i.e., positive)", without any "middle category". Jamieson, Waldman, and Sherr (2000) divide political ads into

attack, contrast, and advocacy, whereas Freedman, Wood, and Lawton (1999) segment attack into “personal” and “issue” appeals. William Benoit presents an alternative typology according to which ads are categorized as acclaiming (emphasizing good reasons voters should lend their support), attacking (focusing on the opponent’s faults as reasons why he or she should be disregarded by voters), or defending (countering the accusations raised by the opponent) (Benoit et al, 1998). None of the aforementioned typologies can be adequately used to categorize government ads.

First, most of the scholarship focuses on political advertising, which is different from government advertising. The tone of political advertising can be positive or negative (i.e., attack), whereas government advertising cannot be used for attacking political opponents or policy positions for legal reasons. Concerning the topic, political advertising is expected to “take sides” on political, policy, or ideological matters. Government advertising, on the other hand, has to be more “policy-focused”. Therefore, government advertising tends to be devoid of many cues that help voters process political information, such as party symbols, open ideological statements, a visible political personality^s (i.e., a candidate or an elected official) and negativity, that is, open attacks to opponents. Moreover, government advertising does not face competition in an open “political market” as political advertising does. Last but not least, government advertising cannot be aired during the electoral campaign period, which differs from political advertising, which can be aired during electoral and non-electoral periods. As a result, classifications that take into account the tone of advertising as well as their functions as the main criterion for categorization miss many important elements of government advertising. It is necessary to devise a new categorization scheme to properly classify the content of government advertising. On which basis

^s At least in the Brazilian case. Rules may differ from country-to-country.

must such categorization be based upon? Here, I affirm that the classification of the content of government advertising must focus on the *intended* and *explicit* goal or purpose of the ad.

Table 1 Classification of Government Ads by Type

	Government ad's types		
	Information provision	Credit claiming	Behavior change
Goal	To publicize or promote a policy, event, or government action.	To claim credit for past, present or future policy measures and accomplishments.	To inform, educate, guide, or alert the viewer to adopt or change a behavior.
Degree of explicitness in credit claiming	Less explicit	Explicit	Least explicit
Example	An ad publicizing a cultural event in the city.	An ad showing the construction of a new bridge.	A non-smoking ad campaign urging smokers to stop smoking.

Therefore, the most secure basis to classify government ads is to focus on the intended goal of the ad. I organize government advertising into three distinct categories: information provision, credit claiming, and behavior change advertising. They differ from each other in two main respects: the goal of the ad and the degree of explicitness with respect to credit claiming. The implication is straightforward: credit claiming ads are not the only type of ads that can aim at claiming credit for accomplishments and activities. Information and behavior change ads can be used for credit

claiming purposes as well. However, non-credit claiming ads can claim credit only implicitly, indirectly. The current classification scheme considers *explicit* goals or purposes only.

Government ads can be used with the goal of informing the public about a policy, event, or government action. Ads in this category include information about the realization of events, promotion of tourism in the polity, or the promotion of a new phone line to denounce human rights violations. In these types of ads, the main goal is basically to inform the citizenry about a policy that has been (or will be) in place. Informative ads do not claim credit for accomplishments, nor do they aim at inducing behavioral change in the population. Another type of government ad is the credit claiming ad, which has the goal of claiming credit for past, present or future policy measures and accomplishments. This is the most typical type of ad associated with government advertising and most prone to be used by incumbents with credit claiming and personal reputation building purposes. What makes credit claiming ads distinct from the other types of government ads is that credit claiming ads *directly* and *explicitly* make a connection between the government's efforts and a desirable social outcome. This type of ad explicitly conveys the message that "thanks to the government actions in A policy area, X desirable outcome was (or will be) achieved". Lastly, a final type of government ad is the behavior change ad, or a type of ad which has the goal of inducing people to adopt or change a behavior. Such type of advertising is common in mature democracies as well as democracies in development. Examples of this type of ad include public service announcements (PSAs) advising parents to vaccinate their children or urging drivers to not drive under the influence of alcohol. It is the least explicit in credit claiming appeal. It is important to observe that it is possible that ads may contain more than one implicit or explicit goal, for instance, a government ad that publicizes a jobs' conference that may bring job opportunity for

locals. Nonetheless, as it will be shown in the dissertation, even such ads usually present one main goal.

It is important to emphasize and clarify the role of credit claiming appeals in non-credit claiming ads. Can information and behavior change ads be used for credit claiming appeals? Yes, they can. However, in both ads credit claiming can only be stated *indirectly* and *implicitly*, whereas credit claiming ads can claim credit for accomplishments *directly* and *explicitly*. For instance, an information ad that only notifies citizens about a job fair event happening in town can make it *implicit*, by the mere fruition of the event, that the government “is doing something” to address unemployment or to bring more jobs. The classification scheme suggested here takes into account explicit goals or purposes, though. It cannot infer a credit claiming goal if such goal is not explicitly stated. Thus, this project recognizes that credit claiming appeals can be done indirectly and implicitly. However, when credit claiming is not directly and explicitly stated, individuals have to connect the content of the ad with a credit claiming purpose themselves. In sum, it becomes a matter of personal interpretation.

3.4 The Impact of Government Advertising at the Individual Level

All that is known from the limited literature on government advertising is limited to national or subnational-level accounts. Little-to-nothing is known about how individuals process government advertising and how government advertising affects individuals’ attitudes and behaviors. This dissertation is the first effort (to the author’s knowledge) to devise a theory of government advertising’s impact on individuals. Drawing on the Attribution Theory and the ad sponsorship’s literatures, I posit that individuals survey the motivations, interests and intentions

attached to the ad's sponsor. Government advertising constitutes a particular form of communication whose sponsor's motivations are less clear than the motivations behind the political advertising, similarly to interest group advertising. The government's sponsorship constitutes the cue that citizens have at their disposal to evaluate the claims made in government advertising, which can be complemented by information found in the information environment in which they find themselves located.

3.4.1 Attribution Theory, Ad Sponsorship, and Government Advertising

Individuals tend to make attributions about other people's characteristics and motivations. Such attributions help people decide how to behave. The causal attribution in question applies to advertising as well. Attribution theory states that individuals infer each other's characteristics, including motivations and intentions, from the behaviors they observe. Kelley's (1967) attribution theory aims at explaining how message recipients make causal inferences about message sources. According to Kelley, people behave like naïve psychologists as they attempt to develop explanations for people's behavior. Hence, the theory is concerned with understanding how people identify the causes of other people's behavior (Stiff and Mongeau, 2016, p.148); it describes the processes an individual goes through in assigning causes to effects (Eisend 2007, p.616-617).

According to Eagly and Chaiken's view of attribution theory, people are likely to be persuaded by a message to the extent that they see it as conveying the "truth" and tend to discount the message if they attribute it to factors that compromise truth value (Eagly and Chaiken 1993, p.351; Carroll et al 2016, p.142). The authors also point out that when evaluating messages, people may consider not only the identity of the speaker but also salient contextual cues, such as the "communicator's personal circumstances". Therefore, attribution theory is used to explain how

message-related behaviors performed by an audience affect persuasion and how message recipients select those cues that they will process (Sternthal, Phillips and Dholakia, 1978, p.300).

In the realm of consumer research, attribution theory suggests that consumers, when presented to a message, will make an effort to assess whether the message provides an accurate representation or whether the source of the message lacks credibility (Kelly, 1967). Attribution theory states that consumers cognitively infer a motive for the sponsorship behavior (Johnson, Dunaway and Weber 2011, p.101). It suggests that consumers are motivated to acquire an accurate perception of external reality (Gotlieb and Sarel, 1991, p.40). Individuals make predictions, or develop expectations, about what a particular communicator will say, based on what they know about the communication and the situation.

A key concept to the theory is source credibility. During the 1950s, Hovland and colleagues (1953) conducted the first modern social science research on the components of and the effects of credibility. They found that source credibility (i.e., how believable the source is) is likely to be a significant predictor of persuasion. They define source credibility as a combination of two factors: source expertise and source trustworthiness. The former is “*the extent to which a communicator is perceived to be a source of valid assertions*” while the latter is an audience member’s “*degree of confidence in the communicator’s intent to communicate the assertions he considers most valid*” (Hovland, Janis and Kelley, 1953, p.21). Nowadays, most persuasion scholars describe credibility as a combination of a source’s perceived expertise and trustworthiness.

Assessments of a source’s credibility are directly related to the motivation attributed to the source by the audience. The attribution individuals make concerning the motivations of the source can exert an important influence on credibility judgments concerning the source of a message. Thus, the identity of the sponsor may impart information to citizens about the interests and

intentions of the sponsor, which can be used by them to make judgments about the claims made in ads. In other words, the identity of the sponsor can act similarly to heuristics that citizens can use to lower cost substitutes for more detailed knowledge (Dowling and Wichowsky, 2013, p.967). In the context of political advertising in general, the electoral motivation of candidates or parties is salient. Political advertising is motivated by the search for votes or political support. Such salient electoral motivation can lead candidates (and parties) to make disingenuous claims (Ridout, Franz and Fowler, 2013, p.4). For that reason, several authors have stated that interest group advertising is more effective than usual political advertising. Sources that usually argue in favor of their own self-interest are seen as less trustworthy, and therefore as less persuasive, than those sources which argue less (or against) their self-interest (Walster, Aronson and Abrahams, 1966; Groendenyk and Valentino, 2002).

In the case of government advertising, the political motivation is more difficult to detect with clarity than what is usually found in political advertising⁶. Whereas the electoral motivation of a politician, candidate, or party is more obvious and directly self-serving, with the goal of winning office, government advertising is capable of creating a sense of detachment from candidates and parties. Their political self-interested motivations are less clear to citizens. Important cues to voters, such as the name of the incumbent officeholder and party identification, are not usually present in government advertising. As a result, the source's name, that is, a government entity, works as the information shortcut citizens have at their disposal to derive the source's persuasive intent.

⁶ Especially in Brazil, where legislation prohibits incumbent officeholders from appearing in government ads, thus limiting effectiveness for the incumbent.

3.4.2 Government Advertising and the Information Environment

Of particular concern to this dissertation is the role of sponsor (or source) of the message and its effects, as well as the interaction between the sponsor's cues and the information environment (i.e., external reality).

Here, I argue that the information environment in which citizens are located interacts with the message contained in government advertising. This interaction provides valuable cues that help citizens process information found in government advertising. Expectations about the interaction between government advertising and the information environment relate to cognitive consistency theories in social psychology, more specifically the “principle of congruity” (Osgood and Tannenbaum, 1955, p.43), which states that “changes in evaluation are always in the direction of increased congruity with the existing frame of reference”. Following the same theoretical framework, Chen (2018) studied propaganda effects in China and affirmed that state propaganda would exert influence on opinions when reality validates the message in it. More specifically, the persuasive power of government advertising would be contingent on the informational context, that is, whether reality lends support to the claims contained in the advertising.

In this dissertation, I state a similar argument: the persuasive power of government advertising is contingent upon the informational context. The information context in which advertising is delivered shapes whether and how it will affect opinions, which accentuates the importance of gaps that might exist between the government advertising’s rhetoric and reality. If the message in the advertising is supported by the information environment, the persuasive power of the advertising is expected to be enhanced. Conversely, if the messages contained in advertising disagrees with the reality portrayed in the ad, the persuasive power of the advertising is expected to decrease. An example of the interaction between government advertising and the information

environment can be found on the issue of the economy. If a government promotes advertising stating that the economy is doing well (e.g., that unemployment and inflation are decreasing) and such advertising is corroborated by positive economic indicators on the news, the expected power of the government advertising should increase. However, if the advertising's claims are contradicted by the information environment (e.g., advertising showing job creation whereas economic indicators show an increase in unemployment), its persuasive power should decrease. Other factors such as egotropic and sociotropic evaluations could be important in explaining the persuasive power of government advertising. However, the experimental scenario (to be laid out in Chapter 5) is fictitious. The application of egotropic and sociotropic evaluations based on one reality (the “real” world) would not credibly be applicable to describe how individuals would evaluate the economic situation of the experimental setting. Attribution is another relevant mechanism, which is explored in the corresponding empirical chapter.

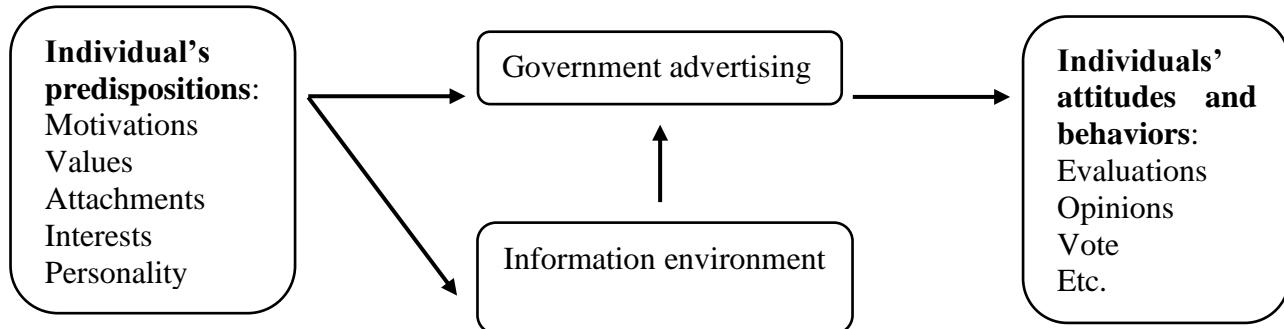


Figure 1 Influence of Government Advertising and the Information Environment on Individuals' Attitudes and Behaviors

3.5 The Determinants of Spending with Government Advertising

To properly understand the motivations involved in investing in government advertising, it is useful to understand advertising as a resource that can be used to achieve specific political goals. One key goal that politicians have is reelection. Even when politicians are not driven solely by reelection, winning it allows politicians to advance other goals, such as advancing their preferred policies or advancing their political ambitions of running for higher offices (Mayhew 1974; Fenno, 1978). Thus, we can assume that incumbent politicians will consider government advertising as a tool that can be used with the goal of increasing their reelection prospects. By investing more in advertising, incumbents can increase the likelihood that voters will better assign credit for accomplishments and positive circumstances to the incumbent, which will lead to a favorable electoral outcome for the incumbent in the next election.

There is no guarantee, though, that government advertising will work as intended. Some conditions, such as the availability of funds, can affect how much incumbents can invest in advertising or even if incumbents can invest in advertising at all. Also, some characteristics of the constituencies can affect the allocation of advertising resources by increasing or decreasing the effectiveness of advertising at reaching citizens. These factors must all be considered when formulating an explanation of why and how governments invest in advertising.

Government spending with advertisements is surrounded by controversy and also some degree of secrecy. Little is known about how governments spend resources with advertising and with what purpose. In this section, I devise a rationale to understand the logic of the spending with advertising by governments. Individual candidates must distinguish themselves from their competitors. As stated in the initial section, one possibility to achieve such goal is through the cultivation of a “personal vote” (Cain et al 1987; Carey & Shugart 1995), according to which

candidates can distribute resources to specific constituencies in order to increase their visibility among voters and, in turn, enhance their chances of reelection. Thus, governments can use government advertising as a political tool aimed at increasing the visibility of the incumbent's actions in office.

In this section, I draw from the literature on distributive politics and argue that government advertising can be used to increase the visibility of incumbent's actions in core constituencies. Further, I state that advertising aims at magnifying the visibility of overall spending (i.e., expenditures on healthcare, education, infrastructure, etc.). In this case, government advertising is not a distributive tool for it cannot be appropriated by voters, contrary to particularized benefits such as pork. That is, government advertising cannot be classified as a typical distributive politics' tool understood as "*as those that involve taxes and transfers, and in particular the decisions about allocations of government goods and services to identifiable localities or groups*" (Golden and Min 2013, p.74). However, the spending with advertising can be distributed in different constituencies to achieve different goals, such as running for a higher office (which will not be analyzed in this dissertation).

This project argues that governments allocate budgetary resources to advertising based on political considerations (term limits and particularistic incentives), and the characteristics of the local context (notably socio-demographic ones). To advance a theory of advertising expenditures, it is useful to understand how incumbent politicians allocate budgetary resources. Next, I analyze the pertinent literature to budgetary resources and derive theoretical insights to be used in the dissertation.

3.5.1 Who Receives Allocations: The Core and the Swing Voter

A group of studies that inform my theory to explain government advertising expenditures concerns the literature on the allocation of budgetary resources by executive offices, especially the U.S. president. Most studies of this sort aim at assessing how federal budget allocation is affected by presidential politics, how the resulting allocation may deviate from a purely social welfare maximizing objective (McCarty, 2000; Kriner & Reeves, 2015), and which group is favored, swing states (and voters) or “core” states (and voters). That is, the president may use budget allocation to enhance his reelection chances either by targeting swing states or by rewarding his supporters (Larcinese et al., 2006). One of the first scholars to differentiate between swing and core supporters and theorize it were Cox and McCubbins (1986), who argued that the optimal strategy for risk-averse candidates would be to distribute to their re-election constituency and overinvest in their closest supporters to maintain existing political coalitions. According to them, politicians would adopt strategies leading to little investment in (if at all) opposition groups, some investment in swing groups, and more investment in their support groups (1986, p.379).

The basic formal model for studying which types of voters receive allocations was developed by Dixit & Londregan (1996), based on Lindbeck & Weilbull (1987) – who outlined the logic for targeting swing voters and advocated the explanatory power of the swing voter – and Cox & McCubbins (1986). According to this model, politicians (modeled as two spatially arrayed two parties, one located to the left and to the right of the ideological spectrum) make allocations across groups of voters within a single electoral district. It is assumed that voters have fixed and exogenously given ideological preferences and receive some degree of utility from the allocations they receive. The model states that a voter will prefer the party further from the partisan ideal point if the party offers the voter a transfer that is large enough to compensate for her ideological

alignment to the other party. Thus, voters can be “bought” with distributive allocations. Dixit and Londregan’s model derive a series of implications. First, that voters with strong partisan attachments need larger transfers to be moved from their positions than voters with weak partisan attachments. As a result, parties would compete for politically moderate voters (i.e., swing voters), for they would be more easily purchased with transfers than voters who are more ideologically aligned with a party. Also, poorer voters would require smaller per capita transfers to shift their votes than richer voters (Golden & Min 2013, p.78) for the former would derive a higher utility from the additional income transferred than the latter.

Dixit and Londregan’s model results in parties engaging in symmetrical strategies leading both to target swing voters. Nonetheless, the authors argue that in some situations it is better for parties to allocate resources to core voters, or voters with stronger partisan preferences. According to the authors, in this case, parties would engage in “Machine Politics”, occurring when a party has a considerable informational advantage about its constituents and is capable of allocating targeted goods to specific individuals with accuracy. Hence, the rationale for the allocation of goods to core voters is that the transfers would be targeted with precision and without waste (Golden & Min 2013, p.79). Over time, this model provided the main theoretical micro-foundations for studies of distributive politics.

Cox and McCubbins’ models (1986) arrived at different results and conclusions than Dixit and Londregan’s. Cox and McCubbins view campaign platforms as promised redistributions of welfare and focused their analysis on the intra-constituency consequences of distributive and redistributive politics. They conceive electoral politics as a two-person redistributive game according to which a candidate’s attitude toward risk affects the stability of his or her coalitional relationships (Cox and McCubbins’ models 1986, p.385). Also, they take into account how

differential rates of support by diverse groups in a constituency would influence campaign promises and the likelihood that stable coalitions would be forged. Their conclusion is that risk-averse candidates will tend to over-invest in their closest supporters. In other words, the optimal strategy for risk-averse candidates would be to promise redistribution to their reelection constituency.

In the US context, Kriner and Reeves (2015) found that the political reasons rather than welfare maximizing ones determine the allocation of federal dollars by presidents. By conducting a county-level analysis of federal spending from 1984 to 2008, they found that presidents are not universalistic, but particularistic, that is, presidents reliably direct dollars to specific constituents to further their political goals. As observed by Cox and McCubbins as well as other scholars, presidents systematically prioritize the needs of politically important constituents (Kriner and Reeves 2015, p.155). Presidents “*target federal grants to pursue reelection, reward their partisan base, and bolster their legislative coalition in Congress*” (Kriner and Reeves, 2015, p.167). Thus, Kriner and Reeves show support for the idea that presidents favor core voters over swing voters.

Another important factor affecting the distribution of budgetary resources is the political support presidents have in states. Overall, the president would be an important player as he can direct more funding toward those states that are run by “friendly” governors and that have large groups of “core supporters” and allied districts (Larcinese et al., 2006). On the one hand, it is possible that states closer ideologically to the president (i.e., states with a high share of presidential votes or with a governor belonging to the party of the president) would receive more funds. On the other hand, states with a close presidential electoral race and states that either changed political affiliation in the most recent election would not receive more funds. Larcisene et all found that states with a large share of presidential supporters got more funds but did not find that more federal

funds are allocated to marginal or swing states. Overall, these studies strongly suggest that the allocation of federal resources by U.S. presidents is shaped by particularistic concerns, that is, to achieve reelection and provide support for co-partisans.

Empirical studies testing the core versus the swing voter hypotheses have found mixed results (Albertus, 2012; Stokes, 2005). In Brazil, the findings have also been mixed. Scholars have not defined arguments in terms of core versus swing voters (Burrier, 2019). For instance, regarding the conditional cash transfer program Bolsa Família, Hunter and Power (2007) and Zucco (2013) found increased support for the Workers' Party (PT). However, benefits would be universally distributed by objective criteria of poverty, without regard for political considerations. These results suggest the prevalence of universalistic considerations over particularistic ones in the allocation of resources. However, other studies have found signs of parochialism in the allocation of resources in the country. For instance, when analyzing the discretionary federal transfers to municipalities, Brollo and Nannicini (2012) found that the executive power targets allies facing competitive elections, which would provide support for the swing voter hypothesis.

In this work, I theorize that incumbents have incentives to engage in particularistic allocation of advertising spending across districts, to advertise more about deeds and accomplishments to some citizens more than to others. Further, spending with advertising can be used to further partisan goals, such as buttressing the local party legislative delegation or the party presence in the state delegation at the Brazilian Congress. Therefore, different allocation strategies are available to the incumbent and none of them are necessarily exclusive. In other words, an incumbent chief executive can allocate resources in more than one way. For instance, a governor can invest in government advertising in swing and core constituencies at the same time.

Here I argue that the incumbent has more incentives to allocate government advertising in core constituencies rather than in swing ones. I agree more with the core constituency logic than with the swing logic of allocation. Because budgetary resources available to advertising are limited, incumbents have more to gain by allocating resources to constituencies that have already benefitted the incumbent electorally. In such case, government advertising serves as a reminder of the work that the incumbent has done in favor of citizens. Nonetheless, in swing constituencies government advertising works more as a persuasion tool. Persuasion tends to be more costly, reason why it is more cost-efficient for incumbents to allocate more advertising funds in constituencies where the support for the incumbent is higher. Moreover, the sheer number of voters in a municipality matter. Because in the Brazilian political system all votes for majoritarian positions (e.g., mayors, governors, president, and senator) have equal weight, the best strategy for an incumbent politician can be simply to advertise to the greatest number of people. Finally, incumbents have incentives to advertise in areas where support for the incumbent's party for the state and federal legislature is greatest, for this allows the incumbent to build important electoral support that can help the incumbent further her electoral goals (in office or outside, and in pursuit of progressive or regressive career ambitions).

3.5.2 The Role of Term Limitation

Another factor with capacity to influence the amount spent by incumbents with government advertising is the institution of term limits. The institution of term limits has important implications for representation, career opportunity structures, and motivations of individuals interested and active in politics (Herrick and Thomas, 2005). Of particular interest here are the career opportunity

structures of incumbent politicians and the impact term limits may have on the incumbents' motivations to engage in reputation-building behavior.

Models of political accountability show that incumbents behave differently when subject to electoral accountability. Elections guarantee political accountability and exert a disciplining role on incumbents' behavior (Dalle Nogare and Kauder, 2017). The chance of reelection constrains politicians to act according to the interests of their constituents (Johnson and Crain, 2004). Reelection yields a disciplining effect on incumbents. Once this accountability is removed, incumbents are more likely to follow policies of their own interest and tend to deviate from those of voters (Besley and Case, 1995; Leguizamon and Crowley, 2016).

As a result, term limits affect the incentives incumbents have to engage in reputation-building activities. A politician tries to signal his or her abilities and thereby build a good reputation with voters. The possibility of reelection incentivizes politicians to engage in reputation-building activities. However, in the presence of term limits, voters are incapable of retaining good politicians who face binding term limits (Smart and Sturm 2013, p.93). Based on this literature, we should expect, then, that if term limitation exists, the politician will lack – or have fewer – incentives to engage in reputation-enhancing activities. However, I present an alternative view. Reputation building changes the incumbent's calculations. In countries such as Brazil, many politicians pursue different offices during their political careers. Different career paths can be chosen. For instance, a former mayor may run for city councilor and after one or more tenures in the local legislature, he or she may decide to run again for mayoral office. Either progressive ambition (i.e., to run for higher office) and regressive ambition (i.e., to run for a lower office in status than one currently occupies) are frequently followed career paths. In all cases, having a reputation as a doer in public office helps a politician follow any career path he or she chooses,

especially if a politician decides to run for executive office. Legacy building, which reinforces reputation building, also plays a role. The implication is that in such scenario term limits may not have the limiting impact on politicians' conduct in office concerning the use of government advertising. That is, a lame duck politician still has incentives to spend in government advertising during his or her final binding term in executive office. The reason is reputation building.

The literature suggests that term limits can lead to important policy implications. For instance, Besley and Case (1995, 2003) found evidence of a disciplining effect of elections on spending. They detected that, on average, US governors—particularly Democrats—who are no longer eligible to run for reelection tax and spend more than governors who can seek an additional term. Moreover, Aidt and Shvets (2012) analyzed how term limits influence per-capita transfers from U.S. state budgets to legislative districts and concluded that pork is smaller in the last term.

The implications for government advertising spending are straightforward. According to the extant literature, non-term limited incumbents who are able to seek reelection in the future have clear incentives to invest more in government advertising, a reputation-building tool. Still according to the extant literature, in the presence of a term limit, incumbents should have fewer incentives to engage in reputation building overall, which would make the spending with advertising less important to the incumbent's immediate career concerns⁷. However, I depart from the extant views and argue that reputation building concerns provide incentives for incumbents to keep spending with government advertising as much, or more, than they spend during their first terms. In Brazil, there are term limits for majoritarian offices (president, governor, and mayor). Majoritarian office holders can run for consecutive reelection only once and are term-limited after

⁷ It should be verified in future studies whether incumbents who follow a progressive ambition (i.e., decide to run for higher office) spend more with government advertising and whether such effort is successful.

one reelection for the same office. Thus, I expect that incumbents keep spending as much or more with government advertising when they are term limited.

3.6 The Effects of Government Advertising at the Municipal Level in Brazil

This dissertation also considers the effects that government advertising may have on political outcomes of interest (i.e., vote share for mayor, reelection for mayor, and turnout) in more than 5,500 Brazilian municipalities over three election cycles (2008-2012-2016). The effects of government advertising are analyzed in conjunction with the effects of total campaign spending in a municipality, the incumbent's campaign spending, and the challenger's campaign spending. This section of the dissertation contributes to the literatures on incumbency (dis)advantage and the role of campaign spending in elections. Therefore, here I present a brief review of the literatures on incumbency (dis)advantage and campaign spending and political careers in Brazil. I also present a review of the Brazilian political system and the role of mayor, followed by the theoretical account of the impact of government advertising and campaign spending.

3.6.1 Incumbency (Dis)Advantage: Review and Explanations

The literature on incumbency advantage is important because it sheds light on the incentives politicians face. Studies of incumbency effects are motivated by immediate concerns over democratic competitiveness, political accountability, and the general fairness of elections (Macdonald, 2014, p.1). It is based on two assumption (De Magalhães, 2015). First, that incumbents strive to maximize their probability of reelection. Second, that an incumbent has an

advantage when seeking reelection. The advantage can be financial (i.e., access to government funds and to campaign donors), strategic (incumbent may have a first-mover advantage), or informational.

Empirical studies for the U.S. find a clear incumbency advantage (e.g., Gelman and King, 1990; Ansolabehere, Snyder and Stewart, 2000). These studies on incumbency advantage in the U.S. have focused on vote share as the outcome of interest. Most studies of incumbency advantage for U.S. congressional and state-level elections have concluded that there is an incumbency advantage over nonincumbents. Estimates of the size of the incumbency advantage vary. Using term limits for state elective offices as an instrumental variable to address endogeneity concerns, Ansolabehere and Snyder (2004) estimated incumbency advantage for state elective offices at about 7-9 percentage points.

Electoral advantage for incumbents has also been registered in other democracies. A similar incumbency advantage has been found in Canada (Kendall and Rekkas, 2012). For the United Kingdom, Gaines (1998) estimated incumbency advantage at about 1-2 percentage points. In Germany, Hainmueller and Kern (2008) estimated incumbency advantage at about 1.5-2.4 percentage points. Overall, studies have found incumbency advantage in single-member district systems in developed democracies (Ariga, 2015).

In other regions of the globe, the incumbency advantage is smaller or may even be negative. Several scholars have argued that there is an incumbency disadvantage, conditional on random election, in India (Uppal, 2009), Brazil (Brambor and Ceneviva, 2011; Klasnja and Titiunik, 2015) and Zambia (Macdonald, 2014), and other low- and middle-income countries. Linden (2004) and Uppal (2009) found strong evidence of incumbency disadvantages in Indian state and national elections.

In Brazil, Brambor and Ceneviva (2011) found that incumbents are significantly disadvantaged in municipal mayoral elections. According to the authors, there is evidence of a strong negative effect of incumbency in Brazilian municipal elections (2001, p.25). Also studying incumbency advantage in Brazil, Titiunik (2011) was one of the first to study the consequences of incumbency in Brazilian mayoral elections. She applied a regression discontinuity design to analyze the incumbency advantage of parties from 2000 to 2004 and found evidence of strong incumbency disadvantage on both the vote share and the probability of being reelected for the three largest parties. Klasnja and Titiunik (2017) concluded that when a party (barely) wins a mayoral election in Brazil, its chances of winning the following election are severely diminished relative to its chances in similar municipalities where the party does not hold the mayor's office. Their conclusion is that in Brazil, where parties are comparatively weak, parties cannot be relied upon to ensure representation.

Different explanations for incumbency advantage have been given. As laid out by Macdonald (2004, p.3-5), these explanations offer important clues as to why incumbency effects vary across countries. A prominent explanation states that the perks of public office may allow incumbents to strategically manipulate voter information and individual effort in order to signal their desirability to voters (e.g., Besley, 2006). This perspective of incumbent control over voter information also relates to Downsian persuasive advertising models, where the perks of public office give incumbents more effective persuasive advertising “technologies” (Mueller, 2003, Chapter 20). Another related explanation suggests that incumbents attract voter support by distributive spending to their constituencies in exchange for political loyalty (e.g., Baldwin, 2013). In contexts where opposition parties are weak and fragmented, voters may vote for the incumbent party in order to guarantee access to patronage (Wantchekon, 2003). A third class of explanations

states that incumbents may have advantage in the mobilization of campaign funds and political endorsements through stronger political networks. The desire of fund suppliers to align themselves with the expected winner would guarantee valuable campaign resources that challengers would have difficulty matching. A fourth class of explanation pays attention to the role that poor economic conditions may exert over incumbency (dis)advantage. Simply put, poor economic conditions and weak management of the economy would lead to the defeat of incumbents in many low- and middle-income countries (see Lewis-Beck & Stegmaier, 2008). A fifth explanation refers to a deterrence effect in which high-quality challengers strategically choose to run in districts where an incumbent candidate is not running for reelection. Last but not least, a sixth explanation addresses the role of weak party systems and opposition coordination. In this case, weak party systems can drive incumbency disadvantages where parties are unable to deter legislators from rent-seeking behavior (Titunik, 2011).

Overall, empirical investigation on incumbency (dis)advantage is full of complexities and nuances, it is growing rapidly, and it will continue to expand across the globe. The interaction of the aforementioned mechanisms to formal and informal institutions is complex and still understudied.

3.6.2 Campaign Spending and Political Careers in Brazil

The literature on campaign spending concerns with studying whether and how campaign spending affects electoral results. The initial research focused on the U.S. congressional elections. There has been no doubt that campaign spending matters. The main controversy has been the extent to which the effects of spending differ for incumbents and challengers. Jacobson's (1978) early work into U.S. House elections in the 1970s found that incumbent spending was ineffective in

generating additional votes, despite observing a strong positive return from challenger spending, even when controlling for endogenously determined "reactive" spending, where incumbent spending was driven by the size of the challenger threat. Jacobson (1978, 1980) provided evidence that they did differ: the more House and Senate challengers spent, the better they did at the polls; the more incumbents spent on their campaigns, the worse they did. Once the challenger's spending was taking into account, the incumbent's spending made no apparent difference. In sum, heavy spending by incumbents can be seen as a sign of electoral weakness, whereas heavy spending by challengers can be seen as a sign of electoral strength. Campaign spending seems more productive for challengers than for incumbents. Subsequent studies have generally also found that incumbent spending is less effective than challenger spending (e.g., Abramowitz 1988).

The most enduring controversy in the literature on campaign money concerns the relative impact of spending by incumbent and challengers. There is evidence indicating that incumbents receive less return on their campaign expenditures (Jacobson, 1978, 1990; Ansolabehere and Gerber, 1994). The relationship between spending and votes is not straightforward. Researchers for the most part have trouble establishing a causal and quantitatively important connection between spending and vote shares (Stratmann, 2005, p.137). The relationship between spending and votes looks very different depending on the candidate's incumbency status. The more candidates who challenge incumbent officeholders spend, the better they do on election day; the more incumbents spend, the worse they do. Such relationship has reappeared in every election since 1972 (Jacobson 2006, p.201). The consensus explanation is that campaign spending by incumbents rises with the magnitude of the electoral threat they face; the more trouble they are in, the more they spend (Jacobson, 2006). Spending by incumbents do not appear to cost votes, but also appear to have little or no effect on the results. However, spending by challengers is strongly

related to the election outcome. That is, the more challengers spend, the better they do in the election. As a result, the estimated payoff for a given level of spending seems much greater for challengers.

However, the differing impact of campaign spending by incumbents and challengers is not universally accepted (e.g., (Green and Krasno, 1988, 1990; Goldstein and Freedman, 2000). Green and Krasno (1988), for instance, argue that much of the research on the topic has been plagued by methodological problems, including failures to control for the reciprocal nature of the relationship. That is, strong challengers are able to mount serious threats to the incumbent that, in turn, cause the incumbent to spend more. This increased spending, however, if offset because strong challengers are able to raise more funds. Green and Krasno concluded that incumbent spending decreased the number of votes the challenger received.

There are several methodological challenges involved in the estimation of the effect of campaign spending on electoral outcomes. The key problem is endogeneity. Campaign spending is endogenous: challengers expected to do well raise more money, as well as incumbents who face more serious electoral threats. Campaign spending is endogenously determined by expectations about the electoral results. The better a challenger's prospects, the more contributors are willing to invest in their campaigns, which improves the challengers' prospects. Also, from the beginning, scholars have found that incumbents' vote shares and spending are simultaneously determined: while the spending influences the vote share, the expected vote share may influence the spending (Stratmann, 2005, p.138). As stated by Jacobson, "*money may help win votes, but the expectation that a candidate can win votes also brings in money*" (Jacobson 2006, p.203).

The endogeneity problem, characterized by simultaneity bias (i.e., mutual causation of money and expected votes) or omitted variable bias (i.e., unobserved determinants of both

spending and outcomes), has been addressed in a variety of ways and the results have been disparate (Jacobson, 2015). Some scholars simply replicated the initial findings that challenger spending matters and incumbent spending does not (e.g., Abramowitz, 1988; Ansolabehere and Gerber, 1994). Other studies reported that the marginal returns on spending are greater for challengers than for incumbents but to a lesser extent than OLS estimations would suggest (e.g., Bartels, 1991). Others argued that spending by both incumbents and challengers has approximately the same effect or that incumbent spending is more effective (e.g., Green and Krasno, 1988, 1990; Erikson and Palfrey, 1998). Finally, one study, based on analysis pairs of House candidates competing for a second time, concluded that no one's candidate makes any difference (Levitt, 1994).

In Brazil, the first findings related to the role of campaign finance on elections are from Samuels (2001a, 2001b, 2001c). He explored the impact of campaign spending on incumbent and challenger vote shares in elections to the Brazilian Chamber of Deputies and concluded that campaign spending influences the results of Brazilian campaigns. More specifically, Samuels found confirmation that campaign spending influences outcomes in Brazilian congressional races. That is, money helps win elections in Brazil equally for incumbents and challengers.

According to Samuels, the main arguments that explain the logic of the relation between money and votes in the United States does not explain the Brazilian case well. In the United States, incumbents and challengers benefit themselves differently from campaign spending. Incumbents would benefit less because they bring an electoral advantage from their mandates, which attenuates the impact of campaign financing during the campaign period. On the other hand, challengers, for being less known, obtain more benefit in their campaigns from campaign finance.

In Brazil, there would not be incentives to the construction of political careers on the legislature because of particular features of the Brazilian political system (i.e., centrality of the executive power, open list proportional representation, large district magnitudes, large number of candidates and weak party system). To Samuels, there is a relatively low payoff to holding a seat of federal deputy. That is, incumbents gain little advantage in terms of name recognition from holding office. Sometimes challengers have greater name recognition than incumbents (Samuels 2001b, p.570). Another factor that contributes to the relative lack of an incumbency advantage in Brazil is that incumbents who run for reelection are relatively weak candidates. As a result, Brazil's electoral system offers incumbents little protection. The electoral system aggravates individualistic and personalistic tendencies and provides incentives for individualistic campaign tactics. It promotes high individual campaign spending (Samuels, 2001a, p.33). Following this interpretation, it is possible to infer that the Brazilian political "market" would be of high risk: all candidates would be able to translate resources into votes. Money would matter equally for all candidates. The absence of incumbency advantage in legislative elections implies that, at every new election, all candidates would depart from the same level.

Further studies continued studying the role of campaign spending for the Brazilian lower chamber and expanded the scope of the investigation, studying the determinants and the effects of campaign funds for the Brazilian Senate and Brazilian majoritarian elections.

Analyzing the campaign financing of the elections to the National Congress (i.e., lower and higher chambers) for the elections of 2002 and 2006, Lemos, Marcelino, and Pederiva (2010) found that money matters for campaigns: elected candidates spend on average five times more than non-elected candidates. Moreover, candidates running for reelection receive more resources than challengers. Concerning the incumbency effect, they found that in Brazil challengers spend

less because they have less access. When analyzing the average of spending between elected candidates (i.e., incumbents and challengers), the authors found that the spending follows Jacobson's explanations for the American Congress. That is, incumbents spend more and have more resources than challengers, but challenges win elections investing less money proportionately. For the Brazilian Senate, they found that challengers obtained more campaign funds than incumbents (Lemos, Marcelino, and Pederiva, 2010, p.384). Also studying the lower chamber, Mancuso and Speck (2012) found a positive and statistically significant relation between campaign financing and electoral result, which were also corroborated by Silva and Cervi for the period of 2010 and 2014 (Silva and Cervi, 2017, p.79). They also found that the political impact of campaign financing is smaller for incumbents than it is for challengers. Addressing the role of corruption scandals on the political fate of career members of the Brazilian Congress, Jucá, Melo and Rennó (2016) found that although incumbents tainted by corruption scandals tend to be penalized electorally, campaign spending attenuates this effect. Their econometric analysis showed that above a certain threshold of funding, Brazilian members of Congress become impervious to negative exposure.

Finally, a couple of studies also addressed the role campaign spending exerts in majoritarian elections. Speck and Cervi (2016) analyzed the mayoral election of 2012 and theorized that parties' access to campaign advertisement depends on two factors: the communication's infrastructure available in a municipality and the electoral legislation regulating the access to campaign advertising and the distribution of time on radio and TV. Their key variable, candidate's spending, was measured as the percentage of spending of each candidate divided by the total campaigns' funds amassed in each municipality by the candidates. They also assessed the impact that free campaign advertising had on electoral results. They concluded that campaign

resources exert an important role in elections and have a direct effect on electoral performance for mayor. Moreover, the importance of money on the campaigns would grow according to the size of the municipality. The larger the municipality, the lower the money's efficiency to obtain votes. (Speck and Cervi, 2016, p.71). Borba and Cervi (2017) studied the electoral performance of 1,281 candidates who ran for president, governor, and mayor of capitals between 2002 and 2014 in Brazil and concentrated their analyses on four explanatory variables to explain electoral results in majoritarian elections: free TV and radio campaign air time (*Horário Gratuito de Propaganda Eleitoral* – HGPE), campaign financing, incumbent government's job approval, and reelection. Campaign spending exerts a positive and statistically significant impact on the vote shares of incumbents running for reelection.

Overall, the Brazilian literature has found that campaign financing matters. Candidates with more access to campaign funds obtain more votes in proportional and majoritarian elections (Samuels, 2001a; Samuels, 2001c; Speck and Mancuso, 2012). The relative impact of campaign spending for incumbents and challengers has not been systematically studied by scholars. There are no studies verifying the relative impact of campaign spending for incumbents and challengers for Brazilian mayoral elections.

3.6.3 The Brazilian Political System and the Role of Mayors

The Brazilian electoral system is an open list proportional representation system. Part of the Brazilian legislature is elected according to a proportional system (the lower chamber and the subnational chambers), and another part to a majority voting system (Senate). The executive (president, governors, and mayors) is elected according to a simple majority voting system. Chief executives are elected according to two different rules: the president, governors, and mayors from

municipalities with more than 200,000 voters are elected in two rounds. A candidate must obtain at least 50% plus one of the valid votes in the first round. If no candidate reaches the qualified majority of the votes in the first round, then a second round takes place, in which the two candidates with the most votes in the first round face each other. In municipalities with less than 200,000 voters (98.3% of all municipalities), the results are determined by a simple majority: the candidate with the most votes wins the election. The Senate is made up of 81 members (three members for each electoral district, the state) and have a mandate of 8 years. Elections to the Senate are decided by simple majority vote.

Elections take place simultaneously every 4 years. State and national elections occur on the same day; local elections are staggered by 2 years. The electoral districts are the same as the different administrative units (i.e., more than 5570 municipal authorities and 26 states plus a federal district). Voting is compulsory for all Brazilians between the ages for 18 and 70 and voluntary for individuals with 16 and 17 years old as well as for citizens over 70. Illiterate citizens are not required to vote. Listing is compulsory but not automatic. All citizens who are required to vote must register at a regional electoral court. Concerning the electoral campaign period, campaigns were financing through private donations. In September of 2016, the Brazilian Supreme Court prohibited donations from private enterprises and established the exclusive public funding of campaigns. It allowed candidates to self-finance their campaigns if they wish or can, though. In addition, there is an electoral campaign period on radio and TV (*Horário Eleitoral Gratuito*), which provides parties with free public advertising on radio and television (Nicolau and Stadler, 2016).

The Brazilian political system has been characterized for low levels of party identification among citizens, which results in high electoral volatility. Such low party identification can be

attributed, at least in part, to the country's fragmented party system, which leads to party switching (Desposato, 2006), weak party discipline (Ames 2001, Mainwaring, 1991, 1993), and the personal vote (Samuels, 2001a). Part of the cause for both the candidate-centered competition and the weak party system would be the country's electoral system based on Open-List Proportional Representation. Nonetheless, more recently some scholars have pointed out that parties play a larger role in the Brazilian Congress than was initially acknowledged (Albarracín, 2016).

In Brazil, the smallest unit of government is the municipality. Brazil has more than 5,570 municipalities, varying considerably in population size. Brazilian mayors are elected for a four-year term, can run for reelection, and can serve only two consecutive terms. In larger and wealthier municipalities, mayors control many appointee positions and a sizeable budget. Mayors can obtain considerable media attention and are able to claim credit for implementing public works within the municipality (Samuels, 2003, p.22). However, the majority of municipalities in Brazil have small populations and tight budgets. The benefits of office include pay, control over the municipal budget, the ability to influence policy, and the capacity to distribute patronage opportunities (Samuels, 2003, p.17). It also includes, for some municipalities, the capacity to spend with government advertising.

3.6.4 Theory on Government Advertising, Campaign Spending, and Electoral Results

In this section, I lay out a theory for the impact of government advertising and campaign spending on electoral results. Based on these theoretical considerations, I derive testable hypotheses to be latter tested in the empirical analyses. Here, it is assumed that government

advertising and campaign spending generate information that is useful to voters, albeit in different ways.

Mayors may advertise their activities in different ways (e.g., newsletters, social media, public speeches, media appearances). However, government advertising gives incumbents more control over what constituents see or listen to. Whereas media access is infrequent and mediated, government advertising can be frequent and is unmediated. Government advertising affects voters before the election and constitutes a resource of incumbency advantage. The incentives to spend on advertising are two: build a positive reputation before the election and signal effort to the electorate. The goal of government advertising is to form views of the incumbent administration (and to signal effort) during the long run.

Because monitoring costs are high, citizens are generally unable to keep track of how well the mayor is performing her job. As a result, mayors must work hard to draw attention to what they do during their terms. It is important not only to be active on behalf of constituents; it is also necessary to advertise the activities. As Hall (1996) pointed out concerning member of the U.S. Congress, “*efforts on behalf of constituents are not very valuable if they are not visible*” (1996, p.62). Government advertising conveys messages that signal competence and effort (e.g., problems solved by the City Hall, how the City Hall brought federal programs and projects to the municipality, public works finished, etc.).

Also, the type of publicity that government advertising provides is important for incumbents looking to gain support from citizens beyond their base. By claiming credit for accomplishments that benefit the municipality without drawing partisan opposition, government advertising can be used to appeal to constituents who may not otherwise support the incumbent. There is a problem with government advertising, though: constituents may not be likely to trust

government advertising for considering it biased, even though this type of advertising is less politically biased and charged than ordinary political advertising. Most importantly, government advertising in Brazil is not aired during the campaign period by law.

Campaign spending (from incumbents and challengers) also aim at signaling effort. However, this effort is exerted in the short term in a very specific period, the official campaign period. Voters consume information derived from campaign spending during the electoral period. Based on this information, and also information from government advertising, citizens form their vote choices. Differently from government advertising, the information that originates from campaign spending is self-interested by definition. Such self-interest may be detrimental to candidates' efforts aimed at persuasion. Nonetheless, the information originated from campaign spending conveys information necessary to voters that government advertising does not provide (i.e., candidate's name, candidate's number, party ID, political endorsements, political supporters, etc.).

Hence, government advertising and campaign spending generate different types of information to voters. Both aim at signaling effort to voters and reputation building in the case of government advertising. However, the information provided to voters by these two sources occur at different points in time and are qualitatively different as well. Whereas government advertising is aired during the pre-electoral period (i.e., beginning of incumbent's term until the eve of the official campaign period), the information conveyed by campaign spending takes place during the official campaign period only. Regarding the qualitative differences between both sources of information, the information provided by government advertising is devoid of important electoral information that is present in campaign ads, such as candidate's name and candidate's number.

Voters process information in different socioeconomic and political contexts, and such differences in contexts affect the pattern of electoral competition and the degree of impact of each information source. As previously discussed, factors such as poor socioeconomic conditions and the number of candidates (as well as other often unmeasurable characteristics such as challengers' quality) differ from constituency to constituency and affect the degree to which information can be received by voters and can affect their vote choices.

Last but not least, the political science literature recognizes limitations that citizens face to be competent evaluators of past performance of candidates, particularly incumbents, that must be taken into account in the current study. Three biases are especially important: a) voters' focus on recent rather than cumulative performance, b) that voters are influenced by events unrelated to the incumbent's performance, such as natural disasters, and c) that voters can be manipulated by rhetoric and advertising (Huber, Hill, and Lenz, 2012). The most important to the current purposes is the first type of bias.

3.7 Government Advertising and Electoral Participation

Turnout is considered to be one indicator of democracies' health. Low turnout is often taken as bad for democracy, for it calls legitimacy into question. It also suggests a lack of representation of certain groups (Franklin, 2004, p.2). High turnout, on the other hand, suggests higher legitimacy of an election and a better representation of diverse groups in society. As a result, scholars have investigated which factors lead individuals to participate at the individual level and the aggregate level as well.

Studies that investigate who votes and why can be organized in three different approaches (Norris, 2002). Cultural explanations emphasize the role that attitudes that individuals bring to the electoral process, which include a sense of civic norms, political interest, and party identification. Since Almond and Verba's Civic Culture (1963), studies have surveyed the importance of political attitudes and values related to the early socialization process. Second, structural explanations state that social and demographic inequalities (e.g., based on educational qualifications and socioeconomic status) lead to inequalities in other civic assets, such as knowledge and time (Norris, 2002, p.83). Third, there is an agency approach to the study of political participation. This group of studies have long stressed the role of mobilizing agencies. For instance, Rosenstone and Hansen (1993) emphasized the electoral functions of party and candidate organizations, group networks, social networks, and the role of the media.

In the United States context, explanations of national and state turnout have focused on socioeconomic characteristics, institutional arrangements (e.g., registration requirements) and political mobilization efforts, especially from political campaigns (Holbrook and Weinschenk, 2014, p.43). Thus, studies that explain variation in voter turnout usually fall into three broad categories and include explanations related to voters, contextual factors, and mobilization efforts from candidates and political parties (Hogan, 1999, p.404-405).

Studies that have looked at characteristics of voters to explain variation in turnout have found that voters' socioeconomic status, their levels of political resources, and their attitudes are found to play a central role in why some people choose to participate whereas others choose not to (e.g. Almond and Verba, 1963; Wolfinger and Rosenstone, 1980). A second group of studies focuses more on the contextual determinants of participation, for instance, the role of legal barriers or incentives for voting. Studies focused on registration requirements have found that the closing

date of registration is one of the most important determinants of voter participation (Wolfinger and Rosenstone, 1980). A third approach to the study of turnout has paid attention to the mobilizing effects of political parties and candidate campaigns (Hogan, 1999, p.405). Earlier studies modeled mobilization effects through the action of canvassing efforts of parties (e.g., Kramer, 1970-1971). Most recently, though, research has put greater emphasis on the mobilization effects of individual candidate campaigns. Most studies of this sort have operationalized campaign effort as total spending and have found that it is a relevant factor in explaining turnout (e.g., Caldeira and Patterson, 1982). Previous studies demonstrate that candidate activity (measured as campaign spending), has a strong influence on participation in statewide, congressional, and state legislative elections. These studies focus on the direct effects of campaign spending and have found that spending exerts a positive influence on voter participation (Cox and Munger, 1989; Hogan, 2013, p.840-841).

Recent scholarly evidence indicates that spending may actually promote greater participation in the political process. Numerous empirical studies have documented a positive relationship between campaign expenditures and voter participation for several offices, including the presidency (Holbrook and McClurg, 2005) and the Congress (Jackson, 1993), among other offices. Experimental studies have shown that citizens are more likely to vote when they are stimulated by exposure to campaign information (Green and Gerber 2008). Observational studies have shown that campaign mobilization effort is a very powerful predictor of turnout not just in the US (Hillygus 2005), but across various electoral institutions (Karp and Banducci 2007; Karp et al. 2008).

3.7.1 Government Advertising, Campaign Spending and Participation

This dissertation continues the third line of inquiry (i.e., the mobilization approach, or the agency perspective in Norris, 2002) by examining the relative effects of non-campaign effort (government advertising) in the state of Minas Gerais and the effects of non-campaign and campaign effort (i.e., government advertising and campaign spending from incumbents and challengers) in Brazilian municipal elections. In this case, the mobilizing agent is the incumbent. It is important to emphasize that this study does not deny that individual differences in attitudes and resources are important causes of who participates and who does not. Rather, it recognizes that government advertising and campaign spending by incumbents and challengers are elite efforts to influence electoral outcomes, and such perspective is better studied through the mobilization lens.

Usually, campaign efforts put in place by political parties and candidates, together with media coverage, are the key sources of information available to voters. Government advertising offers an additional, non-campaign tool, source of information with mobilizing effects. Hence, government advertising is a non-campaign tool at the disposal of incumbents that impacts electoral participation. It can be understood as an investment in the mobilization of voters, to which voters might rationally respond by turning out to vote. From a Downsian (1957) perspective, government advertising and campaign spending lessen the cost of voting by providing voters with valuable information.

Government advertising informs and mobilizes voters. More specifically, government advertising reduces the electoral cost of voting by reducing the informational demand on voters about the job performance of the incumbent politician or candidate. Second, government advertising also mobilizes by persuading voters about the benefits that might flow from the

incumbent's reelection. Mobilization via government advertising and campaign spending gives voters a reason to care about the outcome. The more incumbents invest in government advertising, the greater their capacity to expose voters to information about the incumbent's performance, which can be electorally relevant.

The theory assumes the premise that more visible campaigns encourage electoral participation. The higher the spending with government advertising (and campaign spending), the more visible a campaign becomes to voters. However, we should not expect government advertising to have a uniform effect on turnout among all group of voters (i.e., the incumbent's supporters, the incumbent's opponents, and the undecided). As McGhee and Sides (2011) observed, the mobilization of partisans may prove more efficient than other ways of winning votes. Incumbents, facing budgetary constraints, have greater incentives to target their supporters. Thus, government advertising is believed to increase more the instrumental benefits of voting for supporters of the incumbent.

3.8 Conclusion

In this theoretical section, I developed a series of arguments to explain a) the content of political advertising, b) the impact of government advertising at the individual-level, c) the determinants of the allocation of government advertising, and d) the effects of government advertising and campaign spending. A key element underlying all the theoretical accounts in this chapter is the understanding that government advertising act as a tool that helps incumbents cultivate a personal vote. It is based on the assumption that incumbents aim at maximizing their chances of reelection. Government advertising can be used by incumbents to shape citizens'

perceptions about the incumbent's performance. This is achieved by government advertising by allowing the incumbent to claim credit for governmental deeds. Government advertising conveys positive information about governmental action and, indirectly, performance information, which allows incumbents to form retrospective evaluations about the incumbent's tenure.

With regard to content, I devised an inductively-oriented grouping of government advertising into three distinct categories based on the intended goal of the ad: information provision, credit claiming, and behavior change. The first aims at publicizing policies or events and is moderately explicit regarding credit claiming appeals. The second claims credit for past, present, or future policies and accomplishments and it is the most explicit respecting the credit claiming appeal. The last one, behavior change, aims at informing, educating, or alerting the public to adopt or change a behavior and it is the least explicit concerning credit claiming appeal.

Also, the dissertation devises theoretical expectations regarding the way government advertising affects individuals. Based on attribution theory and ad sponsorship theories, it is understood that individuals cognitively try to infer a motive for the sponsorship behavior (Johnson, Dunaway and Weber 2011, p.101) and that they make predictions, or develop expectations, about a communicator based on what they know about the communication and the situation. A key element to the theory is source credibility and the motivation attributed to the source by the audience. Individuals attribute motivations to the source of communication and such attribution exerts influence on credibility judgments concerning the source. The identity of the sponsor conveys information respecting the motivations of a communicator, which can be used as heuristics by citizens when forming judgments about a message receive by them. Whereas political advertising presents salient self-interested electoral motivations, which tend to be seen as less

trustworthy and therefore as less effective, government advertising's motivations are less salient than political advertising.

Sponsorship does not act alone, though, on citizens' judgment process. Instead, it also interacts with the information environment, or external reality. The information reality provides clues that help individuals process information found in government advertising. When the message contained in a government ad is congruent with the external reality, the persuasive power of the advertising is expected to increase. On the contrary, when the message contained in a government ad is incongruent with external reality, the persuasive power of the advertising is expected to decrease. The implication of the impact of such interaction is clear: government ads that portray rosy views of reality that do not agree with the reality in which citizens find themselves will not deserve citizens' attention or will be viewed unfavorably. Hence, there is a limit to how much government advertising can be used as mere propaganda.

At the aggregate level, it is argued that government advertising is employed to gather support for the incumbent in core constituencies rather than in swing constituencies. Because budgetary resources available for advertising are limited, targeting core constituencies constitutes a more cost-efficient strategy than targeting swing constituencies, which demands more costly efforts of persuasion of a subset of voters. Another factor that must play a role in advertising allocations concerns term limits. They affect the incentives incumbents have to engage in reputation-building activities. Contrary to what the extant literature suggests, I argue that reputation building and legacy building concerns make lame duck politicians more likely to keep spending as much as (or more) with government advertising in their second terms in office.

Finally, also at the aggregate level, I argue that government advertising affects voters before the election. The incentives to spend on advertising are two: to build a positive reputation

before the election and to signal effort to the electorate. As a result, the goal of government advertising is to form views of the incumbent government's administration (and to signal effort) over the long run. Campaign spending, on the other hand, signals effort in the short term in a very specific period and is qualitatively different from government advertising, which means that government advertising and campaign spending result in different types of information to voters. Given the closeness of the generation of information to the election engendered by campaign spending, we can expect this spending to be more potent than the information generated through government advertising.

As already discussed, one important limitation is that we do not know *what type of information* voters “consume” when they face government advertising. Is the information mostly electorally-oriented, claiming credit for accomplishments? Or does government advertising provide other types of information? If yes, which types of information are provided? The analyses that follow on Chapter 4 aim at answering these questions.

4.0 Government Ads and Content Analysis

4.1 Introduction

The academic work on political advertising has usually focused on the impacts of advertising on different outcomes of interest, such as vote choice, voting decision, turnout, learning, and political knowledge. Most recently, more emphasis has been dedicated to the analysis of the effects of political advertising. Even though the advertising's effects are usually mediated by factors such as party affiliation, political knowledge, and political involvement, the literature has found that political advertising can affect voting. It can persuade viewers to vote for a specific candidate or issue, it can have agenda-setting and third-person effects, and it can indirectly affect vote intention. The key independent variable in most studies has been advertising exposure, either by using survey measures or through experimental assignment (e.g., Valentino, Hutchings, and Williams, 2004) and the use of natural experiments (e.g., Ashworth and Clinton, 2006; Krasno and Green, 2008). There has also been the use of content analysis, albeit not extensive in number. For instance, Spiliotes and Vavreck (2002) analyzed the content of ads to explain whether political parties act as a constraint on candidates' commitments. Also, Sides and Karch (2008) examined whether the issue content of campaign appeals are capable of mobilizing particular subset of voters. Nonetheless, government advertising has received limited attention from the political communication literature. Concerning the methodology used, there is no work (to the author's knowledge) that uses content analysis to analyze the content of government ads. There is also a paucity of research that develops a theoretical framework to analyze their content.

In this chapter, I present an alternative classification scheme of government advertising that is different from the classification schemes available in the political communication and the political science literatures. This classification scheme takes into consideration the goal or purpose of the government ads, which can be classified into *information provision*, *credit claiming*, and *behavior change* ads. I also propose additional classification of the government ads based on features such as the display of specific examples or improvements in the ads, the ads' time horizon, the presentation (and the number of) corroborating sources of evidence, ads with specific names or titles, the presence or absence of specific audio-visual techniques, groups targeted by the ads and the issues covered in the ads, among others. Next, I present the content analysis' methodology and main descriptive results, followed by a conclusion.

4.2 Additional Features of Government Advertising

Besides the classification into information provision, credit claiming, and behavior change, government advertising can be classified according to different and additional categories. Based on the literature on political advertising and content analysis, I propose other criteria to classify ads in addition to the ad's goal or purpose.

Government advertising is based on information about accomplishments or improvements. Hence, I classify government ads with respect to whether they show specific examples of improvements and also how many improvements are displayed in the ads, in words or images. Ads can also vary concerning their time horizon, that is, conveying information about policies in the past, present, or future (or a combination of those). Government ads also vary with respect to whether they show corroborating sources of evidence (e.g., an anecdotal account from an

individual, statistical evidence, etc.). Some ads also display specific names or titles defining it, and such denomination can have important political consequences. If an elected official wants to associate his personal reputation to a policy, it can be beneficial to design a policy with a specific title that citizens can relate to that office holder latter on. Examples of prominent policies with specific titles are the conditional cash transfer programs “*Bolsa Família*” program (i.e., Family Allowance program), created in 2004, and the Mexican program “*Oportunidades*”, created in 2002. Government ads also vary with respect to whether information about the money spent in a policy is presented or not, as well as audio-visual techniques (e.g., who speaks to the audience in TV ads, whether the ad portrays a celebrity). Last but not least, government ads can also differ with respect to the social groups that are targeted in the ads (e.g., women, children, public servants, workers, etc.) and the issues covered in the ad (i.e., economy, social issues, law and order, etc.). All these different aspects of government advertising are categorized and subject to the content analysis that will follow next.

4.3 Content Analysis: Methodology

4.3.1 Data

I rely on advertising data from the Brazilian firm *Arquivo da Propaganda* (Propaganda’s Archive), which contains a very large dataset of ads aired in Brazil. The data consist of a set of storyboards, audio and video files (for radio ads and tv ads, respectively). I obtained and organized advertising data for a sample of ads from the Minas Gerais’ state government from January of 2003 to December of 2014 and a sample of Minas Gerais’ city halls’ ads from January of 2005 to

December of 2016. The unit of analysis in these data is each piece of political advertising. The data record the date and time of each airing, the media market in which it aired and the ad's sponsor(s).

Ads were selected through a simple random sample selection process (without replacement) from a list of all the ads for the state government of Minas Gerais and the state's city halls. From these initial lists, I eliminated advertising belonging to state-owned companies and also ads co-sponsored with other government entities (e.g., an ad sponsored by the state government of Minas Gerais and the Brazilian federal government, or the state government of Minas Gerais and a city hall). After these eliminations, I obtained a total of 939 ads from an initial list of 1928 ads from the state government. Likewise, for the state's city halls' ads, I obtained a total of 712 ads from an initial list of 917 ads. After the first round of eliminations, I also eliminated from sample consideration all ads which were aired in media markets other than Minas Gerais. As a result, I obtained 866 ads from the list of 939 ads for the state government of Minas Gerais and 695 ads from the list of 712 ads. From the lists of 866 ads and 712 ads, I proceeded to a simple random sample selection (without replacement) of 25% of the 866 ads, resulting in the final data sample of 217 for the Minas Gerais' state government. I also proceeded to a simple random selection (without replacement) of 31% of the 695 ads, resulting in the final data sample of ads of 215 ads for Minas Gerais' city halls.

4.3.2 Ad's Coding

One graduate student was hired to co-code the ads with the author. The co-coder was trained during two months on ads from unrelated government ads to ensure that variables and item definitions were clear. Eventual differences in coding were dealt with through discussion and

additional exercises to ensure a common understanding of the coding procedures. After training, each coder received half of the ads from Minas Gerais's state government and half the ads from Minas Gerais' city halls to code. Each coder coded the ads individually and separated from each other. Later, the two codes were combined to establish intercoder reliability measures (i.e., Percent agreement and Cohen's Kappa), which can be found on Tables 1 and 2 in the Appendix.

4.3.3 Coding Measures

The two datasets of ads contain the same measures. Each dataset contains information about the year in which each ad was aired, the ad's sponsor, the type of media where the ad was aired (i.e., newspaper, magazine, radio, TV, outdoors), and media market where the ad was aired. In addition, the datasets contain the information coded by the coders. The most important measure is each ad's goal or purpose, which can assume one of three categories (i.e., information ad, credit claiming ad, or behavior change ad).

The data contain measures of whether the ad shows specific examples of policy improvements and, if so, how many specific examples were shown in each ad. For a policy measure to qualify as an improvement, it needs to be a clearly identifiable policy (i.e., with a specific name) or a policy that applies to a specific geographic location. For instance, a hospital with a specific name (e.g., Hospital Maria do Carmo) qualifies as a specific example of an improvement. On the other hand, an ad that shows that a government built 4 new hospitals is generic and does not apply as a specific improvement. Relatedly, an ad that shows a public policy being delivered in a specific geographic location (a new bridge at neighborhood X) qualifies as a specific example of improvement. If, however, an ad does not specify a name or a geographical

location that allows a policy to be clearly identified, it does not count as a specific example of an improvement.

The dataset has a measure of the time horizon of each ad, meaning whether the time tense used in the ad was in the past, mix of past and present, present, mix of present and future, or future. To assess information about the advertised money spent with policies, the data contain a variable assessing whether each ad advertised the amount spent with policies. Another important piece of information regards whether government ads show supporting sources of evidence to buttress claims made in the ads or not and, if so, which supporting source of evidence was offered. To that end, I measured the supporting sources of evidence in each ad (i.e., none, personal testimony from individual(s), news' headlines, statistical information, and other). Concerning statistical information, the coding assumes a broad interpretation of what qualifies or not as statistical information. Any numerical information conveying quantity of some policy output qualifies as statistical information, ranging, for instance, from the number of ambulances purchased by a city hall government to the amount spent with a new bridge.

Moreover, the data also contain information on whether each ad provides information about a policy with a specific name mentioned in words or pictures. This information is very important because in several countries (and especially in Brazil) governments give specific titles to their initiatives, which can be used by incumbent office holders for advertising and reputation building reasons with electoral goals in mind. The data also collects information about audio-visual techniques used in the ads, particularly for TV ads (i.e., who speaks to the audience in the ad, whether the ad features a celebrity). Also, the data contain information about whether an ad sponsors or endorses third-party initiatives. Lastly, the data contains information about which social group is targeted in the ad, in words or pictures (e.g., the elderly, workers, teachers, etc.)

and the ad themes or issues of each ad. Each ad can cover more than one social group and more than one issue.

As a result, the final datasets provide a comprehensive account of the information conveyed in government ads and provides an initial basis of comparison across different government and countries.

4.4 Results

Below, I present descriptive statistics of the results for each variable coded in the datasets. I present each variables' frequencies and percentages.

The most important variable is the ad's goal or purpose. As already stated, government ads can assume one of three categories. Government ads can publicize or promote a policy, claim credit for past, present, or future policy measures and accomplishments, or can inform educate, guide, or alert citizens to adopt or change behavior. Table 2 presents descriptive statistics of ad's goals.

Table 2 Ad's Goal

Goals	<u>MG state government</u>		<u>MG city halls</u>	
	Freq.	Percent	Freq.	Percent
To claim credit for past, present, or future policy measures and accomplishments	130	59.91	155	72.09
To publicize or promote a policy	49	22.58	34	15.81
To inform, educate, guide, or alert the viewer to adopt or change behavior	38	17.51	26	12.09
Total	217	100%	215	100%

The results clearly show that government advertising is mostly used for credit claiming purposes by the governments in the samples. Approximately 60% of the ads aired by the Minas Gerais' state government aim at claiming credit for policy measures and accomplishments. Credit claiming emphasis is still more pronounced in the state's city halls: 72% of the ads aired by municipal governments in the sample claim credit for activities and accomplishments promoted by the governments. The numbers reinforce the view that governments use advertising to advance political goals of incumbent politicians.

Government advertising can also vary in terms of the number of improvements they display. The information about the number of improvements is relevant because it allows the advertising to convey information about the “amount of work” being done by incumbent governments, which can be used by incumbent office holders for electoral purposes. Not only can governments claim credit about activities and improvements, but they can also specify which policies have deserved the incumbent government’s attention. This information also allows governments to be accountable to the citizenry (if an electoral official chooses so) by specifying exactly the policies that the government has promoted on the citizens’ behalf. The next table shows whether or not each ad contained specific examples of improvements.

Table 3 Ad Shows Specific Examples of Improvements

MG state government		MG city halls		
Freq.	Percent	Freq.	Percent	
No	188	86.64	133	61.86
Yes	29	13.36	82	38.14
Total	217	100%	215	100%

According to table 3, most ads do not present specific examples of improvements. Only 13 percent of the Minas Gerais’ government ads specify examples of improvements. Among the

state's city halls, 38% of the ads specify some example of improvement. These numbers suggest that governments want to create ads that have a broader appeal to the citizenry. It also suggests that elected officials may be wary of accountability. Specific examples of improvements can be used effectively for reputation building purposes, but it can also make citizens more demanding, especially if there is a discrepancy between the message the advertising conveys, and the policy citizens see and experience on their daily lives. For instance, it is not uncommon in Brazil to find newly inaugurated buildings being in poor state of conservation vary rapidly, or new buildings such as schools and hospitals closed because of lack of funds or proper equipment. Being specific about some policies can bring an inconvenient “magnifying glass” over some policies, something some incumbent politicians would be worried about and willing to ignore.

Table 4 quantifies the number of improvements displayed in those ads that promote at least one specific improvement. Most ads are selective in terms of the improvements they show to constituents. One improvement is the mode among ads that show some improvement. However, there are ads that show much more than one improvement, particularly in ads from municipal governments.

Table 4 Quantity of Specific Improvements Shown

N of improvements	MG state government		MG city halls	
	Freq.	Percent	Freq.	Percent
0	188	86.64	133	61.86
1	16	7.37	43	20.00
2	6	2.76	11	5.12
3	2	0.92	4	1.86
4	5	2.30	24	11.16
Total	217	100%	215	100%

Another important piece of information that government advertising conveys is the time horizon, that is, at which point in time the message conveyed in the ad refers to. The choice of a time point to convey a message is not inconsequential. Rather, it can have important political implications. A focus on the past may suggest that the incumbent has a list of services done to show. It may also indicate an intent to induce retrospective evaluations of performance on voters. A focus on the present may suggest that the incumbent wants citizens to know about policies that are being implemented immediately, with more direct consequences and impact to voters. Next, a focus on the future may indicate a willingness to induce voters to promote prospective evaluations of performance.

Table 5 Ad's Time Horizon

Time horizon	MG state government		MG city halls	
	Freq.	Percent	Freq.	Percent
Past	0	0	0	0
Past and present	103	47.47	76	35.35
Present	86	39.63	75	34.88
Present and future	22	10.14	50	23.26
Future	2	0.92	1	0.47
No class.	4	1.84	13	6.05
Total	217	100%	215	100%

According to the information available on Table 5, the preference for the past and the present time periods predominate. Approximately 87% of the ads from the Minas Gerais's state government focus on the past and the present, whereas only 11% of the ads convey messages in the future, or a combination of present and future. The numbers for the city halls' ads are more balanced. Almost 35% of the ads convey messages in the past and present, while 35% of the ads convey messages with a mix of past and present references. One important difference between ads from the state government and the city halls' ads involve the use of the future tense. Almost 24%

of the ads from city halls present sentences in the future, more than double the number of sentences in the future in the state's government. Overall, the results point to a retrospective focus on policy evaluation instead of a prospective focus. They may also suggest a tendency for local governments to promise more policies than higher-level governments.

Governments cannot only advertise about policy implementation per se, but also about the amount spent with each policy measure. It is important, from a positive and normative perspective, to evaluate whether governments publicize the amount spent with the policies they promote. Table 6 shows how many ads display information about money spent in different policies, services, or public works. The results are the same for both the Minas Gerais's state government and the state's city halls. Approximately 90% of the ads do not convey any information about the money spent in services or public works. Such results can be interpreted in different ways. Either the amount spent is deemed as not essential to the public, or governments do not want to inform the public much about how much is spent in public policies. The most severe interpretation may suggest a lack of accountability to citizens regarding how much taxpayers' money is spent on their behalf.

Table 6 Ad Shows Money Spent in Services or Public Works

	MG state government		MG city halls	
	Freq.	Percent	Freq.	Percent
No	197	90.78	193	89.77
Yes	20	9.22	22	10.23
Total	217	100%	215	100%

A different type of information that can make advertising more or less persuasive relates to whether advertising conveys some amount of evidence that goes beyond the message of the “narrator” of the ad, additional information that makes the overall message’s content more

credible. To that end, I codified each ad to verify which ones present at least one source to buttress statements made in the ad. Table 7 displays the results.

Table 7 Ad Shows Corroborating Sources to Buttress Statements Made in the Ad

MG state government		MG city halls		
Freq.	Percent	Freq.	Percent	
Yes	114	52.53	136	63.26
No	103	47.47	79	36.74
Total	217	100%	215	100%

As the table shows, a majority of the ads from Minas Gerais' state government present at least one corroborating source. The number is more expressive for the state's city halls: 63% of the ads present some degree corroborating source of evidence. What are those sources? Table 8 shows three different types of corroborating sources usually found in government advertising: personal testimony (of an individual or actor), display of the media's coverage of the policy or improvement achieved, and statistical information (i.e., any numerical information denoting quantity of some policy output), and other sources (e.g., display of results from a public opinion poll). By far the most used corroborating source of evidence found in government ads was statistical information. Personal testimony and media coverage amount to a minority of the sources. This information is important for accountability: it makes clear to citizens how much of a policy output is being delivered by governments. It also helps make advertising more credible. For example, it is more convincing to say that healthcare is improving because “5 new hospitals are being built” rather than simply stating that “new hospitals are being built”.

Table 8 Type of Corroborating Source

	MG state government		MG city halls	
	Freq.	Percent	Freq.	Percent
Statistical information	103	47.47	116	53.95
Personal testimony	12	5.53	19	8.84
Media coverage	1	1	3	1.40
Other	9	4.15	15	6.98

Total frequency for MG state government and MG city halls do not amount to 114 and 136, respectively, because ads can display more than one corroborating source.

The number of ads that display at least one policy with a specific name or title is a variable with relevant political significance. Policies with titles can be used by ambitious politicians willing to “leave their mark” during their tenure in office, which can help them build a reputation for industriousness and public commitment. Titles can arguably be used to facilitate credit claiming. It may be far easier for a politician to credibly claim credit for an identifiable policy rather than claiming credit for an unidentifiable one⁸. Policies with specific titles have been very prominent in Brazil, particularly at the federal level (e.g., *Bolsa Família*, *Minha Casa Minha Vida*, *Programa Luz Para Todos*, *Prouni*, *PAC*, *Bolsa Atleta*, etc.). In the state of Minas Gerais there are programs with specific names such as *Minas Ativa* (a program to simplify the entry of firms into the formal sector of the economy), and *Programa Fique Vivo* (a social program targeting young people living in violent neighborhoods). In Belo Horizonte, MG’s capital, there was a program named *Vila Viva* (a program aiming the urbanization of poor neighborhoods). Nonetheless, even though there are signs that such practice of attaching titles to policies can be verified at lower levels of governance, such signs have mostly been only anecdotal. Table 9 presents a first view of how common such denominations are at lower levels of government in government ads.

⁸ Although it can be argued that politicians can claim credit for the state of the economy, which is not an identifiable policy.

Table 9 Ad Mentions or Shows Images of a Public Policy with a Specific Title

MG state government		MG city halls	
Freq.	Percent	Freq.	Percent
No	143	65.9	132
Yes	74	34.10	83
Total	217	100%	215
			100%

The results show that a minority, but sizable number of policies do contain at least one policy with a title. More than a third of the ads from both the state government and the city halls contain at least one policy with a title. These results strongly suggest that incumbents make a serious attempt at building a personal reputation. These types of policies also facilitate credit claiming considerably.

Government ads can be used not only to advertise initiatives from governments, but also initiatives that result from partnerships between the government and other entities, or initiatives that are not promoted by a government, such as the media or NGOs. Table 10 informs us about how prevalent these types of ads are. The results are clear: almost no ads from the state and local Minas Gerais's governments embrace third-party initiatives in the ads. These results do not mean, however, that governments necessarily do not support third-party initiatives. These types of initiatives are more usually supported in other types of ads, such as government ads co-sponsored with other government or co-sponsored with state-owned enterprises. Both types of ads are out of the samples analyzed here.

Table 10 Ad Supports a Third-Party Initiative with a Specific Title

MG state government		MG city halls	
Freq.	Percent	Freq.	Percent
No	209	96.31	205
Yes	8	3.69	10

Total	217	100%	215	100%
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The next two tables present information about audio-visual aspects of the ads. One is the conveyor of the message in an ad (a supporting actor or a voiceover). According to Table 11, most of the ads that contain someone who speaks with the audience make use of voiceovers. Only one ad in the Minas Gerais's state government and one ad in the state's city halls make use of supporting actors.

Table 11 [For video ads only] Who Speaks to the Audience in the Ad

	MG state government		MG city halls	
	Freq.	Percent	Freq.	Percent
No TV ad	186	85.71	170	79.07
Yes, voiceover/announcer	17	7.83	27	12.56
Nobody	13	5.99	17	7.91
Yes, supporting actor	1	0.46	1	0.47
Total	217	100%	215	100%

One common resource of ads to attract people's attention is the use of celebrities in ads. Does government advertising make use of them? According to the data from Minas Gerais, mostly not. Table 12 shows that only approximately 5% of the ads show a celebrity.

Table 12 Ad Shows a Celebrity

MG state government		MG city halls	
Freq.	Percent	Freq.	Percent
No	207	95.39	203
Yes	10	4.61	12
Total	217	100%	215
			100%

Government ads (as well as commercial and political ads) may not desire to communicate with all citizens. Rather, they may want to convey information to specific subgroups of the population. For instance, the recipients of a conditional cash transfer program. To verify which groups are targeted in government ads, and the frequency of such targeting, Table 13 shows the results of social groups targeted by the ads.

The results show that government ads are used to convey many messages to undifferentiated individuals. References to “citizens” or groups”, by words or pictures, total 38.7% in the state’s government’s ads and 44% of the state’s city halls’ ads. Next, the group that is targeted by more than 30% of ads is women. More than 35% of Minas Gerais’s state government ads and more than 38% of the state’s city halls’ ads portray women in words or images. Children also figure prominently in ads (26% and 35%, in each type of government, respectively). Adolescents and children combined comprise more than 40% of ads in both types of governments. This result can be explained by the fact that many social welfare government ads address education and childcare, which understandably portray adolescents and children more often than other types of ads. Mentions or depictions of parents or relatives are also not uncommon: more than 10% in both types of governments. Specific categories of workers are displayed in government ads, such as police officers, teachers, and healthcare workers. Businesspeople and farmers receive little attention in government ads. Overall, the percentages are very similar between the state government’s ads and the city halls’ ads.

Table 13 Ad's Targeted Groups

Groups	MG state government		MG city halls	
	Freq.	Percent	Freq.	Percent
Citizens / people	84	38.71	95	44.19
Women	77	35.48	83	38.60
Children	57	26.27	76	35.35
Adolescents	37	17.50	37	17.21
Parents / relatives	36	16.59	24	11.16
Workers	24	11.06	31	14.42
Elderly	22	10.14	25	11.63
Physicians / pharmaceutical / healthcare workers	20	9.22	19	8.84
Teachers	16	7.37	11	5.12
Police officers	11	5.07	6	2.79
Celebrities	9	4.15	10	4.65
Farmers	8	3.69	1	0.47
Handicapped	5	2.30	5	2.33
Public servants	2	0.92	1	0.47
Businesspeople	2	0.92	3	1.40
Other	8	3.39	6	2.79
None	49	22.58	46	21.40

Total does not amount to 100% because ads can cover more than one group.

Finally, government ads also address different issues. The analysis of the issues in government advertising is paramount, for it indicates which policy areas have deserved more attention from governments. The coverage of issues in the ads may indicate which issues specific elected officials prioritize more during their tenures in office. It may also provide indication of which issues are more conducive to credit claiming appeals. Each issue on Table 14 subsumes a collection of sub-issues related to each macro-issue (see the Content Analysis Questionnaire in the Appendix). The issues covered in the content analysis are: the economy (both in generic and in specific terms), social issues (e.g., affirmative action, human rights, gender), law and order (e.g., policy, firefighters, narcotics), social welfare issues (e.g., education, healthcare), infrastructure (e.g., public transportation, public sanitation, housing), and government (taxes, budgetary matters,

government spending, and public administration broadly defined). Lastly, a final category encompasses issues that could not be adequately aggregated into the other macro-categories, “Other” (i.e., local issues, environment, culture, tourism, event/holiday/anniversary/tribute).

Table 14 Issues Covered in the Ads

Issue	MG state government		MG city halls	
	Freq.	Percent	Freq.	Percent
Social welfare	129	59.45	132	61.40
Other	124	57.14	89	41.40
Economy	66	30.41	32	14.88
Law and Order	48	22.12	14	6.51
Government	46	21.20	46	21.40
Infrastructure	45	20.74	110	51.16
Social issues	6	2.76	0	0.00

Total does not amount to 100% because ads can cover more than one group.

The results of Table 14 show that social welfare is clearly the most covered issue in the government ads from the state government of Minas Gerais and the state’s city halls’ governments. The issue of the economy deserved a considerable amount of attention from the state government, that is, 30% compared to only 14.9 % from city halls. An important difference between both types of governments relates to the emphasis on infrastructure. Whereas 20% of ads from the Minas Gerais’s government cover infrastructure, more than 50% of the ads from city halls address the issue. The state government covers law and order issues much more than city hall governments (22% versus 6.5%), which can be explained by the fact that in Brazil the police is subordinated to the state governments primarily. Some municipalities have “civil guards”, which can devote limited efforts to matters of public security. Social issues are almost non-existent in government ads from Minas Gerais’s state government and are null in the state’s city halls’ ads. Government-related issues are covered in the same proportions by both types of governments. Finally, a

relatively large number of ads cover other issues than the main macro-issues on the table. The state government uses to devote space in its ads to environmental issues, culture, and tourism (11%, 17%, and 15.6%, respectively), whereas the state's local governments cover the same issues at 8.8%, 18.1%, and 6.5% respectively. Events, holidays, anniversaries, and tributes were present in 8.7 percent of space in the MG ads, whereas the same topics were present in 10.23 percent of the City Hall ads. All in all, the result show that social welfare issues are very important to governments and frequently figure in government ads. Data from Datafolha Institute from 2010 shows that healthcare and education are the most important problems in the state for a sizable portion of the state's population (36.5% and 11.5%, respectively). In city halls' ads, the issue of infrastructure is present in a majority of ads.

4.5 Conclusion

In this chapter, I presented a classification scheme of government advertising that is different from the other classification schemes in the political communication and the political science literatures. It utilizes as the main criteria the goal or purpose of the message in the ad, which can be classified into *information provision*, *credit claiming*, and *behavior change* ads. I also proposed additional categorization of the government ads based on additional features of the ads, such as the display of specific examples or improvements in the ads, the ads' time horizon, among others.

To verify the appropriateness of the classification scheme, I proceeded to a content analysis of the ads from the state government of Minas Gerais and Minas Gerais' city halls. The descriptive analysis of the ads' content shows that indeed credit claiming is the most prevalent type of ad

issued by both types of governments: 59.9% of the ads issued by the Minas Gerais' s state government are credit claiming ads. Among the state's city halls, credit claiming ads are even more pronounced, 72%. This confirms my theoretical expectations that local governments use advertising for reputation building purposes and electoral purposes, to show "job being done" in favor of the citizenry. However, it has also been shown that governments use advertising for public service provision purposes. Adding to that picture, the analysis also showed that messages in government ads are mainly retrospective, with a focus on present and past policy declarations. Statements in the future tense comprise a minority of the ads in both types of governments.

A majority of ads in both types of government do not show specific types of improvements, that is, they state imprecise policy declarations and do not specify policies by name or geographic location. The implication is that many ads aim at conveying messages of broader public appeal, but at the same time make accountability more difficult. At the same time, a majority of ads in both types of government show corroborating sources of evidence to buttress claims made in the ads, and these sources of evidence are mostly statistical information broadly defined. Furthermore, a sizeable minority of ads presents policies with specific names or titles in them, which reinforces the argument that some ads are used to associate policies with a specific administration for electoral purposes. Regarding the issues covered in the ads, social welfare figures as the most prominent issue. It appears in 59% of Minas Gerais's state government ads and in 61% of the ads from city hall governments.

Overall, the findings corroborate theoretical accounts of government ads as vehicles to the construction of reputation building with electoral purposes. They provide a first account in the literature of how governments craft government advertising messages and with which purpose. The political and normative implications are relevant. Elected officials in Brazil have the means

of promoting themselves over the course of their tenures and have at their disposal different rhetorical alternatives to craft self-promotion. The most explicit way of self-promoting is through credit-claiming. However, as it was mentioned before, information and behavior change advertising can also be used for self-promotion purposes. The main difference is in how explicit and direct self-promotion claims are made. In credit claiming ads self-promotion is evident, direct, explicit, whereas in the other two types of ads self-promotion is less evident, indirect, and implicit. Also, the analysis of the content of political ads provides an ambiguous account of the use of such ads to provide accountability before voters. On the one hand, it is possible to argue that government advertising messages provide some degree of accountability. Even self-promotion ads provide information of policies being delivered. It can be argued that citizens have the right to know what the government does on their behalf. To that end, government advertising provides some degree of accountability. On the other hand, it is also possible to argue that governments can use government advertising to be accountable on their own terms by choosing when, what, and how to make themselves accountable.

This chapter sets the stage for the coming empirical analyses at the individual and aggregate levels. Concerning the former, we still have to know the degree to which government advertising can be used successfully to change individuals' attitudes and behaviors. So far there is no account in the literature as to whether government advertising can affect citizens' attitudes (with the exception of Romero, Magaloni, and Díaz-Cayeros, 2015) and how. In the next chapter, I empirically and experimentally analyze government advertising's potential to change people's minds.

5.0 The Effects of Government Advertising at the Individual Level: Results from an Experiment in Brazil

5.1 Introduction

In the first empirical chapter of this dissertation, attention was paid to the content of government advertising in the state of Minas Gerais and its municipalities, with the development of a typology that classifies political ads according to their stated goal or purpose. The results of this analysis (and from the analyses of the two empirical chapters that follow) cannot inform us about the impact of government advertising at the individual level, though. Far from being only important at the aggregate local level, advertising may also drive important attitude and behavioral change, even if short-lived.

In this chapter, I proceed to an analysis of the impact of government advertising on the political attitudes and behaviors of 1,800 Brazilian citizens. A between-subjects factorial online experiment was carried out to test hypotheses about the impact of government advertising vis-à-vis party advertising on responsibility attribution, intention to vote for reelection, ad's effectiveness, and performance in office. Empirical studies of political advertising face great challenges in establishing causal effects. The most serious one is the endogeneity of political advertising to political and social factors. Even with panel data is hard to rule out the influence of time-varying unobserved confounding factors. The experimental design allows us to infer causal relationships with more confidence.

The chapter also considers the role that the information environment may have at shaping how citizens receive and process government advertising. To that end, I consider the impact that

an independent source of information about the external reality may (or may not) have on the way citizens react to and process government advertising. Given the importance of the issue of the economy to ordinary citizens and its relevance in the political science scholarship, I verify how news about unemployment interacts with the type of ad individuals watch and how this interaction affects their behavior. Another reason to use an independent source of information as a second treatment in the study is that such procedure allows us to experimentally simulate situations in which the message of government advertising airs free (or almost free) from competing influences (i.e., no independent news source to contest the claims in the government ads), or situations in which the message of government advertising faces challenges from the information environment. The former scenario is typical of polities where the access to independent sources of information is more limited, whereas the latter is more typical of polities where the message of government advertising faces more competition from the media. The experiment also allows us to verify which type of advertising (government or party) seems more effective.

The analyses show that government advertising is capable of affecting responsibility attributions. Individuals who watch government ads attribute more responsibility for the state of unemployment to the City Hall, whereas those who watch the party ad attribute more responsibility to the mayor. Moreover, the experiment found that government advertising is as effective as political advertising in influencing citizens' opinions on the four dependent variables measured in the study to assess the advertising's level of influence. That is, both the government and the party ads are effective, with similar levels of impact. Moreover, the study did find important impacts on the dependent variable when watchers from government ads are compared to those who were in the control condition.

The chapter is organized in the following way. First, based on the theory laid out in the theoretical chapter (Section 3.4 in the theoretical chapter), I present the experiment's hypotheses. Further, I describe the experimental design, participants, and measures and proceed to the analysis of the results. Finally, I conclude.

5.1.1 Hypotheses

In this chapter, I will analyze the impact of government and party advertising (plus control group advertising) on four dependent variables: attribution of responsibility for employment to the mayor and to City Hall, support for the Mayor's reelection, ad effectiveness, and Mayor's approval.

Based on the theory, I formulate the following hypotheses about the impact of government advertising on individuals' attitudes and behaviors:

H5.1. *Responsibility attribution hypothesis*: individuals exposed to political advertising will attribute more responsibility to the Mayor for the situation of employment, whereas individuals exposed to government advertising will attribute less responsibility to the Mayor and more responsibility to the City Hall.

H5.2. *Reelection hypothesis*: individuals exposed to government advertising will present higher electoral support to the mayor's reelection than those who did not watch the government ad (control group or party ad).

H5.3. *Ad effectiveness hypothesis*: individuals exposed to government advertising will rate the ad as more effective than those who watched other ads (control group or party ad).

H5.4. *Mayor's approval hypothesis*: individuals exposed to government advertising will approve the mayor's performance more highly than those who watched other ads (control group or party ad).

5.2 Methods

5.2.1 Participants

The 1,800 participants were drawn from a pool of respondents from the Brazilian panel firm Opinion Box. The study took place between July 19th and August 1st of 2019. Individuals received an invitation to take part in the study in exchange for points that could be exchanged for prizes. The sample size was defined based on the results of power analysis (see Appendix C.5, Figure 4). The study's sample size is over-powered (i.e., it has a larger sample size than what was estimated in the power analysis). Respondents do not constitute a random sample of the Brazilian population. The main difference concerns the education level. The experiment's sample is more literate than the composition of the Brazilian electorate (see Appendix C.5, Table 4 and Table 5).

5.2.2 Experimental Design and Procedures

The study follows a 3x3 between-subjects factorial design. Participants received one of three ads (control ad, government advertising ad, or party ad), and one of three news stories (control story, news story about unemployment increase, or news story about unemployment decrease). It consists of nine experimental conditions structured as different combinations of these experimental factors.

		Treatment 1: advertising		
		Soccer championship's ad	City Hall's ad	Party ad
Treatment 2: news on unemployment	News: soccer championship	Control news x Control ad	Control news x City Hall's ad	Control news x Party ad
	News: unemployment increase	News: unemployment increase x Control ad	News: unemployment increase x City Hall's ad	News: unemployment increase x Party ad
	News: unemployment decrease	News: unemployment decrease x Control ad	News: unemployment decrease x City Hall's ad	News: unemployment decrease x Party ad

Figure 2 Experimental Conditions

After being briefed about the study and agreeing to participate, participants were asked to answer a pre-treatment questionnaire. They were asked about questions on sociodemographic

variables, media habits, and party preference. Because the study included content with audio, the pre-treatment questionnaire contained one question asking participants to state which sound they heard after pressing a button. Individuals who did not answer correctly were excluded from the study. Also, the pre-treatment questionnaire contained a trap question asking participants to answer the option instructed in the command line. Individuals who did not follow the instruction and answered incorrectly were also excluded from the study.

After answering the pre-treatment questions, participants read about the characteristics of a fictitious city called “Cruzeiro Novo” and a concise description of the city’s mayor. The city and mayor of the experiment are fictitious to reduce negative political reactions from respondents to the political climate in Brazil at the time the experiment took place, an election year close to the campaign period with a very unpopular incumbent president. Even though such design reduces somehow the external validity of the study, it increases the level of control over the instruments, or the study’s internal validity.

Imagine a city called Cruzeiro Novo, located in the middle of the state and one of the most populous municipalities of its region. Currently, Cruzeiro Novo has a population of approximately 430,000 people. The weather is mild, with an average temperature of 25°C during most part of the year. Concerning the city’s economy, the agricultural, industrial, and commercial sectors constitute most of its economic output.

The current mayor of Cruzeiro Novo is Marcelo Costa, is 55 years old and is married. Graduated in Law, Marcelo Costa is a lawyer by profession. He is currently beginning his third

year in his first term as mayor. His priorities are to improve education and healthcare, to create jobs and to maintain the city's budget in order.

Figure 3 Description of the City of Cruzeiro Novo and Its Mayor

After reading the description of the city and its mayor, participants were directed to watch one of three ads (a soccer championship's ad, a City Hall's ad, or a party ad) of 30 seconds each. The video treatments used actual footage from Brazilian government ads that were re-assembled, and the audio and texts were crafted in order to maximize realism by a video editor (see Appendix C.2 for the text of each ad). After watching one of the three ads, participants were instructed to read one of three news stories. Participants in the control condition read a story about a soccer championship starting in the city of Cruzeiro Novo, whereas other participants read a news story about the increase of unemployment in the city or about the decrease of unemployment. Once participants read one of the three news stories, participants were instructed to answer a post-treatment questionnaire, which contained two manipulation checks and measures of the four dependent variables of the study. Finally, participants were debriefed about the purposes of the study. Each section took between 10 – 15 minutes.

5.3 Measures

5.3.1 Treatments and Independent Variables

The first factor of the study was the video ad. Participants watched one of three ads. One of the ads (the control condition) portrays the announcement of a local soccer championship in the city of Cruzeiro Novo. It was designed to be unrelated to political and economic issues. The other two ads are a government ad (City Hall ad) and a party ad. The government ad's message states that the City Hall is creating more jobs. It also says that people's overall well-being is better. The second video ad, the party ad, contains the same message of the government ad, but instead of having the City Hall as the ad's sponsor it has a (fictitious) political party as sponsor. Moreover, the party ad also portrays the mayor's name, which does not appear in the government ad.

Ad spot: Prefeitura de Cruzeiro Novo

The City Hall is working to create more Jobs. And it has worked. Cruzeiro Novo has brought more than 100 new businesses and is the regional powerhouse in job creation. In the last year, more than 10 thousand new job positions were created. The population's mean income increased as well as the consumption potential. More jobs, a worthier life. **City Hall of Cruzeiro Novo.**

Ad spot: PBR

PBR is working to create more Jobs. And it has worked. **Thanks to Mayor Marcelo Costa**, Cruzeiro Novo has brought more than 100 new businesses and is the regional powerhouse in job creation. In the last year, more than 10 thousand new job positions were created. The population's mean income increased as well as the consumption potential. More jobs, a worthier life. **PBR**.

Ad spot: Cruzeiro Novo's Soccer Championship

For the tenth consecutive year, the ball will roll in the city's soccer fields, keeping alive the historic relationship between Cruzeiro's people and soccer. Breathtaking matches! A great soccer's celebration. Congratulations to all athletes and let the games begins! Cruzeiro Novo's Chamber of Commerce.

Figure 4 Video Ad Condition

The second factor of the study was the news story. Participants read one of three news stories. One of the stories (the control condition) relates to the occurrence of a municipal soccer championship in the city. It was designed to be orthogonal to the issues of politics and economics in general, including employment.

Municipal Championship starts with many scores

The first round of Cruzeiro Novo's Soccer Championship started last weekend. In total, 20 teams take part in the competition. The first round's games took place at the Antônio Mônaco Sport Center, the Jardim das Rosas's Stadium and at the "Cruzeirão".

The first round was marked by many scores. The Atlético Alvorada beat Cohab by 4 to 1 with scores from Diguinho and André Macedo. At the Jardim das Rosas's Stadium, SET/Lagoa defeated Alvorada by 3 to 0. Of those three, two were penalty kick scores by Roberto Alves. Closing the round, Cruzeirense prevailed over São Lucas by 3 to 2 with three scores from Newton Jordão.

Figure 5 Control News Condition

The other two stories relate to the issue of employment in the city of Cruzeiro Novo. Participants who did not read a story about soccer championship read one of two news stories about unemployment: one stating that unemployment increased in the city and another stating that unemployment decreased. The vignette follows the organization of several stories about employment reported by local news in Brazilian municipalities. To ensure maximum experimental control, the news on unemployment increase and decrease follow the same structure. The only changes are on the words that denote increase or decrease, as well as the unemployment rate (6% in the news about unemployment decrease and 12% in the news about unemployment increase).

Unemployment in Cruzeiro Novo [**increased/decreased**] in the last semester, inquiry shows

Data released yesterday by the Commercial, Manufacturing, and Services Association of Cruzeiro Novo (ACISCN) concerning the last semester shows that the unemployment level in the city [increased/decreased] and now it is [6%/12%]. In the state's regional ranking, the city is among those that [created/lost] jobs the most.

The inquiry also shows that, overall, the number of hirings was [higher/lower] than the firings in the last semester. The year's first six months registered [an improvement/a worsening] of the number of formal jobs during the last three years, with 13428 formal job positions [created/closed]. This number represents [a gain/a loss] of 34% compared to the last surveyed year. Expanding, the industry was responsible for most of the [hirings/firings] in the city, with 5380 [more/fewer] positions, followed by the agricultural sector with the [creation/termination] of 4297 positions. The sector of commerce, services, and construction also [increased/decreased] hirings and registered the [creation/termination] of 3900 positions.

Therefore, the data also shows that the economy is showing signs of [an improvement/a worsening] in the city. To Márcia Lisboa Teixeira, president of Câmara de Dirigentes Lojistas (CDL) de Cruzeiro Novo, there are several factors that contribute to the increase in [hirings/firings]. The [development/retreat] of the primary sector and the connection with the service sector is one of them. “[With/Without] job and income, people [will/will not] buy. We have a strong primary sector going through a strong [expansion/retraction], which is moving [a lot/little] money. This also contributes to [the increase/the decrease] of commerce”, observes.

Figure 6 Vignette Treatment: Unemployment Increase and Decrease

5.3.2 Manipulation Checks and Dependent Variables

The post-treatment questionnaire measured the participants' opinions about the mayor, the City Hall, and the ad they watched. The participants were asked to answer two manipulation checks. First, they were asked about who was the advertiser of the video they watched (City Hall, political party, or the city's Chamber of Commerce). The second manipulation check variable asked participants to answer what the story read by them said about the level of unemployment in the city (i.e., whether unemployment increase, whether unemployment decrease, or whether they read a news about the municipal soccer championship in the city). The goal of the questions is to ensure that participants in the experiment understood the sponsor of the ad and the direction of unemployment of the news they read. Next, participants reported how likely they would **vote for the mayor's reelection** (from 1 – highly likely to 5 – highly unlikely). The variable was recoded so that higher values mean higher likelihood of voting for the mayor. The **responsibility attribution** question asked participants to choose, from a list of entities, which they thought it would be the most responsible for the situation of employment in Cruzeiro Novo. Only one answer option was allowed. This measure of responsibility attribution possesses one desirable property (as in Rudolph and Grant, 2002). It asks participants who is responsible for the situation of employment in general rather than asking who deserves credit or blame for specific employment conditions. In this way, the measure encourages participants to determine by themselves whether the situation of unemployment is good or bad. The **ad's effectiveness** is a composite index and was measured on a scale from 1 to 5 where 1 is "Not at all" and 5 is "Very". Participants were asked to rate the ad on six characteristics, that is, how fair, important, truthful, convincing, informative, and impartial they thought the ad was. The six items were averaged. Lastly, the **mayor's performance** was measured on a scale from 0 to 100. Zero means strong disapproval

and 100 means strong approval. Fifty means neither approval nor disapproval. Summary information on the independent and the dependent variables can be found on the table below.

Lastly, the pre-treatment questionnaire asked participants standard sociodemographic questions (gender, age, state, state's region, income level, education). It also asked about their degree of attention to news, interest in politics, favorite type of media, and trust in the media. Further, the questionnaire asked participants about whether they turned out to vote and their party preference (for more details, see the Appendix).

Table 15 Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Attribution to City Hall	1800	0.399	0.489	0	1
Attribution to Mayor	1800	0.258	0.438	0	1
Reelection	1800	3.156	1.156	1	5
Ad's effectiveness	1800	3.485	0.876	1	5
Mayor's approval	1800	66.405	24.873	0	100
Treatment – video ad	1800	2	0.816	1	3
Treatment – news on unemployment	1800	2	0.816	1	3
Age group	1800	2.980	1.526	1	6
Education	1800	6.412	1.759	1	9
Family income	1800	3.193	1.567	1	7
Looking for job	1800	0.147	0.353	0	1
Turnout	1800	0.928	0.258	0	1
Media – TV	1800	0.286	0.452	0	1
Attention to the news	1800	4.653	0.703	1	5
Political interest	1800	3.152	1.075	1	5
Issue involvement: unemployment	1800	4.441	0.778	1	5
Trust in the media	1800	3.131	0.789	1	5
Party preference	1800	0.336	0.472	0	1

5.4 Results

5.4.1 Manipulation Check

I included manipulation checks to ensure that participants knew the sponsor of the ad and the situation of employment (increase, decrease, or no news on unemployment). Tabulation of the results of reported ad seen with the video seen by participants provides indication that participants correctly retained in memory the sponsorship of the ad they watched. 81% of participants in the control group correctly reported having seen the video on soccer championship, 90% correctly reported having seen the City Hall ad, and 79% correctly reported having seen the party ad. Additionally, I conducted a two-sample difference of means test to verify whether there were meaningful differences between those who reported having watched or not the City Hall ad by the type of ad they actually watched (two-sample difference of means test: $t = 34.10$, $p <.001$). An ANOVA analysis with “ad seen” as the dependent variable and the treatment ad (City Hall ad or Party ad) as the explanatory factor was also conducted. The results show significant differences in the level of “ad seen” across treatment groups ($F = 1163.42$, $p = .000$). Participants who watched the City Hall ad were much more likely to report having seen the City Hall ad than those who watched the Party ad.

Regarding the second treatment, news story about employment, tabulation of the results of news read with the news treatment received by participants shows that 72% of participants correctly classified having read the news story on soccer championship, 74.5% correctly reported having read the story about unemployment increase, and 83.8% correctly reported having read the story about unemployment decrease. Additional difference of means test showed statistically significant differences between those who reported having read about unemployment decrease or

not by the type of news story they actually read in the experiment. The test shows statistically significant difference (two-sample difference of means test: $t = -21.15$, $p < .001$). Also, I conducted an ANOVA analysis with news read as the dependent variable and the treatment story (unemployment decrease versus unemployment increase) as the explanatory factor. The results show significant differences in the level of news story read across treatment groups ($F = 1163.42$, $p = .000$). Participants who actually read the news story about unemployment decrease were much more likely to report having read the news about unemployment decrease than those who read the news story about unemployment increase.

5.4.2 Attribution to Mayor and City Hall

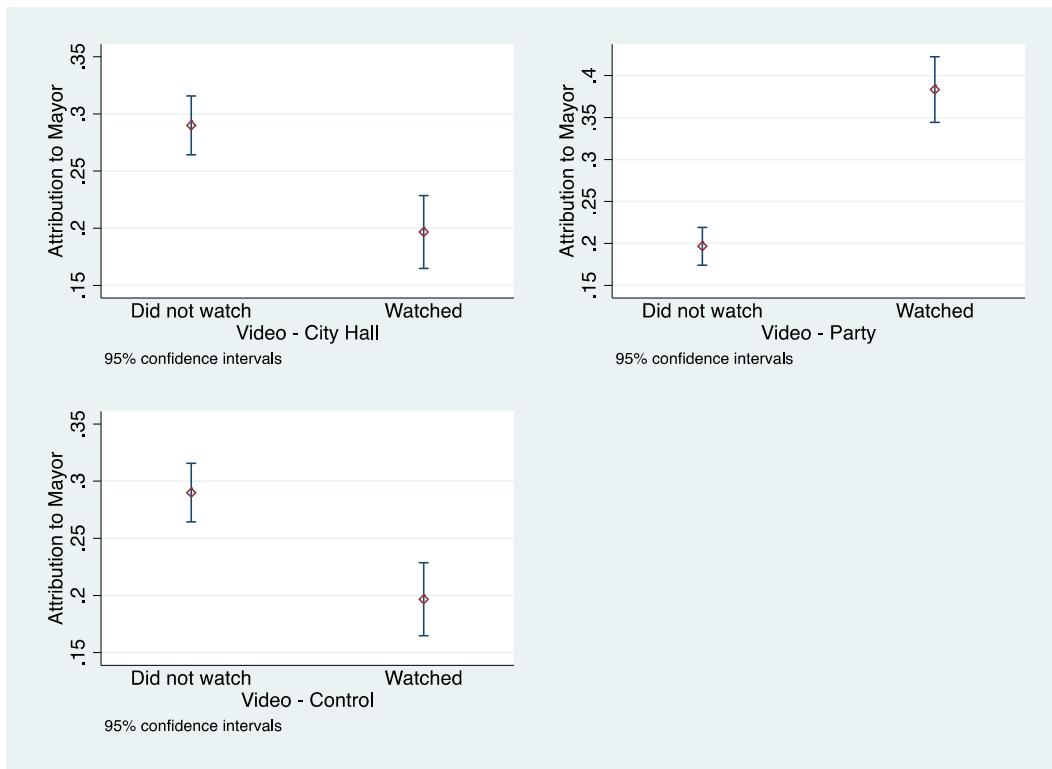


Figure 7 Difference in Means' Test (T-Test) for Attribution to Mayor

Figure 7 displays three difference in means to determine if there were differences in attribution of responsibility to the mayor based on treatment type, consisting of those who watched the City Hall, those who those who watched the party ad and those who did not watch the government ad (i.e., control condition). The results show that participants who watched the government ad attributed significantly less attribution to the mayor than those who watched the party ad ($t = 4.28$, $p = 0.000$). Those who watched the party ad presented higher levels of attribution to the mayor ($t = -8.69$, $p = 0.000$). Further, the difference of means of the control group was the same as the City Hall treatment ($t = 4.28$, $p = 0.000$).

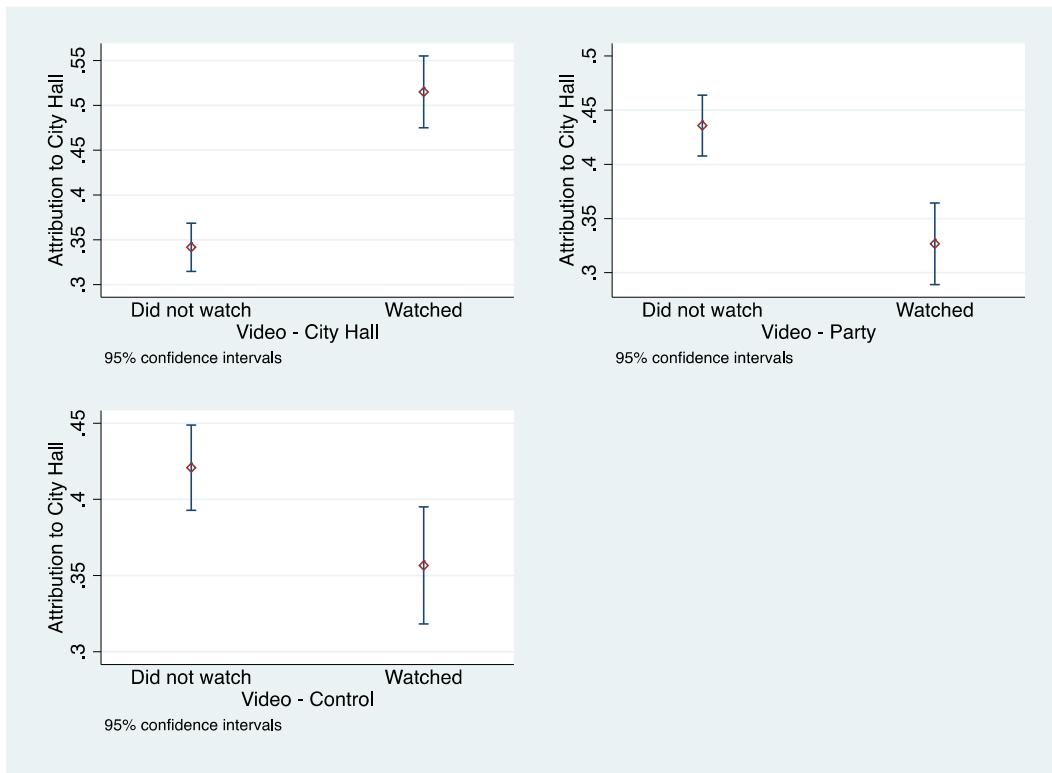


Figure 8 Difference in Means' Test (T-Test) for Attribution to City Hall

The pattern is reversed for attributions of responsibility to the City Hall. In this case, participants who watched the government ad presented on average a higher attribution of

responsibility to the City Hall than participants who watched the party ad ($t = -7.17$, $p = 0.000$). Participants who watched the party ad attributed a lower level of attribution to the City Hall ($t = -4.48$, $p = 0.000$). There is a difference in means of .19 between those who watched the City Hall ad vis-à-vis those who watched the party ad. Further, the mean for the party ad does not differ significantly from those who watched the control video (mean of 33 for the former and a mean of 36 for the latter).

Table 16 Determinants of Attribution of Responsibility for Unemployment to City Hall and the City's Mayor

	Attribution to City Hall				Attribution to Mayor			
	Odds ratio	Std. Err.	P> z	% change in odds	Odds ratio	Std. Err.	P> z	% change in odds
Control ad x Unempl. Increased	0.504**	0.109	0.002	-49.6	0.874	0.234	0.614	-12.6
Control ad x Unempl. Decreased	0.916	0.188	0.667	-8.4	1.404	0.349	0.173	40.4
City Hall ad x Control news	1.795**	0.365	0.004	79.5	1.375	0.345	0.203	37.5
City Hall ad x Unempl. Increased	1.204	0.245	0.361	20.4	0.443**	0.137	0.009	-55.7
City Hall ad x Unempl. Decreased	1.643*	0.334	0.015	64.3	1.577	0.389	0.065	57.7
Party ad x Control news	0.698	0.146	0.085	-30.2	3.130***	0.737	0.000	213
Party ad x Unempl. Increased	0.663	0.139	0.050	-33.7	1.822*	0.444	0.014	82.2
Party ad x Unempl. Decreased	0.700	0.146	0.088	-30.0	3.870***	0.908	0.000	287
Gender	0.958	0.096	0.674	-4.2	1.208	0.139	0.100	20.8
Education	1.009	0.033	0.781	0.9	0.862***	0.032	0.000	-13.8
Family income	0.958	0.035	0.248	-4.2	1.037	0.043	0.390	3.7
Media – TV	1.219	0.136	0.077	21.9	0.814	0.105	0.112	-18.6
Attention to the news	1.167*	0.088	0.042	16.7	0.870	0.068	0.078	-13.0
Trust in the media	1.054	0.068	0.415	5.4	1.072	0.077	0.340	7.2
N	1800				1800			
Log Likelihood	-1171.37				-961.62			
LR chi2(12)	79.27				135.56			
Prob > chi2	0.000				0.000			
McFadden R2	0.033				0.065			

* p<0.05, ** p<0.01, *** p<0.001

Table 16 allows us to verify the results of the interaction between the video treatment and the news treatment. Results of two balance tests (Appendix C.6, Table 6 and 7) indicate that six variables presented statistically significant coefficients in the difference t-test: education, attention to news, gender, family income, preference for TV media, and trust in the media. Therefore, I include these six variables as controls in Table 16 and the other regression models that follow.

The results show that the party ad increases the odds of attributing responsibility to the mayor when interacted with the news control condition and the unemployment decreased condition. Nonetheless, the government ad exerts a significant impact on attribution of responsibility to the mayor when interacted with the unemployment increase condition, thereby reducing the odds of attribution. The highest change in odds derives from the interaction between party ad and news of unemployment decrease. One unit increase in this interaction increases the odds of attributing responsibility to the mayor by almost three-fold, holding other variables at their means. Also, the odds ratio of the interaction between party ad and unemployment *increase* is positive, indicating that participants were more willing to attribute responsibility to the mayor when the employment scenario is negative.

Regarding the attribution of responsibility to City Hall, the table shows that the City Hall ad exerts a statistically significant impact when interacting with the news control condition and the news unemployment decrease condition. About the former interaction, the odds of attributing responsibility to the City Hall increase by 79.5% whereas the odds of attributing responsibility to the mayor increase by 64.3% for the latter interaction.

A better visualization of the results can be obtained through an analysis of the predictive margins (or adjusted predictions) of the previous regression output. Figure 9 presents the predictive margins of the attribution of responsibility to City Hall and Mayor according to the type of

treatment received, or the interaction between the video treatment and the news treatment. The left panel of Figure 9 shows the predictive margins for attribution to City Hall. There is no discernible difference between the control condition and the treatment conditions when unemployment decreased. The right panel shows the predictive margins for attribution to Mayor. In this panel, it is shown that the Party ad considerably increases the probability of attribution to Mayor when participants receive both a message of unemployment increase and of unemployment decrease.

The same pattern can be visualized on the left panel.

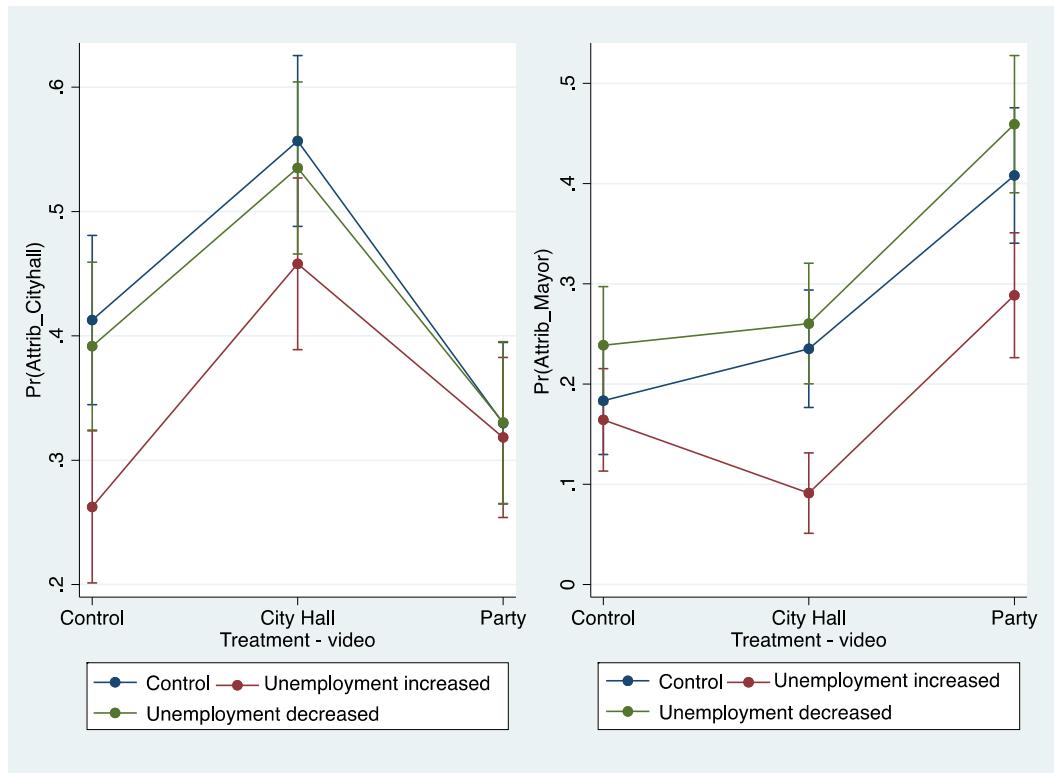


Figure 9 Predictive Margins for Attribution to City Hall and Mayor

In sum, the results suggest that the government ad is effective at raising attributions of responsibility to the City Hall, but it is not capable of leading to higher responsibility to the mayor. When the variable “government ad” interacts with “news of unemployment increase”, the change in odds is reduced. Conversely, the party ad increased attribution of responsibility to the mayor in

all its interactions. Together, these results point to the government advertising's limitation of not being able to convey the mayor's name in its content, which establishes a limit to government ad's capacity to link the mayor to the accomplishments in the ad. That said, the interaction between the City Hall ad and unemployment increase on Table 16 did affect a lower attribution to the mayor, which suggests that the government ad can be successfully used to deflect blame.

5.4.3 Reelection

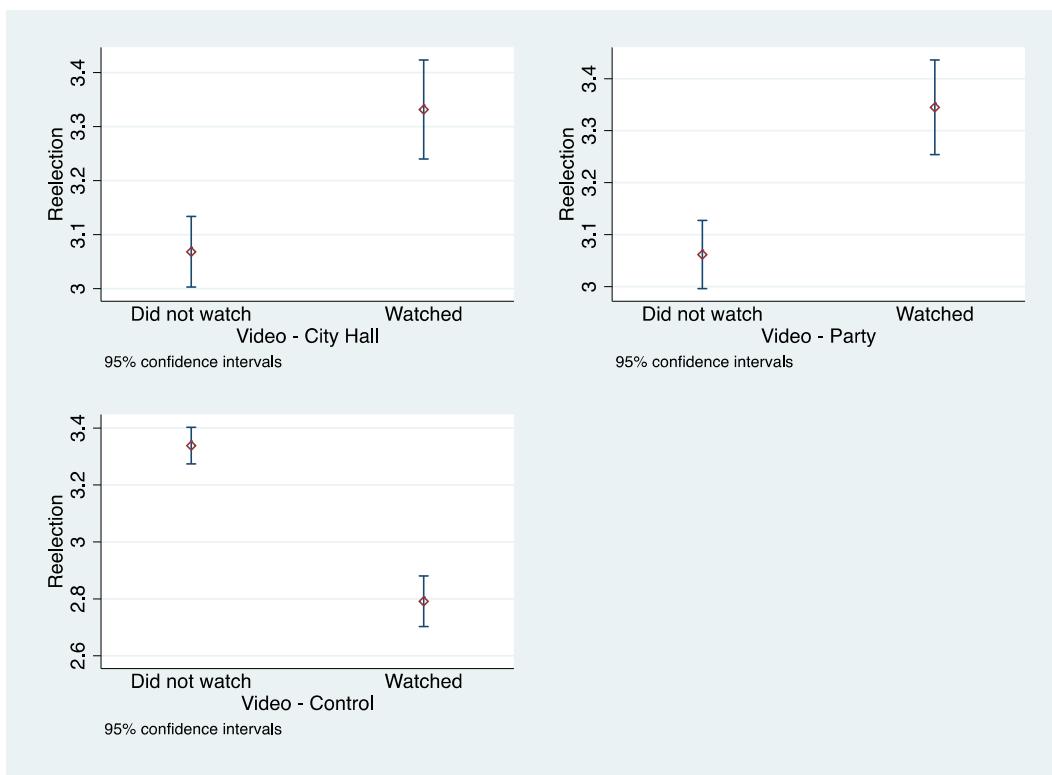


Figure 10 Difference in Means' Test (T-Test) for Reelection

Results for the impact of advertising and the news stories on the likelihood of supporting the mayor's reelection can be found on Figure 10. It shows that there is not a statistically significant difference in reelection rating between the participants who watched the government ad ($t = -4.57$,

$p = 0.000$) and those who watched the party ad ($t = -4.93, p = 0.000$). In comparison with those who watched the control video ($t = 9.69, p = 0.000$), though, it can be seen that both the government ad and the party ad were equally effective at raising the support for reelection by approximately .55.

The next figure presents the means of the likelihood of supporting the mayor's reelection by the type of news received. In all news conditions, the mean of City Hall ad is not statistically significantly different from the party ad. However, both are effective in comparison to the control.

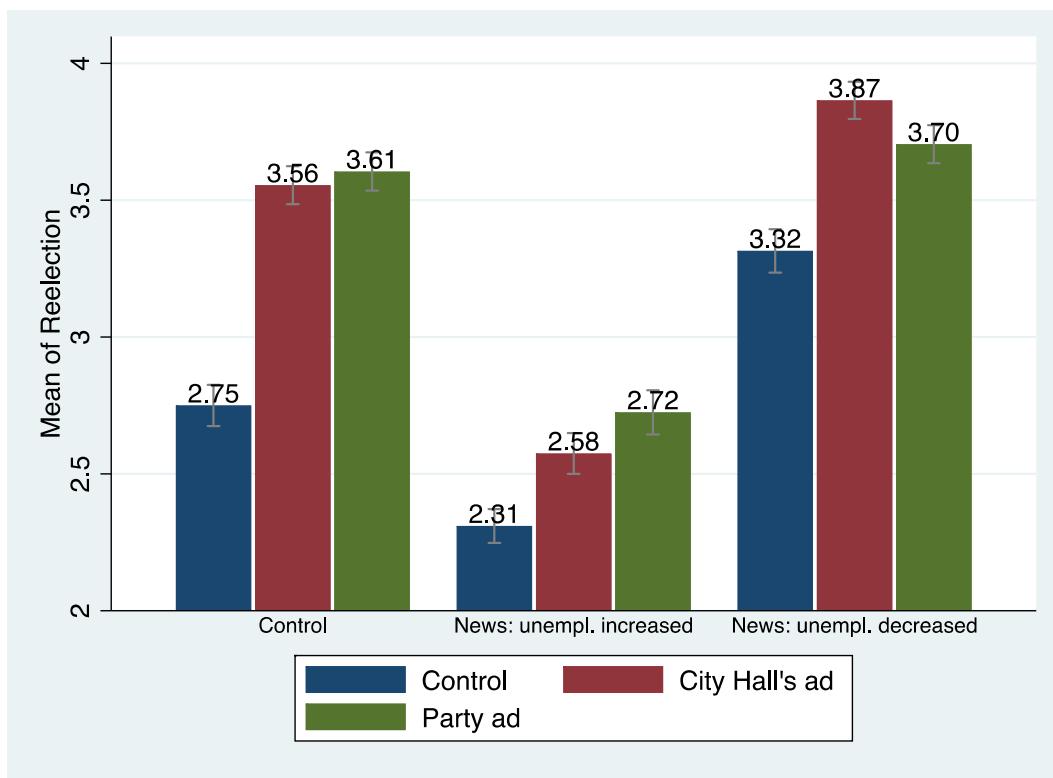


Figure 11 Means' Bars with Confidence Intervals for Reelection

In all news conditions the means for the government ad and the party ad are higher than the mean for the control video, including the news condition where unemployment is shown to

have increased in Cruzeiro Novo. The results show that government advertising is as effective as the party ad at increasing the support for reelection.

Table 17 presents the regression results of the interaction between the video treatment and the news treatment, followed by the control variables. The City Hall ad presents increase in the odds when interacted with the news control condition and the news of unemployment decrease condition. The City Hall ad is not capable of counteracting the effect of negative news on unemployment. A one unit increase in the interaction between the government ad and the news on unemployment increase lowers the odds of supporting the mayor's reelection by 31.5%.

Table 17 Impact of Video Ads and News on the Likelihood of Supporting the Mayor's Reelection

	Odds ratio	Std. Err.	P> z	% change in odds
Control ad x Unempl. increased	0.444***	0.081	0.000	-55.6
Control ad x Unempl. decreased	2.665***	0.495	0.000	166.5
City Hall ad x Control news	4.242***	0.779	0.000	324.2
City Hall ad x Unempl. increased	0.685*	0.126	0.040	-31.5
City Hall ad x Unempl. decreased	7.105***	1.331	0.000	610.5
Party ad x Control news	4.438***	0.817	0.000	343.8
Party ad x Unempl. increased	0.832	0.155	0.321	-16.8
Party ad x Unempl. decreased	5.448***	1.012	0.000	444.8
Gender	0.948	0.083	0.547	-5.2
Education	0.975	0.028	0.379	-2.5
Family income	1.015	0.032	0.632	1.5
Media - TV	1.002	0.099	0.986	0.2
Attention to the news	1.125	0.071	0.063	12.5
Trust in the media	1.504***	0.089	0.000	50.4
N	1800			
Log Likelihood	-2486.87			
LR chi2(12)	504.31			
Prob > chi2	0.000			
McFadden R2	0.092			

* p<0.05, ** p<0.01, *** p<0.001

The party ad leads to an increase in the change in odds when interacted with the news control condition and the news of unemployment decrease. For the former, a one unit increase in the interaction leads to more than 300% increase in odds of supporting the mayor's reelection. For the latter, a one unit increase in the interaction leads to more than a four-fold increase in the odds of supporting the mayor's reelection. Overall, the government ad presents the highest positive change in the odds of supporting reelection, more than six-fold. Nevertheless, it is not capable of deterring the impact of negative news on unemployment.

The next figure presents the predictive margins from the previous regression. Due to the large number of combinations obtained in the interaction between the video treatment and the news treatment, here I present the predictive margins of the impact of news treatment only for each one of the five values of the dependent variable, while holding other variables at their means.

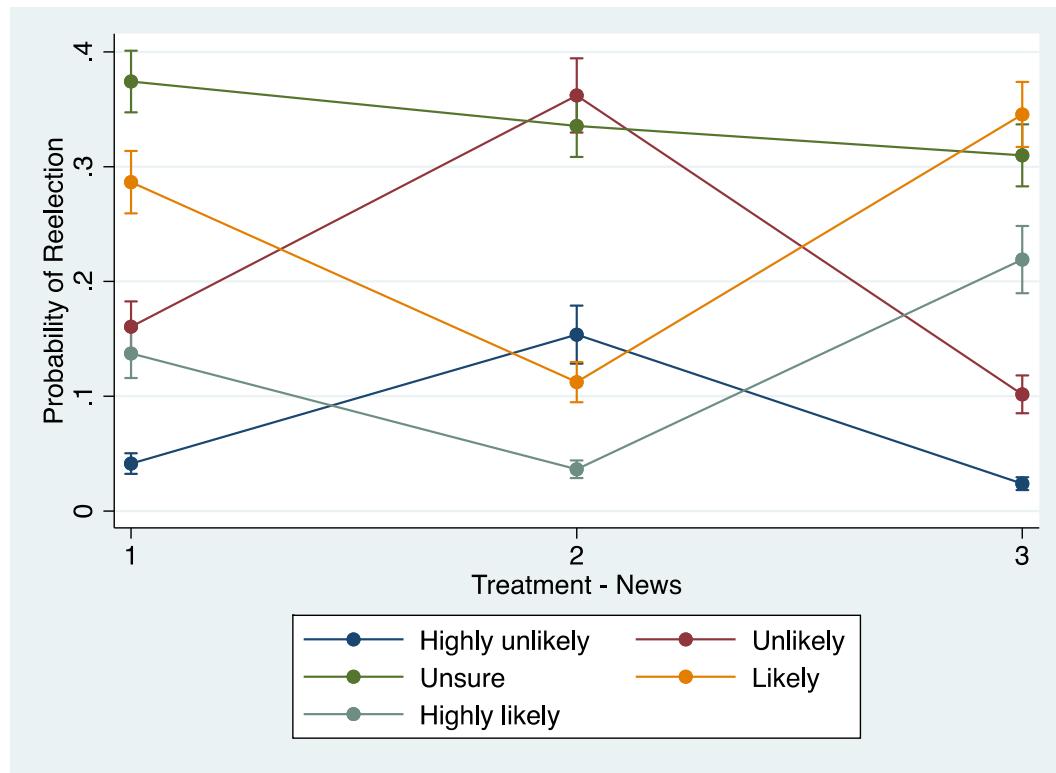


Figure 12 Predictive Margins for Reelection

According to the figure, the “highly unlikely” and the “highly likely” categories were significantly affected by the news on unemployment increase, whereas the reverse holds for the “likely” and “highly likely” categories.

5.4.4 Ad Effectiveness

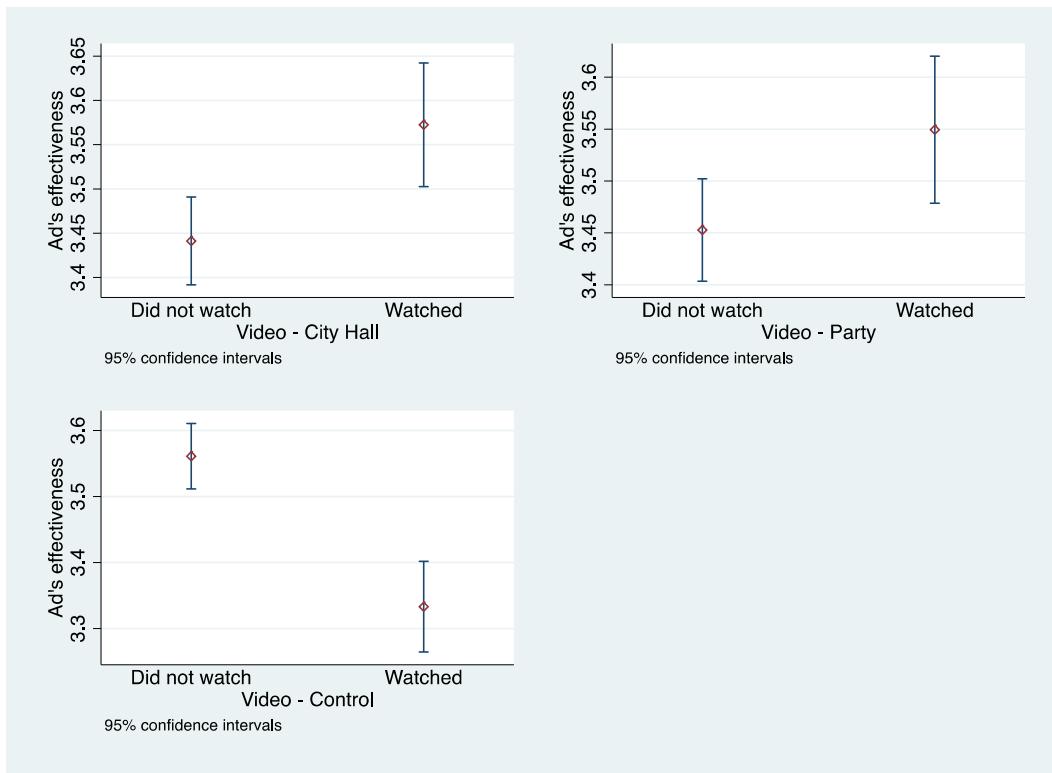


Figure 13 Difference in Means’ Test (T-Test) for Ad’s Effectiveness

The experiment also rated the ads concerning their level of effectiveness (see more in the Appendix). The dependent variable, ad effectiveness, is a composite measure of how fair, important, truthful, convincing, informative, and impartial each ad is according to the experiment’s participants. Figure 13 presents the means of ad effectiveness by the type of ad watched by

participants. Again, there is no significant difference between the means of ad effectiveness between those who watched the City Hall ad ($t = -3.00$, $p = 0.000$) ad and those who watched the party ad ($t = -2.21$, $p = 0.027$). That said, both the government ad and the party ad are effective in comparison to the control condition ($t = 5.24$, $p = 0.000$).

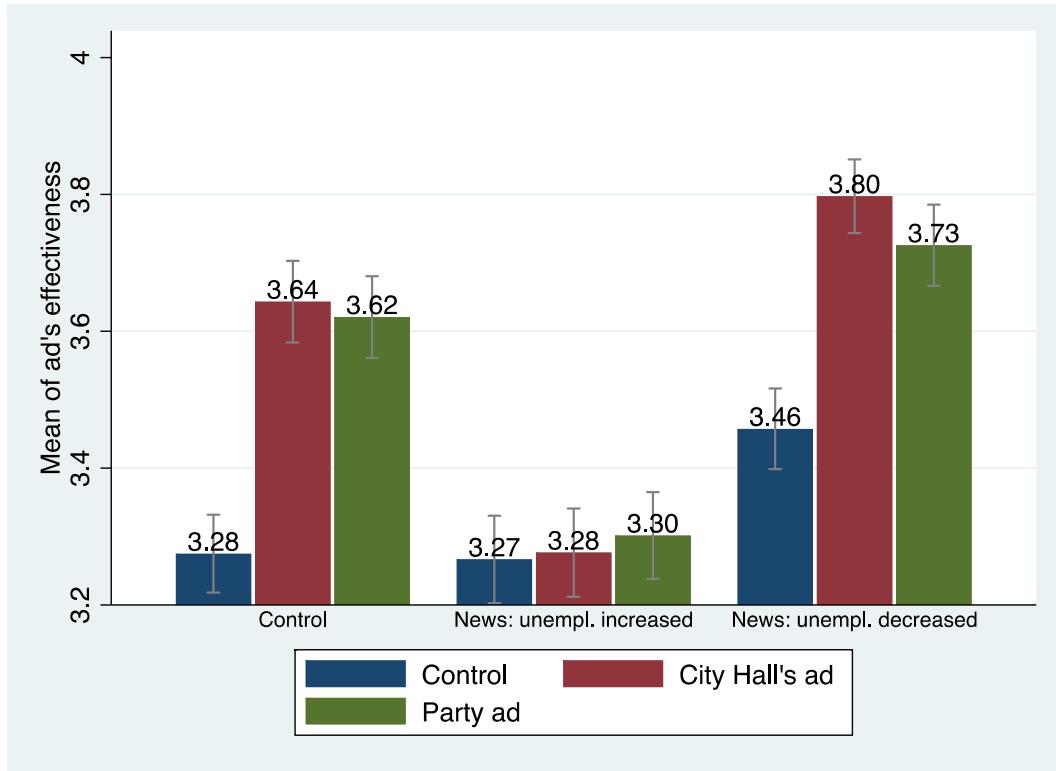


Figure 14 Means' Bars with Confidence Intervals for Ad's Effectiveness

Figure 14 shows the means of ad's effectiveness across categories of news story. The means of ad's effectiveness are higher for the City Hall ad in two of the three news stories (i.e., control condition and news on unemployment decrease), and the means for party ad and government are essentially the same for the news of unemployment increase. Corroborating the difference in means tests, the results do not show meaningful differences in ad effectiveness between those who watched the government ad and those who watched the party ad. In comparison

to the control video and the control news conditions, ad effectiveness is higher for those who watched the government ad and the party ad. The news treatment affects perceptions of ad effectiveness in significant ways. Ad effectiveness is considerably lower for participants who received the news about unemployment increase and higher in the other two conditions.

5.4.5 Mayor's Approval

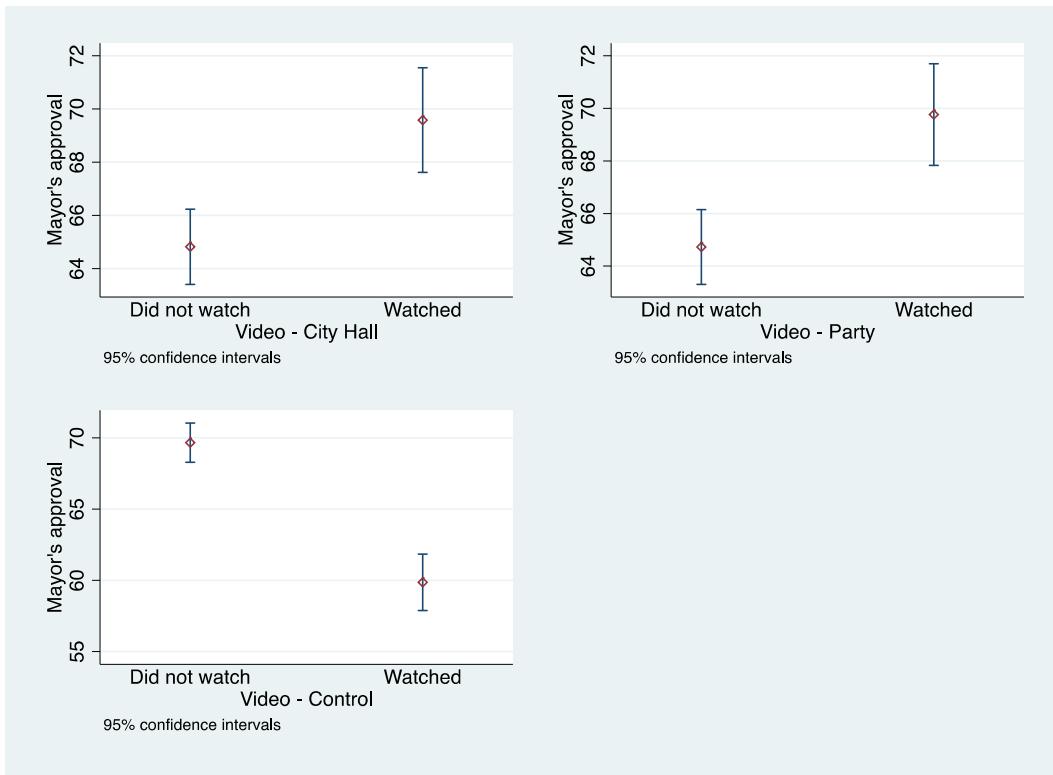


Figure 15 Difference in Means' Test (T-Test) for Mayor's Approval

The study also verified the impact of advertising on the level of approval for the mayor. As Figure 15 shows, the mayor's approval mean among those who watched the government ad ($t = -3.84, p = 0.000$) is the same of those who watched the party ad ($t = -4.07, p = 0.000$). Still, both

the government ad and the party ad are effective at raising the Mayor's approval in comparison to those who watched the control video ($t = 8.02$, $p = 0.000$). The mean approval for participants who watched the government ad and the party ad is of approximately 70, whereas the approval among those who watched the control video is of approximately 60, a difference of 10 points in approval.

Results from Figure 16 cross the type of ad seen with the type of news story read. It shows that the mean approval is higher among those who watched the City Hall ad in two conditions, the news control condition and the condition on positive news about unemployment. The mean approval is higher for the government ad and the party ad among those who read the news story about unemployment decrease, pointing to the importance of the information context for the processing of the content of the ads.

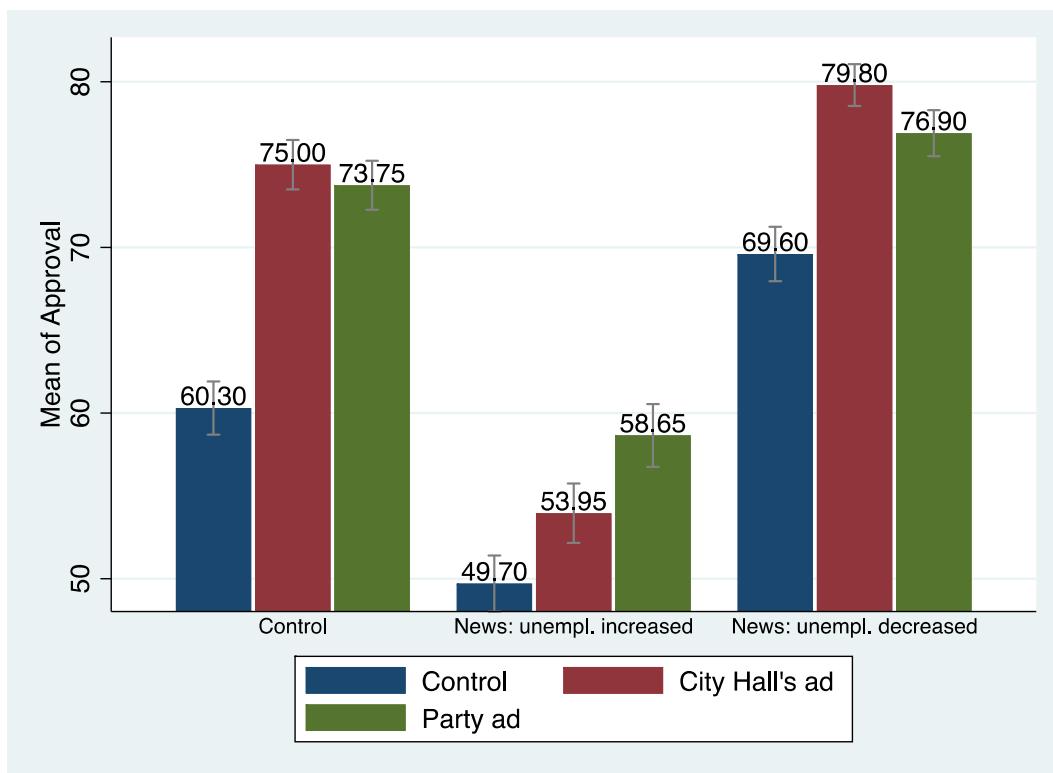


Figure 16 Means' Bars with Confidence Intervals for Mayor's Approval

The next table reports the results of two Analyses of Variance (ANOVAs) for the last two dependent variables previously analyzed. The table presents the F statistics for both factors, the interaction, and the model. It also presents two measures of effect size: the partial η^2 and the Cohen's f statistic. The partial η^2 is the ratio of variance associated with an effect, plus that effect and its associated error variance⁹. The suggested norm for partial η^2 are 0.01 for small effect, 0.06 for medium effect, and 0.14 for large effect (Cohen, 1969). The Cohen's f statistic¹⁰ is a type of standardized average effect in the population across all levels of the independent variable, or the ratio of the population standard deviation. It takes on values between zero (when the population means are all equal), and an infinitely large number as standard deviation of means increases relative to the average standard deviation within each group. The convention is that values of 0.10, 0.25, and 0.40 represent small, medium, and large effect sizes, respectively (Ellis, 2010, p.41).

Table 18 Analyses of Variance of Ad's Effectiveness and Mayor's Approval, by Treatment and Their

Interaction

	Ad's effectiveness			Mayor's approval		
	F	η^2	Cohen's f	F	η^2	Cohen's f
Video ad	14.35***	0.015	0.119	37.42***	0.040	0.186
News on unempl.	29.95***	0.032	0.177	142.12***	0.136	0.387
Video ad x news on unempl.	3.12**	0.006	0.067	3.47***	0.007	0.067
Model	12.63***	0.053		46.62	0.172	
Adj. R2		0.049			0.1687	
N		1800			1800	

* p<0.10, ** p<0.05, *** p<0.01

⁹ Partial $\eta^2 = \text{SS}_{\text{effect}} / (\text{SS}_{\text{effect}} + \text{SS}_{\text{error}})$

¹⁰ $f = \sigma_{\text{means}} / \sigma$

Regarding the ad's effectiveness, it presents statistically significant main effects for the video treatment, the news treatment, and the interactions. The effect sizes are also small for each treatment and their interaction. Lastly, the results of the ANOVA for mayor's approval show statistically significant effects for the treatments and their interaction. Differently from the other dependent variable, it presents a moderate-to-large effect for the news treatment (partial $\eta^2 = .13.6$, Cohen's $f = .38$). Overall, the results show that the treatment had small effects on the two dependent variables analyzed.

Next, it follows the predictive margins of ad's effectiveness and approval obtained from the ANOVA models from the last table. Figure 17 shows the predictive margins for the ad's effectiveness's dependent variable. Respecting the effect of the treatment of news on unemployment, it can be verified that participants who watched the City Hall ad and the party ad rated on average the ad as more effective when treated with the news covering the decrease of unemployment in Cruzeiro Novo. Conversely, the news of unemployment considerably depresses the rate of effectiveness of the City Hall ad and the party ad. Also, it can be observed that the linear prediction for the City Hall ad and the party ad is the same for each category of news treatment (i.e., unemployment increase and unemployment decrease).

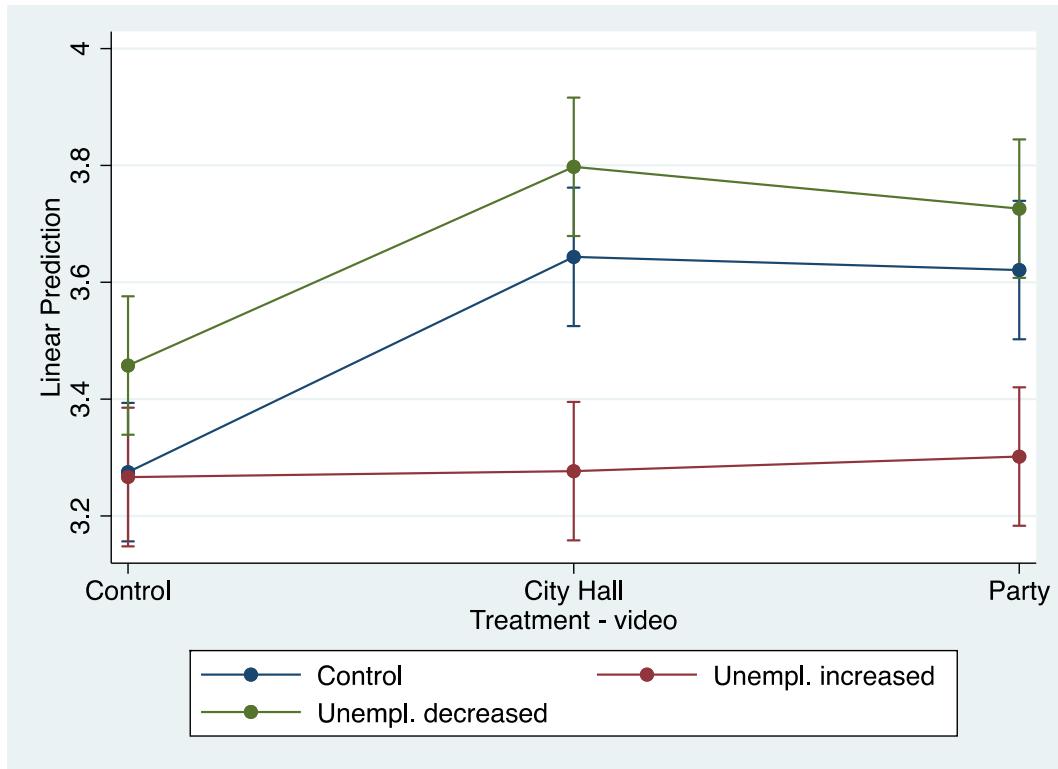


Figure 17 Predictive Margins for Ad's Effectiveness

Concerning the predictive margins of approval, Figure 18 presents the level of approval for each interaction between the video treatment and the news treatment. It can be seen that the news showing unemployment increase considerably depresses the level of Mayor's approval for all the three video treatments. The figure also shows that support for the Mayor is higher when participants receive a news about unemployment decrease. The same can be observed for those who watched the party ad. Both the government ad and the party ad are effective at increasing the Mayor's approval when the news about unemployment is more sanguine. In all, Figure 17 and Figure 18 attest that the City Hall and the party ad are effective at increasing perceptions about each ad's level of effectiveness and the Mayor's approval.

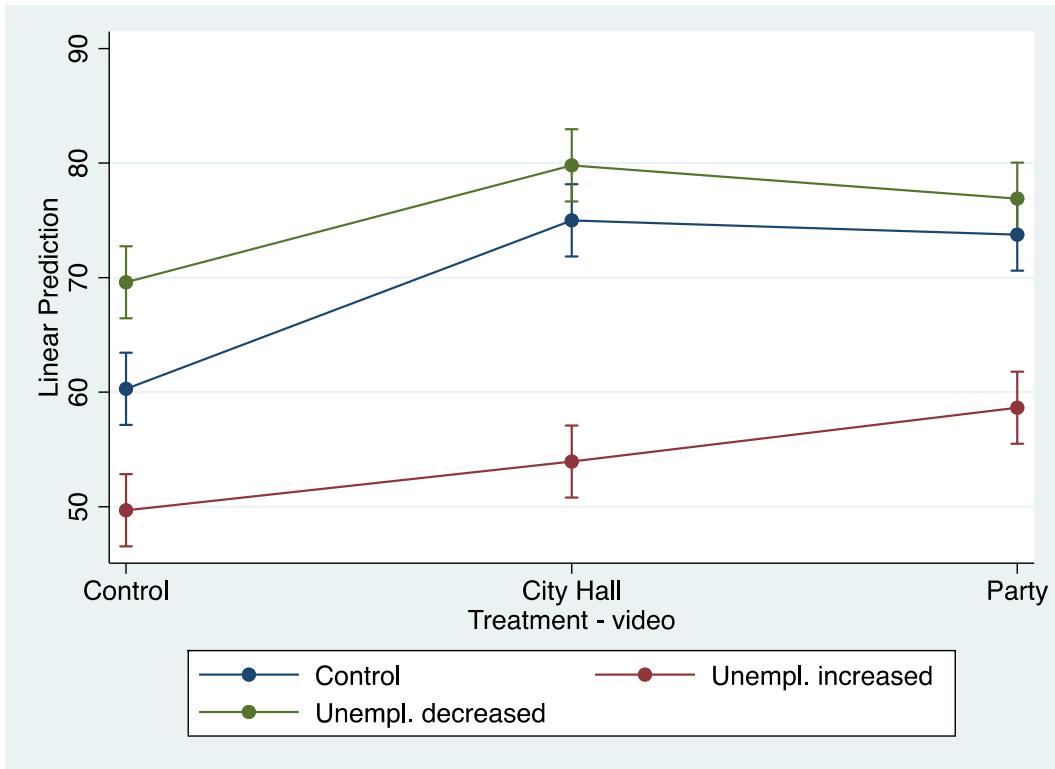


Figure 18 Predictive Margins for Mayor's Approval

Table 19 Impact of Treatment, Interactions, and Additional Variables Ad's Effectiveness and Mayor's Approval

Variable	(1) Ad's effectiveness	(2) Mayor's approval
Control ad x Unempl. increased	-0.022 (0.082)	-10.650*** (2.228)
Control ad x Unempl. decreased	0.144 (0.082)	8.674*** (2.224)
City Hall ad x Control news	0.391*** (0.082)	15.070*** (2.224)
City Hall ad x Unempl. increased	-0.002 (0.082)	-6.085** (2.227)
City Hall ad x Unempl. decreased	0.499*** (0.082)	19.300*** (2.229)
Party ad x Control news	0.330*** (0.082)	12.960*** (2.222)
Party ad x Unempl. increased	-0.017 (0.082)	-2.482 (2.226)

Party ad x Unempl. decreased	0.457*** (0.082)	16.770*** (2.223)
Gender	0.044 (0.039)	0.382 (1.075)
Education	-0.079*** (0.013)	-1.245*** (0.351)
Family income	-0.000 (0.014)	1.210** (0.393)
Media - TV	-0.030 (0.044)	1.556 (1.200)
Attention to the news	0.080** (0.028)	1.801* (0.776)
Trust in the media	0.220*** (0.025)	4.521*** (0.690)
N	1800	1800
Adj. R2	.121	.204
F	18.61	33.85
Prob > F	.000	.000

Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 19 presents the regression results of ad's effectiveness and the mayor's approval.

Regarding Model 1, government advertising is positively associated with ad effectiveness alone (i.e., in interaction with the control news condition) and when interacted with the news on unemployment decrease. The same occurs with the party ad, that is, it is positively related to the dependent variable in its interaction with the news control condition and in its interaction with the news about unemployment decrease.

Third, Model 2 shows the results for mayor's approval as the dependent variable. The mayor's approval is clearly affected by news on unemployment increase. Holding all variables constant, a one unit increase in the interaction between the City Hall ad and the news on unemployment increase leads to a decrease of mayor's approval of 6%. When the news on unemployment increase interacts with the control video, the reduction in the mayor's approval is

higher, of 10.6%. Government and party ads are positively and statistically associated with mayor's approval when both interact with the control, news condition or the news on unemployment decrease. It is clear from the results that the contextual factor (news about unemployment) exerts an important mediating impact between the advertising and the level of approval for the mayor.

5.5 Conclusion

Can government advertising affect individuals' attitudes and behaviors? If so, under which circumstances? In this chapter, I aimed at providing some answers to these questions. The study used a between-subjects online survey experiment to verify whether government advertising can affect citizens' attribution of responsibility, support for reelection, perceptions of ad effectiveness, and the incumbent's approval. It was theorized, based on the literatures of attribution theory and ad sponsorship, that government advertising should be more effective than party advertising. Because individuals would attach less self-interested political motivations to government advertising than to party advertising, government advertising would be more persuasive.

The analyses found interesting results. Attribution of responsibility for City Hall was higher among those who watched the government ad. Conversely, the attribution of responsibility for mayor was higher among those who watched the party ad. These results show that it is difficult to link the mayor's name to the message of improvements in government advertising.

The results also indicated that government advertising is equally effective in comparison to party ads. The results detected an increase in support for reelection, ad effectiveness, and the mayor's approval when those who watched the government ad were compared with those who did

not watched (i.e., in the control condition). Further, advertising had small effects on ad effectiveness and the mayor's approval.

Moreover, the impact of the second experimental factor, news on unemployment, was relevant. The processing of advertising message was mediated by the news stories read by participants. Those who watched government advertising and read a news story about unemployment increase showed lower likelihood of supporting the mayor's reelection, rated the government (and party) ad as less effective, and awarded less approval to the mayor. It is clear that government advertising was not capable of hindering the impact of negative news on unemployment. This brings important practical implications. It suggests that government advertising is more effective in environments where the message in government advertising can be aired with little-to-no countervailing messages, a situation more likely in poorer polities and where news media broadcast is less diversified.

The study contains important limitations. One of the most relevant was the experiment's limited degree of realism. The most consequential limitation of the experimental setup may have been the use of a fictitious party ad. As theorized by Feierherd (2019), the strength of party labels mediates electoral spillovers across levels of government (positive or negative). Whereas strong party brands may convert the performance of incumbents into collective goods for all politicians who share that label, candidates and incumbents only circumstantially linked to parties may be ignored by voters. Therefore, it is possible that participants ignored the party label of the experiment due to the fact that the party in the ad was not a strong (and real) party brand. Had the experiment used a real Brazilian party in the ad, the results could have been different.

Despite these limitations, the findings from the study complement the literatures on political advertising, incumbency (dis)advantage and ad sponsorship. Political advertising is not

the only type of advertising capable of influencing voters in several developing democracies. Government advertising can also have influence on voters, which is not limited to vote intention and approval. The findings also complement the studies on incumbency (dis)advantage. They show that several incumbents have at their disposal the use of government advertising as a tool that they can use during their mandate to promote their actions in office and to build their political reputations. If incumbents can use government advertising effectively, they may be able to shape their constituents' information environment in consequential ways, which means that government advertising can be a potential important mechanism for incumbency advantage. Lastly, government advertising shows that interest group advertising is not the only relevant non-political type of advertising with relevant political uses and consequences. Government advertising can also be used to promote policies and to defend administrations.

In the next section, the dissertation studies the determinants of and the effects of government advertising spending in the state of Minas Gerais, Brazil. By carrying out a multivariate analysis of the spending with advertising by the state government in its 853 municipalities, the chapter tests hypotheses about the allocation of government advertising to verify the degree to which political considerations play a role in the allocation. The chapter also presents multivariate statistical analysis to verify the effects that government advertising in the state have on the incumbent's candidate vote share and on turnout.

6.0 The Determinants of Government Advertising Spending and Its Effects: A Subnational Analysis in Brazil

6.1 Introduction

In this chapter, I investigate how government advertising is allocated and its electoral effects. To that end, I use rich data obtained from the Brazilian state of Minas Gerais on the spending with government advertising per municipality in the state, from 2003 to 2014, encompassing three gubernatorial election. The level of detail of the spending is very difficult to be obtained and does not exist for other Brazilian states. Further, the data is used to verify the impact of government advertising on three electoral dependent variables. I develop theoretical arguments based on the idea that incumbent chief executives are concerned with reputation-building and integrate this insight with the political science literatures on distributive spending and the allocation of federal spending by the U.S. government. The analyses find that incumbent governors allocate government advertising in a non-particularistic fashion, that is, they distribute government advertising to reach the largest number of voters. Second, respecting the effects of government advertising, it was found that government advertising does not exert electoral effects. The chapter is organized as follows. First, I provide a brief overview of the most recent political history of the state of Minas Gerais to contextualize the data analyses and the choice of the state as a case for study. Second, based on the theory laid out in Section 3.5 of the theoretical chapter, I state the hypotheses. Third, I present descriptive statistics of the dependent variable (i.e., spending with government ads). Next, the chapter describes the independent variables. Further, the empirical results from the multivariate analyses are presented. In the section that deals with the effects of

government advertising, I also present descriptive statistics for the key independent variable, present the independent and dependent variables, and lay out the empirical strategy followed by the results. Finally, I conclude.

6.2 Minas Gerais: Recent Political History

The state has a total of 853 municipalities (almost two hundred more than the most populous state of the country, São Paulo), spread out through a vast territory marked by drastic regional differences. It ranks fourth in area with 586,000 squared kilometers (226,255 square miles), comparable in size to Ukraine.

The state has been portrayed as a microcosm of Brazil itself, reproducing within its limits the regional differences that would characterize the country. Many times, *mineiros* refer to their state as a “small Brazil”. It has a rich, industrialized core (as Brazil’s Southeast), an autonomy-seeking cattle-raising border region (as Brazil’s Southern region), and a vast arid and poor region (as Brazil’s Northeast). The diversity of the state’s municipalities has translated into a plural political spectrum, with parties on the left and right competing for the positions of the state and local governments since the return to democracy in the late 1980s (Da Ros, 2014).

Table 20 Minas Gerais and Brazil, Socioeconomic Comparison (2010)

	Minas Gerais	Rank*	Brazil
Population	19,597,330	2	190,755,799
Area (km ²)	586,521	4	8,511,000
Human Development Index	0.731	9	0.755
Gini Index	0.56	0	0.60
GDP per capita (R\$)	27,282	1	31,702

Percent poor	10.97	7	15.20
Source: Brazilian Institute of Geography and Statistics (IBGE) - Census 2010, Brazilian Atlas of Human Development			
GDP per capita data from 2017			
*Minas Gerais's position among the 27 Brazilian states			

The military regime came to an end in 1985. Minas Gerais led the movement that resulted in the military regime and also led the return to democracy in 1985. Tancredo Neves, national leader of the opposition and important *mineiro* politician, was successful at attracting the support of traditional oligarchies who were disenchanted with the regime. He was elected by indirect voting of an electoral college to president but fell gravely ill and passed away 39 days after his election. The end of the regime also led to the emergence of a new economic elite in the state: medium sized businessmen, industry leaders, strong unions, and urban professionals limited the powers of the traditional oligarchies.

With the transition to democracy in 1985, the fragmentation of the opposition parties as well as the pro-military factions generated a competitive electoral arena where the hold on power has been unstable (Borges, 2006). PMDB emerged as the dominant party during the period in the country and in Minas Gerais. However, internal divisions of PMDB generated fragmentation and a weakening of the party in the early 1990s. Many representatives of its leftist wing left the party to join newly formed left parties and the social-democratic PSDB. In a brief period of time, PSDB became the main challenger of PMDB. During the 1990s, PSDB and PMDB competed and alternated in power.

In the 2000s the Workers' Party (PT) won the national presidential election. The period was marked by the alliance between the national PT and the local PMDB, as well as by the domination of the local politics by Aécio Neves from PSDB, Tancredo Neves' grandchild. He was

elected for his first term as governor with 57.6% of the valid votes in 2002 and was reelected with 77% of the valid votes in 2006. In 2010, he made one of his cabinet members, Antônio Anastasia, his successor. Anastasia obtained 62.7% of the valid votes in the first round of the gubernatorial election. Four years later, he decided not to pursue reelection for governor. Instead, Anastasia ran and won a Senate seat in 2014. In the same year, the 12 year-period of PSDB dominance in the state's government came to an end. The PT candidate Fernando Pimentel won the gubernatorial election with 52.9% of the valid votes in the first round.

Overall, the state stands out as an example of high political competition (and more democratic) than several other Brazilian states (Mera, 2016, p.142). It has been classified as marked by *coalescent pluralism*, that is, low levels of inter-elite conflict and coalescent elite behavior (Borges, 2007) and *low electoral dominance* (Borges, 2011). The state has presented high-intensity electoral competition, highly fragmented party system, lack of political bosses or dominant political families, low levels of levels of political continuity, low levels of ideological polarization, and by its political centrism (Borges, 2007). The state constitutes a useful case for comparative analysis. It possesses a large number of municipalities with great degree of variance on important political and socio-economic characteristics to test the theory and hypotheses put forward in the sections that follow.

6.3 Allocating Government Advertising Spending: The Role of Particularism, Term Limits, Rules, and Hypotheses

In this chapter, I argue that incumbents can allocate government advertising spending in order to benefit constituencies that are more pivotal to the incumbent to advance her reelection or

to promote partisan goals, a particularistic approach, or they can allocate government advertising according to an universalistic logic according to which the incumbent aims at targeting with ads the highest number of people. The incumbent will be particularistic in her allocation of advertising if he or she targets advertising to serve specific political ends. Contrariwise, a universal distribution of advertising suggests that the incumbent will allocate advertising spending to constituencies in a manner that is unrelated to particular political characteristics.

Incumbents face incentives to be particularistic in their allocation of government advertising, that is, to advertise more about the deeds and accomplishments of their governments to some citizens over others when pursuing their policy agendas. Electoral concerns over reelection and risk-aversion may compel incumbents to target government advertising spending to constituencies that benefit the incumbent and her party. The particularistic allocation contrasts with a universalistic strategy. According to the former, to maximize the incumbent's prospects for reelection, it may not be optimal to appeal to the median voter. While the incumbent represents an at-large constituency, not all voters have an equal influence in elections. Because of that, incumbents have incentives to allocate disproportional amounts of advertising to constituencies with the most clout in elections. Additionally, investment of advertising in core constituencies may represent a safer investment. Risk averse political actors who want to maximize their chances of winning elections should allocate more funds to loyal supporters (Larcinese, Rizzo, and Testa, 2006).

A universal distribution of advertising, on the other hand, implies that the incumbent will allocate advertising spending to constituencies that is unrelated to political characteristics. In the Brazilian political system, governors are elected under a first-past-the-post plurality system with a run-off when the winner does not achieve 50% or more of the valid votes. In this system,

theoretically, all votes have an equal weight. In this case, the best strategy for allocating advertising may be to advertise to the greatest number of people. Therefore, I state the following hypotheses:

H6.1. *Equal weight constituency hypothesis*: larger municipalities in number of voters should receive more advertising spending, all else equal, than municipalities with smaller number of voters

H6.2. *Core constituency hypothesis*: municipalities that more strongly support the incumbent's party for governor should receive more advertising spending, all else equal, than other municipalities.

Government advertising can also be used to further partisan goals and benefit the incumbent's political party. Governors are important political figures in Brazil. According to scholars, governors have great power over municipal strongholds of state deputies and hold power over municipal mayors whom candidates for federal deputy rely upon to obtain votes (Abrucio, 1994; Samuels, 2003). Also, governors control sizeable budgets and have extensive powers to hire and fire personnel in the state bureaucracy (Samuels, 2000). In sum, governors control access to patronage and policy (Borges and Lloyd, 2016). Last but not least, governors have influence in party organizations at the national and subnational levels in the country (Borges and Lloyd, 2016, p.107). Several important decisions regarding elections and party organization (e.g., party primaries for selecting candidates to all relevant national posts except the presidency) are made at the state level. Given the weakness of national parties and party labels in Brazil, many candidates find that associating with a candidate for governor is advantageous (Samuels 2000). For these

reasons, the incumbent governor may also have incentives to use government advertising to support the party's state and federal legislators in their strongholds. Therefore, we can also advance the following hypotheses:

H6.3. *Municipal partisanship hypothesis*: municipalities whose mayors belong to the incumbent governor's party should receive more advertising spending, all else equal, than municipalities governed by mayors from other parties.

H6.4. *Legislative partisanship hypothesis (1)*: municipalities that more strongly support the incumbent's party for state deputy should receive more advertising spending, all else equal, than other municipalities.

H6.5. *Legislative partisanship hypothesis (2)*: municipalities that more strongly support the incumbent's party for federal deputy should receive more advertising spending, all else equal, than other municipalities.

Do term limits influence the allocation of government advertising? I claim that reputation building concerns affect the incumbent's calculations. Investment in government advertising is advantageous for politicians' long-run career prospects. Progressive or regressive ambition – not to mention static ambition or running for the same executive office after one term out of office – are benefited by the construction of a reputation of accomplishments in executive office. Legacy building also constitutes an additional incentive to spend with government advertising and reinforces reputation building. As a result, term limits may not restrain politicians from investing

in government advertising. On the contrary, reputation building concerns provide incentives for chief executive incumbents to spend as much (or more) during their binding term in office. In Brazil, governors serve a set time period of four years and have the possibility of reelection to only one subsequent four-year term. In political settings where parties are weak, partisanship among the electorate is low, and the personal vote is prevalent, a good portion of a politician's success may depend on his or her individual capacities. Building a reputation becomes important.

In Brazil, there is an additional feature that influences the investment in government advertising. Electoral law from 1997¹¹ established that spending with government advertising was limited to the average of investment made during the last three years before the election. In 2015, the law was changed by another law¹² and became more restrictive. It defined that public agents were prohibited from spending on government advertising, during the first semester of the election year, amounts superior to the average of the spending of the first semester of the previous three years before the election. In practice, the annual average before the law's change became semestral. Consequently, incumbents cannot spend freely on government advertising in Brazil during election years. The legislation has implications for the amount incumbents may spend with advertising during each period of their tenure. Concerning the spending with government advertising in Minas Gerais, we can expect a gradual increase in government advertising spending during the three years prior to the election and a substantial decrease in the election year of the incumbent's first term in office. If reelection is achieved, spending should remain stable over time. Based on these considerations, I advance two additional hypotheses:

¹¹ Lei Federal nº 9.504/97

¹² Lei Federal nº 13.165/15

H6. *Term limitation hypothesis*: the incumbents will spend as much (or more) with government advertising during their second term in office.

H7. *Years in office hypothesis*: the incumbents will spend less with advertising as their tenure in office progresses.

Finally, concerning the analysis of **the effects of government advertising**, I generate the hypotheses that it should be positively related to the incumbent governor's performance in the election. Government advertising conveys accomplishments during his tenure that can be displayed to voters before the campaign period starts, which is an advantage that the incumbent governor has over his challengers. Concerning turnout, my expectation is that government advertising spending should be positively related to turnout. If it works, government advertising can increase the presence of supporters from the incumbent governor to the polls, leading to an overall increase in turnout levels. They can be summarized as follows:

H8. *Spending with government advertising hypothesis*: the governor will receive more votes in municipalities where the state government spent more with government advertising

H9. *Personal vote share and government advertising hypothesis*: the governor's "personal" share of the vote in a municipality will be higher in municipalities that received more government advertising.

H10. *Turnout and government advertising hypothesis*: turnout for governor will be higher in municipalities that received more government advertising spending.

6.4 Dependent Variable: Spending with Government Advertising

In this chapter, ad spending with government advertising is operationalized as the logged amount of spending with government ads per voter, or $\ln(1 + \text{Spending with government ads per voter})$. I add 1 to spending with government ads when taking logs to avoid dropping observations with 0 spending. The data was provided by the Minas Gerais' Social Communications Secretariat. This amount includes the spending with government ads per municipalities encompassing all mediums.

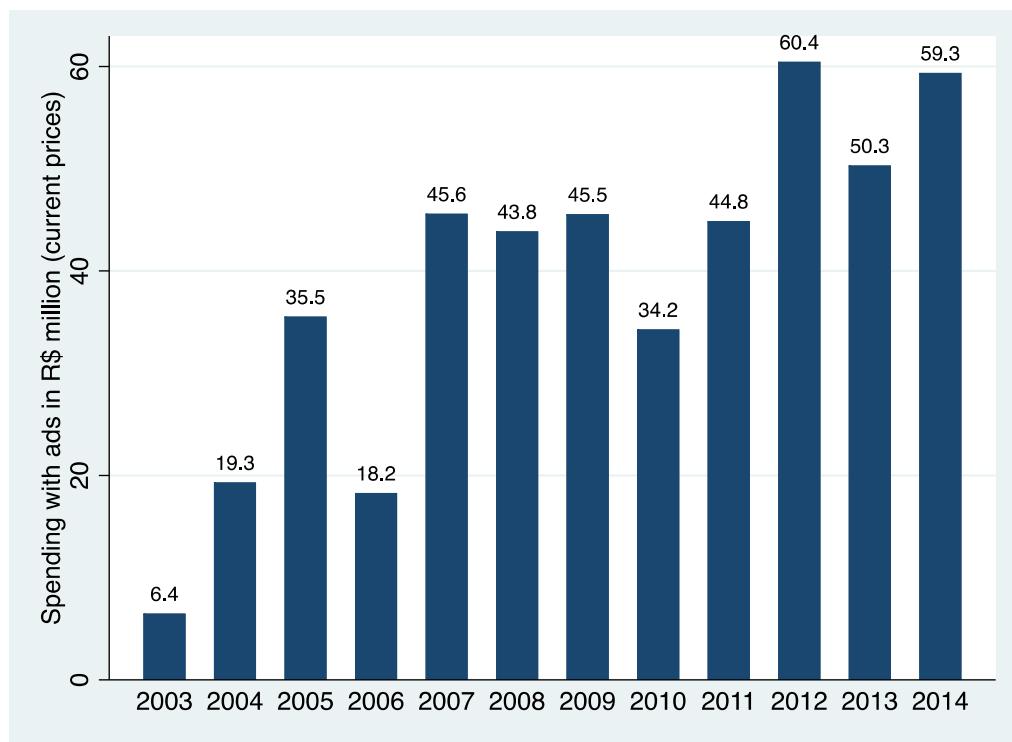


Figure 19 Spending with Government Advertising, by Year (2003-2014)

As shown in Figure 19, the amount spent with government advertising by the state of Minas Gerais grew over the period analyzed. From a small amount of R\$ 6.4 million, it grew gradually, but not constantly, over the years, and reached almost R\$ 60 million in 2014. Overall, the state increased the spending with government ads over time.

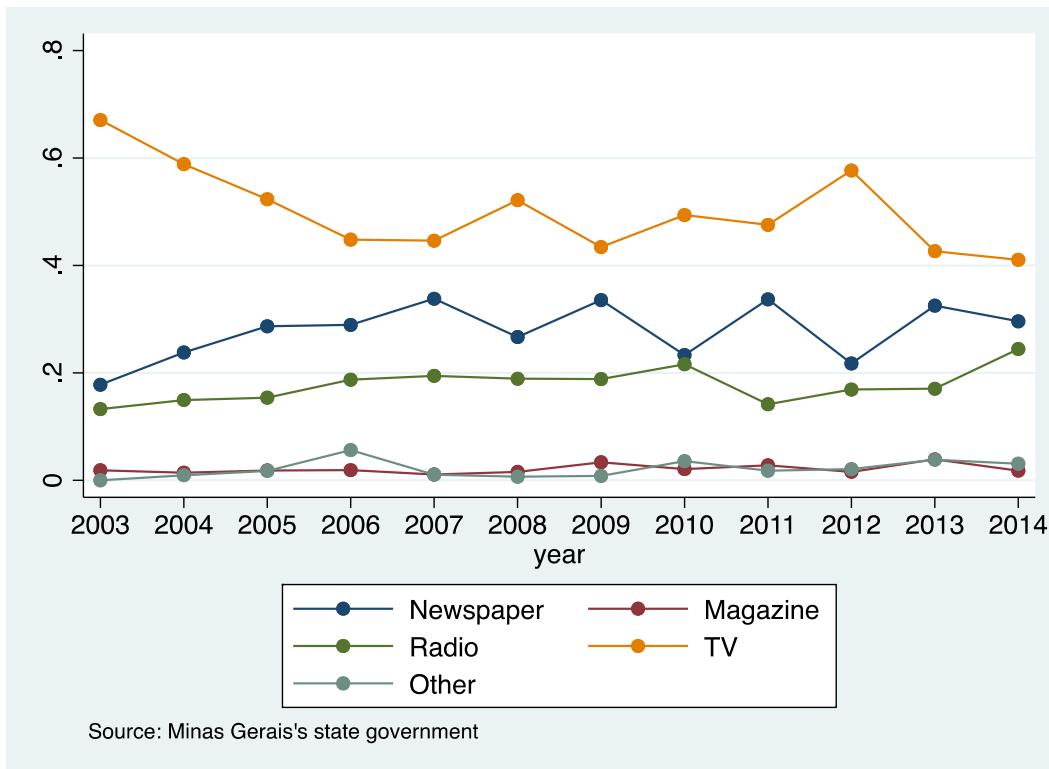


Figure 20 Spending with Government Advertising by Medium

The data also allow us to know how much with government advertising was spent per medium. Figure 20 displays the percentage spending with government advertising per medium. TV advertising has received most part of the advertising spending each year, followed by the pending on newspapers, and radio. Investment in other mediums such as magazine, internet, and outdoors are very low. Comparing the evolution of spending over time, it is clear that spending per medium has remained constant, except for television. There is a gradual decrease in investment

on TV advertising, from more than 60% of the overall spending in 2003 to approximately 40% in 2014.

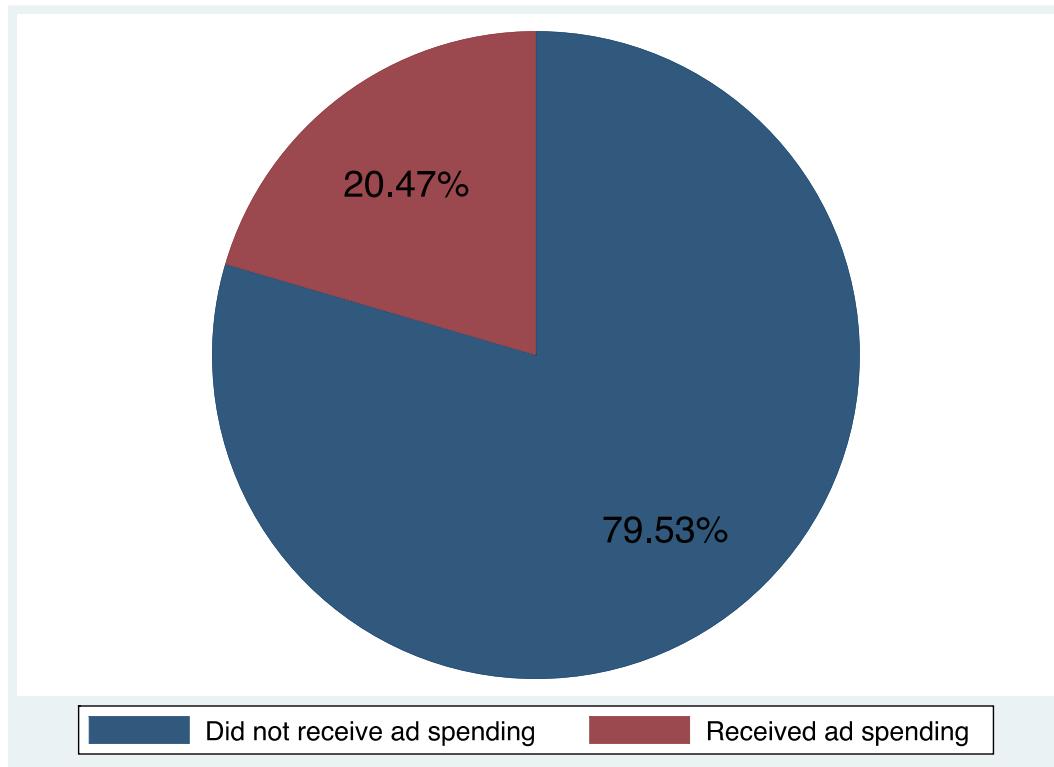


Figure 21 Average Percent of MG Municipalities that Receive Government Advertising, Entire Period (2003-2014)

How is the amount spent with government advertising in the state distributed across municipalities? Figure 21 shows that most municipalities in the state do not receive any funds for government advertising. One fifth of the MG municipalities (approximately 175 municipalities) receive some amount of government advertising spending from 2003 to 2014. Is there variation in the number of municipalities that receive investment with government advertising over time.

Figure 22 shows the percentage of MG municipalities that receive some amount of investment in government advertising during the period of 2003 to 2014.

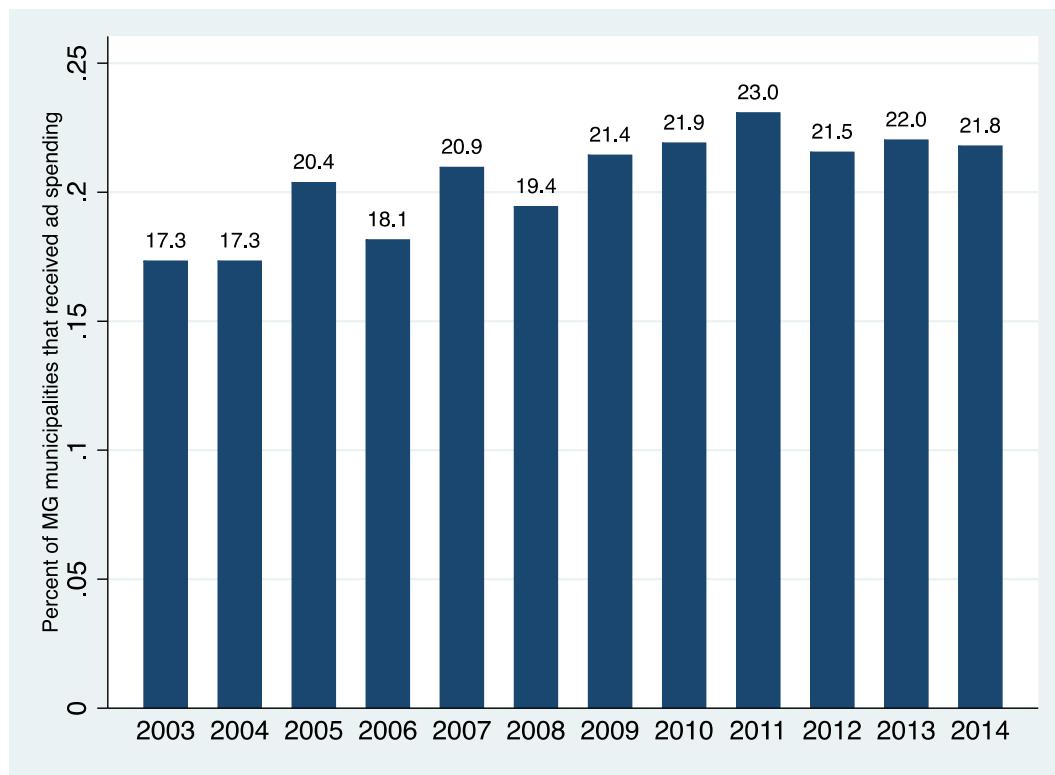


Figure 22 Percent of MG Municipalities that Received Government Advertising (2003-2014)

Spending with government advertising per municipality was mostly stable over time. There was little variation over time in the number of municipalities that received spending with government advertising. There was a small increase in the number of municipalities that receive investment in government advertising from 2003 (17.3%) to 2011 (23%), hovering around 21% after that. There is no discernible variation in the percentage of municipalities that received spending on government advertising during electoral periods. In 2006, 18% of municipalities were contemplated with government advertising, while in 2010 the percentage went up to just 21.9%.

In 2014, the percentage of municipalities stayed constant at 21.8%. These numbers strongly suggest that the same municipalities have received government advertising over time.

Is there variation in the amount invested in government advertising during the terms of the incumbent governor? Figure 23 shows the average amount spent with government advertising for each term in office over years in office.

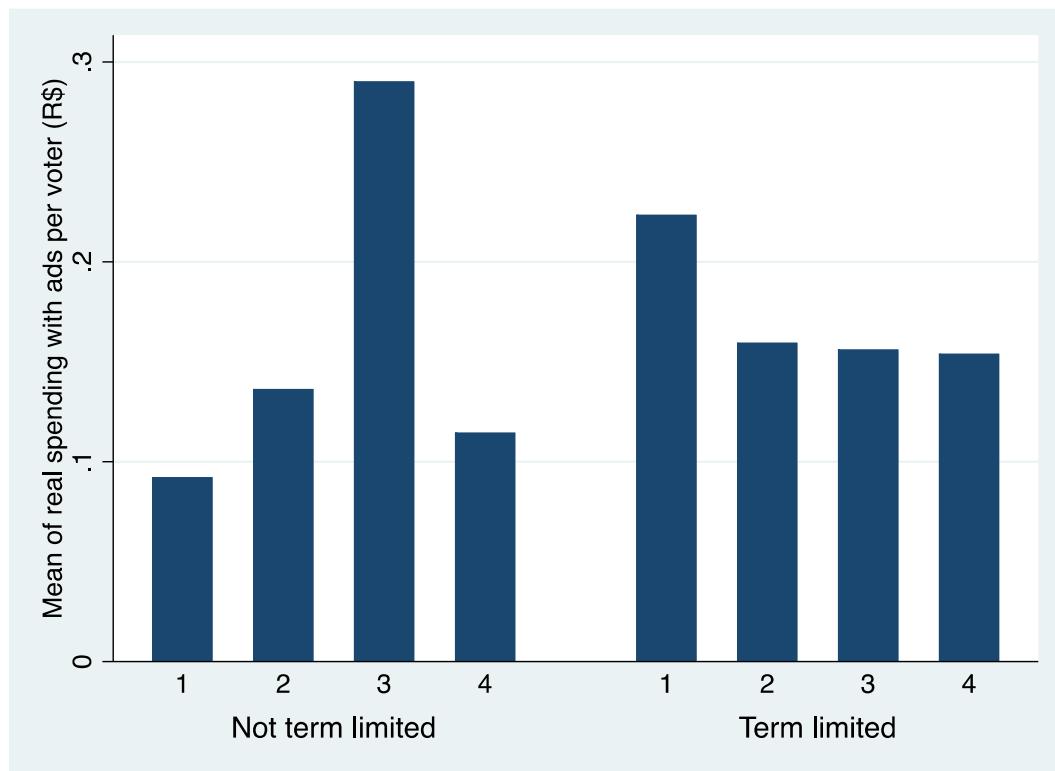


Figure 23 Average Spending with Government Advertising by Term in Office

The numbers suggest that term limits matter in the allocation of investment in government advertising. When the governor is eligible for reelection (i.e., not term limited), advertising increases during the first three years of a four-year term and decrease in the fourth year. Once the governor is term limited, or becomes a lame duck, spending decreases after the first year and becomes stable during the tenure.

Finally, it is necessary to know whether the spending with government advertising varies over time, especially during election years. Figure 24 suggests it does. It shows the average spending with ads per voter from 2003 to 2014. The figure shows that spending increased gradually from 2003 to 2005 until it decreases in 2006, which is not surprising. It indicates that the Brazilian legislation restricting the amount to be spend with government ads in election years exerts an effect. After that, spending increases in 2007 and levels off from 2008 to 2010. This period between 2007 and 2010 corresponds to the second term of governor Aécio Neves in office. Once the new governor, Antônio Anastasia, was sworn in, the same pattern of spending that occurred between 2003 to 2006 occurs between 2011 and 2014. That is, spending increases gradually until it declines in the election year (as mandated by the Election law).

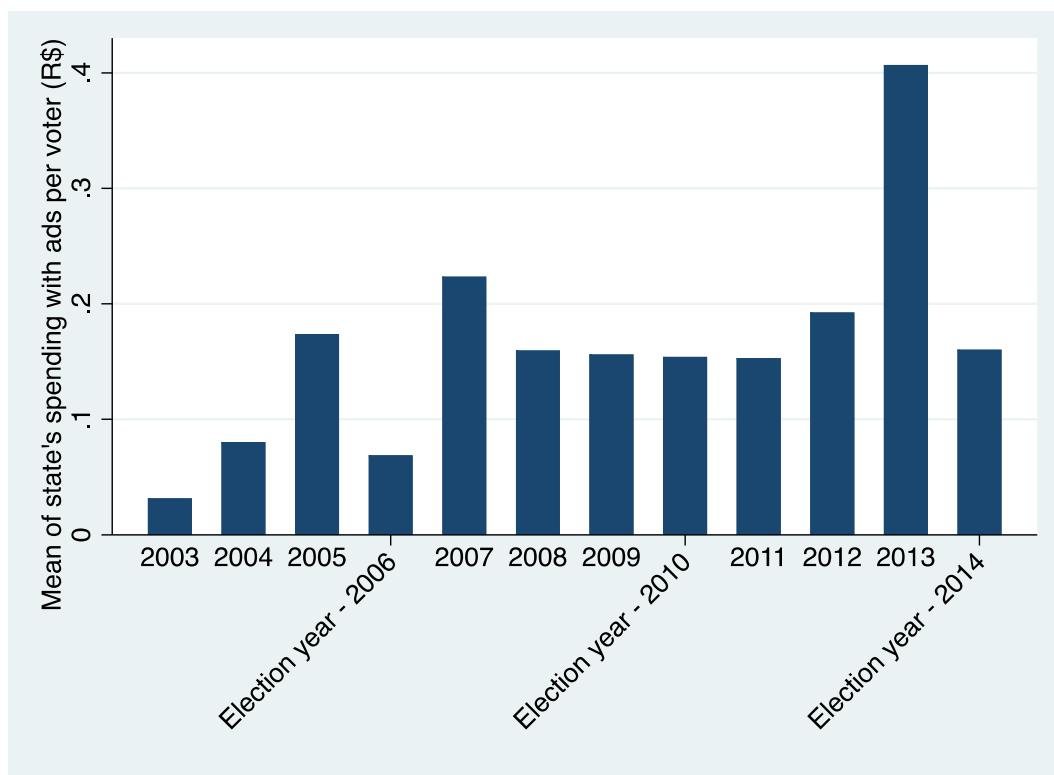


Figure 24 Average Spending with Government Advertising by Year (2003-2014)

6.5 Independent Variables

The next section describes the independent variables used in the multivariate analyses. They were obtained from the Minas Gerais' state government sources (Transparency Portal and Fundação João Pinheiro - FJP) and from electoral data sources (Centro de Política e Economia do Setor Público – CEPESP, and the Brazilian Superior Electoral Court – TSE).

The variables that serve to test the first three hypotheses are the logged number of voters, swing constituency, and core constituency. A positive coefficient of the log of number of voters would confirm the equal weigh constituency hypothesis, whereas the swing constituency and the core constituency would confirm the particularistic hypotheses of allocation of government advertising, that is, the swing constituency and the core constituency hypotheses. The municipal partisanship hypothesis is tested with the variable that measures whether a municipality's mayor and the governor are co-partisans (i.e., belong to PSDB). The legislative partisanship hypotheses are tested with the variables "PSDB's vote for state deputy" and "PSDB's vote for federal deputy". The term limitation and hypothesis and the "years in office" hypothesis are tested with the variables "term limited" (whether the governor serving a term is a lame duck or not) and "years in office" (which year in office, from 1 to 4, the incumbent governor is serving in a given year).

Table 21 Variables' Definitions and Sources (2003-2014)

Variable	Definition	Source
(log) Ad spending per voter	State's spending with ads per municipality	Minas Gerais' state government (Social Communication's Secretariat)
(log) Number of voters	Registered number of voters per municipality	TSE
Swing constituency	Municipalities were the incumbent governor's party obtained between 45% and 55% of the valid votes on the 1st round of the last election	CEPESP Data, TSE
Core constituency	Municipalities were the incumbent governor's party obtained more than 55% of the votes in the 1st round of the last election	CEPESP Data, TSE
Term limited	Whether governor is serving his lame duck term in office due to term-limit restrictions	CEPESP Data, TSE
Years in office	Number of years the governor has been in office	CEPESP Data, TSE
Municipality with co-partisan mayor	Whether municipality is government by a Mayor that belongs to the same party of the governor (PSDB)	CEPESP Data, TSE
PSDB's vote for state deputy	The percentage of votes received by the incumbent governor's party for state deputy in a municipality	CEPESP Data, TSE
PSDB's vote for federal deputy	The percentage of votes received by the incumbent governor's party for federal deputy in a municipality	CEPESP Data, TSE
Mayor's party aligned with the federal government	Whether the mayor's party of a municipality is part of the president's cabinet	CEBRAP, Mauerberg and Pereira (2020)

Governor's travels in the state	Number of travels the governor made to municipalities during his tenure	Minas Gerais' state government (Transparency Portal)
(log) Municipal GDP per capita	Municipal GDP per capita (R\$ real prices)	FJP (IMRS)
(log) Municipal per capita income formal sector	Municipal per capita income in the formal sector (R\$ real prices)	FJP (IMRS)
(log) Homicide rate	Homicide rate per 100,000	FJP (IMRS)
Mortality rate (standardized)	Ratio of the sum of deaths expected by age group to the municipality's total population, multiplied by 1,000	FJP (IMRS)
(log) Dependency ratio	Ratio between the population defined as economically dependent (14 years or less and 65 years or more) and the population defined as potentially productive (between 15 - 64 years)	FJP (IMRS)
(log) Population	Municipal population	FJP (IMRS)
Percent of urban population	Percent of urban population	FJP (IMRS)
(log) Population density	Ratio of the population to the municipality's total area in km2	FJP (IMRS)
Percent of seniors	Percent of the population with 65 years or more	FJP (IMRS)
Percent of agriculture's coverage	Ratio of the land area occupied with agriculture to the municipality's land area, multiplied by 100	FJP (IMRS)

Plurality culture	Presence of at least two cultural equipments (i.e., theater, museum, cinema, cultural center, public archive or documentation center), except library	FJP (IMRS)
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Governor in office	Governor in office	TSE
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The multivariate analyses also include control variables that are deemed to be theoretically related to the incidence of government advertising in municipalities and whose omission in the models could lead to omitted variable bias. I include a measure of whether the mayor is aligned with a party from the federal government coalition. It is possible that association with the federal government may influence whether the government invests more or less in these municipalities. The models also include a measure of the incumbent governor's visits to MG municipalities during his term. The models also control for relevant socio-economic factors. They include the logged measure of municipal GDP per capita (R\$) and logged municipal per capita income in the formal sector of the economy (R\$). Other measures include the homicide rate, mortality rate (standardized), logged dependency ratio (which is a measure of economic vulnerability of a population), logged population, the percentage of urban population, the percent of senior citizens, the percentage of agriculture's land coverage of a municipality, and the plurality of cultural mediums in a municipality. Finally, the models also control for the governor in office during a given year (i.e., Aécio Neves or Anastasia). Summary statistical information of the variables can be found on the table below.

Table 22 Summary Statistics of the Variables

Variable	N	Mean	Std. Dev.	Min	Max
(log) Ad spending per voters' capita	10,236	0.085	0.265	0	3.645
(log) Number of voters	10,236	8.934	0.969	6.767	14.463
Swing constituency	10,236	0.103	0.305	0	1
Core constituency	10,236	0.852	0.354	0	1
Term limited	10,236	0.333	0.471	0	1
Years in office	10,236	1.5	1.118	0	3
Municipality with co-partisan mayor	10,236	0.173	0.378	0	1
Incumbent's party vote share for state deputy	10,236	0.203	0.188	0.004	0.911
Incumbent's party vote share for federal deputy	10,236	0.190	0.181	0.004	0.907
Mayor's party aligned with the federal government	10,236	0.506	0.499	0	1
Governor's travels	10,236	0.200	3.823	0	231
(log) Municipal GDP per capita	10,236	9.042	0.622	7.106	12.530
(log) Municipal per capita income formal sector	10,236	5.037	0.709	-0.659	8.106
Homicide rate	10,236	0.112	0.154	0	1502
Mortality rate (standardized)	10,236	4.983	1.346	0	12.19
Dependency ratio	10,236	0.446	0.056	0.297	0.767
(log) Population	10,236	9.186	1.036	6.693	14.728
Percent of urban population	10,236	0.657	0.197	0.117	1
(log) Population density	10,236	3.191	1.067	0.307	8.917
Percent of seniors	10,236	0.088	0.018	0.028	0.157
Agriculture's coverage	10,236	0.659	0.199	0.026	0.977
Plurality culture	10,236	0.268	0.443	0	1
Governor	10,236	1.333	0.471	1	2

The next table provides a summary of the distribution of key variables. It can be verified that there is little difference between swing and core municipalities with respect to government advertising funds received. The same applies to the incumbent's party vote share for state deputy and federal deputy. However, other variables present more clear differences. The means of GDP per capita and per capita income in the formal sector suggest that government advertising funds are related to the economic background of a municipality, that is, municipalities that are more affluent receive more government advertising funds.

Table 23 Mean Values by Whether Municipality Received Ad Spending from the MG Government (2003-2014)

Variable	Received ad spending		Did not receive ad spending	
	Mean	SD	Mean	SD
(log) municipal GDP per capita	9.43	0.56	8.94	0.59
(log) per capita income formal sector	5.58	0.59	4.89	0.66
Swing constituency	0.11	0.31	0.10	0.30
Base constituency	0.83	0.36	0.85	0.35
Incumbent's party vote share for state deputy	0.17	0.17	0.21	0.19
Incumbent's party vote share for federal deputy	0.16	0.15	0.19	0.18

6.6 Multivariate Analyses: Estimation Methods and Results

In the section that follows, the estimation procedures of the multivariate analysis are laid out. The analyses verify the determinants of spending with government advertising. The data available comprises information on 853 municipalities over a period of twelve years, resulting in a total of 10,236 observations. Given the panel structure of the data, the statistical analyses are based on panel data methods.

The method of choice for the data analysis would be the fixed effects approach. The use of fixed effects possesses desirable properties for causal inferential purposes. It allows the researcher to control for the impact of stable unobserved unit-level factors over time. Therefore, fixed effects allow the estimation of the effects of the independent variables on the dependent variable while controlling for the potentially biasing effects of unmeasured stable variables. However, the fixed effects method, which relies on within estimators, cannot provide separate estimates of stable observed and stable unobserved variables. This means that there are problems to estimate variables that change very little over time. Little change in the independent variable results in unreliable

estimates. Preliminary estimation of fixed effects model on the data showed that there is very little variation *within* municipalities and that all of the outcome variation is *between* municipalities. The analysis showed very high values of Rho (i.e., the amount of variance due to differences across panels) and very high negative correlation of the errors u_i with the regressors in the fixed effects model (i.e., $\text{corr}(u_i, X_b)$ approaching -1.000). As a result, the use of fixed effects in the current analysis is not warranted. Therefore, I use random effects models in the estimations. The method allows between effects and can handle clustering and non-independence. It is less causally rigorous than the fixed effects model, though.

An issue that affects research on political advertising is endogeneity. Resources of government advertising (as well as political advertising) are not allocated randomly. Instead, they follow political and practical concerns. There are multiple attributes of municipalities (both observable and unobservable) that influence the receipt of government advertising. Also, government advertising can be endogenous to vote choice for governor. Rather than causing an impact on vote choice, the allocation of government advertising can be influenced by the vote choice for governor in previous elections. A correlation between unobservables and government advertising creates an endogeneity problem in isolating causal effect. In the realm of political advertising research, political scientists have long recognized the endogeneity of a candidate's choice variables (Green and Krasno, 1988; Gerber, 1998). The same endogeneity problems in the literature also apply to government advertising. As a result, the chosen empirical strategy is to use instrumental variable estimation models. The challenge is to find suitable instruments, or Zs, that do not cause Y except through an endogenous variable D (the inclusion restriction), and that are unrelated to u_i and ϵ (the exclusion restriction). In the analyses that follow, I use the lag of

municipal GDP per capita, the lag of municipal per capita income in the formal sector, and the lag of plurality culture as instruments.

The estimates of the determinants of government advertising can be found on Table 24. The table reports the result for the random effects model (RE) and the two-stage generalized least squares random effects estimator (2SGLS). Considering the possibility of heteroskedasticity of the error terms, the models were estimated with robust standard errors which, in the panel context, also take into account the potential error term problems produced by unit-level clustering.

Table 24 The Determinants of the Spending with Government Advertising by the MG Government

(2003-2014)

	(1) RE	(2) RE (2SGLS)
(log) Number of voters	0.0784** (0.0318)	0.1144*** (0.0312)
Swing constituency	0.0159 (0.0185)	0.0228 (0.0174)
Core constituency	0.0202 (0.0194)	0.0307* (0.0183)
Term limited	0.2385*** (0.0349)	0.0123*** (0.0037)
Years in office	-0.0591*** (0.0104)	-0.0030** (0.0012)
Co-partisan mayor	-0.0003 (0.0064)	-0.0058 (0.0068)
Incumbent's party vote share for state deputy	-0.0309** (0.0134)	-0.0233* (0.0127)
Incumbent's party vote share for federal deputy	0.0106 (0.0128)	0.0023 (0.0122)
Incumbent's party margin of victory for governor	0.0037 (0.0152)	-0.0169 (0.0147)
Mayor's party aligned with the federal government	-0.0017 (0.0046)	-0.0051 (0.0047)
Governor's travels	0.0060*** (0.0005)	0.0045*** (0.0004)

(log) Municipal GDP per capita	0.0225*** (0.0072)	0.0218* (0.0114)
(log) Municipal per capita income formal sector	0.0074 (0.0051)	0.0401*** (0.0119)
Homicide rate	-0.0141 (0.0090)	-0.0138 (0.0090)
Mortality rate (standardized)	-0.0013 (0.0011)	0.0036*** (0.0012)
(log) Dependency ratio	0.0195 (0.0292)	0.0271 (0.0198)
(log) Population	0.0581** (0.0284)	0.0313 (0.0275)
Percent of urban population	-0.0317 (0.0272)	-0.0195 (0.0312)
(log) Population density	0.0111 (0.0110)	0.0100 (0.0112)
Percent of seniors	-0.3990* (0.2410)	0.6649*** (0.1765)
Agriculture's coverage	0.0538 (0.0414)	0.0029 (0.0408)
Constant	-1.3931*** (0.1356)	-1.7058*** (0.1513)
Dummies for governor	Yes	
Dummies for year	Yes	
F-test		195.39
F-test (Prob > F)		0.000
Sargan-Hansen statistic (χ^2)		1.955
Sargan-Hansen statistic (p-value)		0.162
R2 (within)	0.061	0.013
R2 (between)	0.505	0.520
R2 (overall)	0.385	0.399
N	10,236	9,383

Robust standard errors in parentheses

Instruments: the lag of (log) Municipal GDP per capita, the lag of (log) Municipal per capita income formal sector, and the lag of plurality culture.

*p<0.10 **p<0.05 ***p<0.01

The results in both models show support for the equal weight constituency hypothesis. The coefficient for the logged the number of voters is positive and statistically significant in the RE

and the RE-2GLS models. The coefficients for swing and core constituency, albeit positive, did not achieve standard levels of statistical significance. These results suggest that MG governors do not adopt parochial considerations when allocation government advertising spending. Instead, they opt for allocating government advertising where most voters live. Reaching the largest number of voters seems a better strategy than reaching specific subpopulation of voters. Concerning the hypotheses on term limitation and years in office, both find support. The coefficient is positive for the former and negative for latter. These are signs that term limits do not constrain incumbent governors when allocating government advertising. Rather, they suggest that reputation building considerations provide incentives for incumbents to keep investing in advertising. The legislation establishing restrictions to the amount to be spent in election years seems to exert the hypothesized impact on the data. The coefficient is negative and statistically significant. Neither the municipal partisanship hypothesis nor the legislative partisanship hypotheses found support in the analysis. For the legislative partisanship hypotheses (1), the coefficient is actually negative and statistically significant rather than positive. However, the coefficient is positive but statistically insignificant in the instrumental variable model. We can conclude that governors do not use government advertising to shore up support for the incumbent party. Instead, governors use government advertising to further their own goals. Lastly, it is important to notice that the instruments seem to have handled endogeneity concerns satisfactorily. The F-test is statistically significant, which indicates that all instruments are jointly significant, and the inclusion restriction is met. Also, the Sargan-Hansen test for over identification tells that the estimation is consistent and that the instruments are valid (i.e., p-value > 5%), so we accept the null hypothesis that the instruments are valid.

6.7 The Effects of Government Advertising Spending in the State of Minas Gerais

In the section that follows, I analyze the impact of government advertising spending on three dependent variables of interest: the governor's incumbent party's vote share, the incumbent governor's "personal" vote share (i.e., his vote share according to the weight a municipality has in his overall performance), and on municipal level turnout for the gubernatorial election. The goal is to assess which political and socio-economic variables do have an impact on the three variables and, most importantly, the impact of government advertising on all the three dependent variables. Most of the variables are the same as the ones used in the analyses in the previous section. Two important additions are the variables "percent of heat-points concentration" and "percent coverage of urban infrastructure", which are used as instruments in the endogeneity models. Both are highly correlated with the incidence of government advertising (both positively correlated) and seem uncorrelated with other factors in the error term. Because the general election occurs every four years in Brazil (and the gubernatorial election in Minas Gerais occurs concurrently with the election for president, senator, federal, and state deputy), data is available for all 853 municipalities for three time periods, for a total of 2,559 total observations.

Table 25 Variables' Definitions and Sources (2006-2010-2014)

Variable	Definition	Source
Governor's incumbent party's vote share	Vote share (%) of the incumbent governor's party (Winning Governor's Votes Received in Municipality/Total Votes Received by the Winning Governor) x 100	CEPESP Data, TSE
Personal vote share		CEPESP Data, TSE
Gubernatorial election's turnout	Percent of registered voters who turned out to vote in the gubernatorial election	TSE
(log) Ad spending per voter	State's spending with ads per municipality	Minas Gerais' state government (Social Communication's Department)
(log) Municipal GDP per capita	Municipal GDP per capita (R\$ real prices)	FJP (IMRS)
(log) Municipal per capita income formal sector	Municipal per capita income in the formal sector (R\$ real prices)	FJP (IMRS)
Municipality with co-partisan mayor	Whether municipality is government by a Mayor that belongs to the same party of the governor (PSDB)	CEPESP Data, TSE
Mayor's party aligned with the federal government	Whether the mayor's party is part of the president's cabinet	CEBRAP, Mauerberg and Pereira (2020)
Margin of victory of the incumbent party (PSDB)	Difference between the incumbent party and the runner up	TSE Minas Gerais' state government
Governor's travels in the state	Number of travels the governor made to municipalities during his tenure	(Transparency Portal)

Municipality's ideology score	Sum of the proportion of votes for (local or national) legislative elections in a given year multiplied by the ideological score for a given party in the closest year when the Brazilian Legislative Survey (BLS) was conducted. The index varies from approximately -1 to approximately 1, with the values corresponding to: -1, extreme left; 0, center; and 1, extreme right.	Power & Rodrigues-Silveira (2018)
Municipal Dalton's Political Polarization Index	Ten times the squared root of the sum of the products between the proportion of votes of each party and its absolute variation from the mean local ideological position. It ranges from 0 (no polarization) to 10 (extreme polarization)	Power & Rodrigues-Silveira (2018)
(log) Bolsa Família transfers per family	Amount of transfers per family in each municipality	Ministry of Social Development (MDS)
(log) Homicide rate	Homicide rate per 100,000	FJP (IMRS)
Mortality rate (standardized)	Ratio of the sum of deaths expected by age group to the municipality's total population, multiplied by 1,000	FJP (IMRS)
(log) Dependency ratio	Ratio between the population defined as economically dependent (14 years or less and 65 years or more) and the population defined as potentially productive (between 15 - 64 years)	FJP (IMRS)
Municipal Human Development Index (IDHM)	The UNDP index of human development measured at the municipal level	Power & Rodrigues-Silveira (2018)
(log) Population	Municipal population	FJP (IMRS)
Percent of urban population	Percent of urban population	FJP (IMRS)
(log) Population density	Ratio of the population to the municipality's total area in km2	FJP (IMRS)
Percent of seniors	Percent of the population with 65 years or more	FJP (IMRS)

Percent of heat-points concentration	Ratio between the number of heat points identified in the municipality and the number of heat points in the state of MG, multiplied by 100. It qualitatively indicates the source of agrobusiness pollution related to burnings and forest fires.	FJP (IMRS)
Percent coverage of urban infrastructure	Ratio between urban areas with predominance of non-vegetation surface (including roads and constructions) and the total area of the municipality, multiplied by 100.	FJP (IMRS)
Percent of agriculture's coverage	Ratio of the land area occupied with agriculture to the municipality's land area, multiplied by 100	FJP (IMRS)
Plurality culture	Presence of at least two cultural equipments (i.e., theater, museum, cinema, cultural center, public archive or documentation center), except library	FJP (IMRS)

Table 26 Variables' Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Governor's incumbent party's vote share	2,559	0.626	0.187	0.097	0.958
Personal vote share	2,559	0.117	0.532	0.006	15.090
Gubernatorial election's turnout	2,559	0.794	0.06	0.578	0.933
(log) ad spending per voters' capita	2,559	0.209	0.511	0	4.309
(log) municipal GDP per capita	2,559	8.951	0.675	7.106	12.464
(log) municipal per capita income formal sector	2,559	5.069	0.688	1.341	8.172
Municipality with co-partisan mayor	2,559	0.173	0.379	0	1
Mayor's party aligned with the federal government	2,559	0.550	0.497	0	1
Margin of victory of the incumbent party (PSDB)	2,559	0.270	0.369	-0.798	0.917
Governor's travels in the state	2,559	0.803	14.427	0	607
Municipality's ideology score	2,559	0.090	0.175	-0.437	0.617
Municipal Dalton's Political Polarization Index	2,559	5.347	0.810	2	7.7
(log) Bolsa Família's transfers per family	2,559	4.479	0.266	3.858	5.350
(log) Homicide rate	2,559	0.103	0.126	0	0.781
Mortality rate (standardized)	2,559	4.927	1.225	0.520	10.030
(log) Dependency ratio	2,559	-0.787	0.119	-1.160	-0.264
Municipal Human Development Index	2,559	0.667	0.064	0.457	0.864
(log) Population	2,559	9.194	1.042	6.703	14.728
Percent of urban population	2,559	0.661	0.196	0.117	1
Percent of seniors	2,559	0.092	0.018	0.029	0.198
(log) Pop density	2,559	3.267	1.031	0.850	8.926
Percent of heat-points concentration	2,559	0.003	0.002	0	0.026
Percent coverage of urban infrastructure	2,559	0.009	0.034	0	0.713
Agriculture's coverage	2,559	0.658	0.198	0.028	0.977
Plurality culture	2,559	0.302	0.459	0	1

6.7.1 Primary Independent Variable: Spending with Government Advertising

The primary independent variable in the study is the (log) of the spending with government advertising per voter. The figures and tables that follow show how government advertising varies in its incidence by time and place.

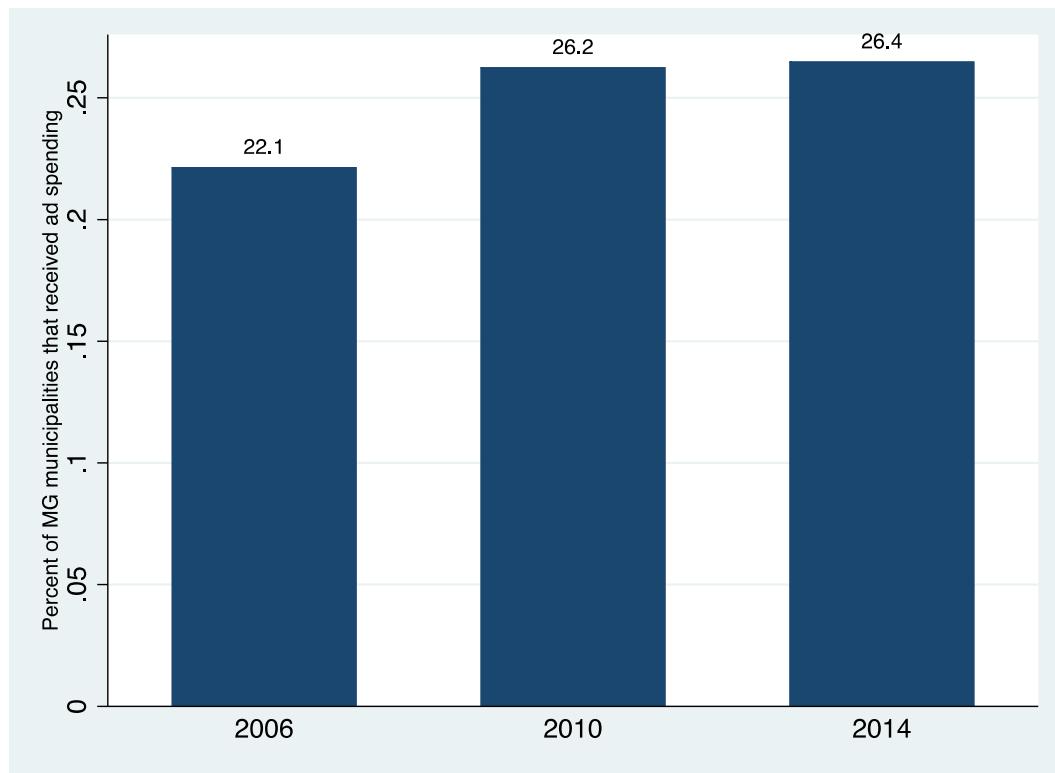
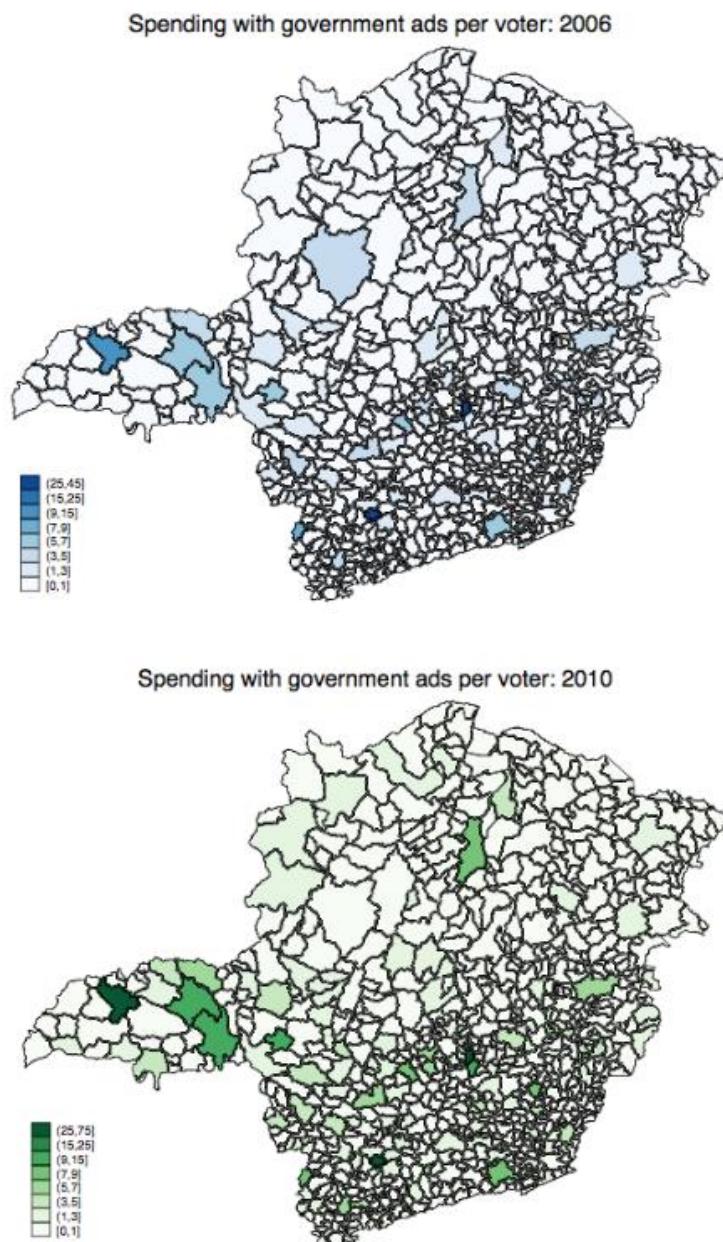


Figure 25 Percent of MG Municipalities that Received Government Advertising, by Election Period

Figure 25 displays the percentage of municipalities with government advertising per election year. As figures in the previous section demonstrated, the spending with government advertising tends to be stable over time. In this case, it can be verified that the spending with government advertising is very stable over electoral periods. In 2006, 22% of the municipalities

received spending with government advertising. After that, the number of municipalities that receive government advertising spending increase to 26% in 2010 and stayed the same in 2014.

In spatial terms, the spending with government ads do not seem to be spatially correlated, as Figure 26 shows.



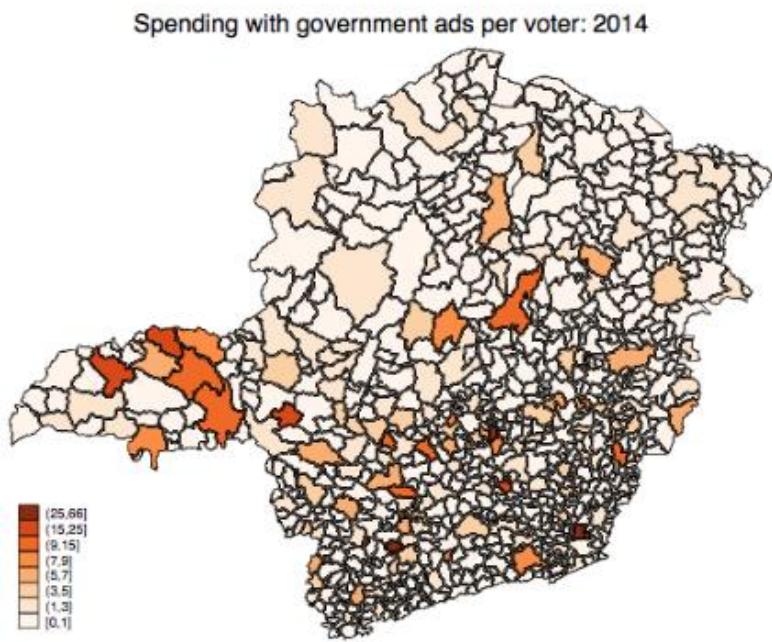


Figure 26 Spatial Distribution of the Spending with Government Ads (2006-2010-2014)

Nonetheless, I present measures of global spatial autocorrelation (Moran I) to evaluate whether such conclusion is warranted. According to the results in Table 27, there is no spatial autocorrelation in terms of spending with government advertising per voter in the state of Minas Gerais for the period under consideration.

Table 27 Moran I Measure of Spatial Autocorrelation

Variable	Moran's I	SD (I)	z	p-value*
Ad spending per voter 2006	0.002	0.017	0.171	0.864
Ad spending per voter 2010	0.007	0.017	0.495	0.620
Ad spending per voter 2014	0.019	0.019	1.058	0.290

* 2-tail test

Concerning the amount per capita spent with government advertising, it has grown over time. As Table 28 illustrates, the amount in reais almost doubled from 2006 to 2010. After that, the growth was smaller, of approximately 25%. The table also allow us to compare the amount spent with government ads with the amount raised¹³ by the incumbent's party's campaign for governor. It is clear that the incumbent governors raise (and spend) much more with their campaigns than they spend with government ads.

Table 28 Mean Campaign Revenue and Spending with Government Ads (2006-2010-2014)

Type of spending	Mean (R\$)	Ratio
Incumbent's party's campaign revenue per voter in 2006	1.41	4.43
Spending with government ads per voter in 2006	0.32	
Incumbent's party's campaign revenue per voter in 2010	2.62	4.22
Spending with government ads per voter in 2010	0.62	
Incumbent's party's campaign revenue per voter in 2014	2.84	3.46
Spending with government ads per voter in 2014	0.82	

Source: author's calculations based on campaign finance data available from "Prestação de Contas": <http://www.tre-mg.jus.br/eleicoes/contas-eleitorais>

¹³ Even though the campaign amounts on the table do not configure campaign spending, usually the amount of spending is very close to the amount of campaign funds raised by campaigns, which allows us to make simple comparisons.

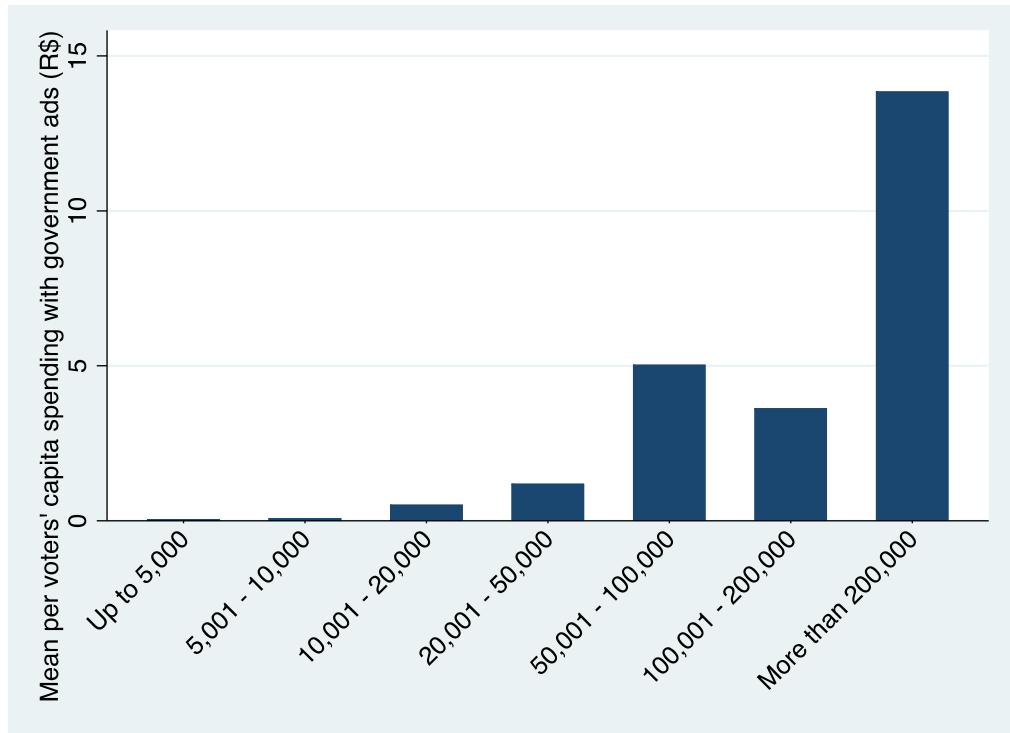


Figure 27 Average Spending with Government Advertising per Capita, by Municipality's Electorate Size

How does government advertising vary in its incidence by the size of the electorate? Figure 27 shows the average spending with government advertising by the size of the municipalities' electorate for all three electoral periods. As the figure shows, larger municipalities receive more spending with government advertising, especially in municipalities with more than 200,000 voters. A smaller portion of government advertising spending goes to municipalities between 50,001 and 200,000 voters. The amount of government advertising spending in municipalities with 50,000 or less voters is marginal, of R\$ 1.00 per capita or less. It is clear from the data (and from the previous analyses) that government advertising is allocated more in municipalities with more voters. How many municipalities can be classified in each category of electorate size? Table 29 shows the distribution of municipalities by the size of the electorate and the receipt (or not) of government advertising spending.

Table 29 Distribution of Municipalities by the Size of the Electorate and Receipt of Government**Advertising Spending by the Minas Gerais's Government (2014)**

Electorate size	Received		Did not receive		Total
	N	% Municipalities	N	% Municipalities	
Up to 5,000	9	2.99	292	97.01	301
5,001 - 10,000	25	9.29	244	90.71	269
10,001 - 20,000	76	48.72	80	51.28	156
20,001 - 50,000	65	85.53	11	14.47	76
50,001 - 100,000	34	100.00	0	0.00	34
100,001 - 200,000	9	100.00	0	0.00	9
More than 200,000	8	100.00	0	0.00	8
Total	226	26.49	627	73.51	853

Source: calculated by the author based on TSE and Minas Gerais's state government data.

First, the data shows that a minority of municipalities received some amount of spending with government advertising, approximately 26.5%. From those 26%, all municipalities with more than 50,000 voters received spending with government advertising in 2014. After that, 85% of the municipalities with 20,001 to 50,000 voters received spending with government advertising. For the next category (10,001 to 20,000 voters), the percentage of municipalities that received ad spending is reduced to approximately 49%.

6.7.2 Other Independent Variables and Hypotheses

This section describes the independent variables used in the multivariate analyses. Again, they were obtained from the Minas Gerais' state government sources (Transparency Portal and Fundação João Pinheiro - FJP) and from electoral data sources. Aside the three dependent variables already mentioned and the primary independent variable, the multivariate analyses will consider the impact of other independent variables of interest. The main ones are the (log) of municipal

GDP per capita, the (log) of per capita income in the formal sector, municipality with co-partisan mayor, Municipal ideology score, and the Municipal Dalton's Political Polarization Index.

My hypotheses are that the coefficients for all variables except the polarization index will be positive. That is, the performance of the incumbent governor should suffer in municipalities where political polarization is higher. Concerning turnout, I expect all the key variables to have a positive coefficient, including the polarization index. For the ideology score, a positive coefficient means that the incumbent governor's performance should be higher in more right-wing constituencies.

Table 30 Hypotheses: Independent Variables and Coefficients' Expected Signs

Independent variables	DV: Governor's incumbent party's share		DV: Personal vote share	DV: Gubernatorial election's turnout
	Expected sign	Expected sign		
(log) Ad spending per voter	+	+	+	+
(log) municipal GDP per capita	+	+	+	+
(log) per capita income formal sector	+	+	+	+
Municipality with co-partisan mayor	+	+	+	+
Municipal ideology score	+	+	+	+
Municipal Dalton's Political Polarization Index	-	-	-	+

Other variables are included as controls in order to attenuate the possibility of omitted variable bias. They are also included for being considered important predictors of vote and turnout in the empirical literature. The analysis considers the impact that the mayor's partisanship with the federal government may have. Mayors closer to the federal government in the period under study (the Workers's Party – PT) should be less amenable to give their support for the incumbent

governor of PSDB (a national opponent of the party in national elections for the presidency), which can potentially decrease the vote share of the incumbent governor in these municipalities. The analyses include a measure of the incumbent governor's travels around the state. It is possible that the gubernatorial presence during his tenure may increase his visibility before voters and lead to an increase in support in the municipalities most visited by the incumbent.

Besides, the analyses include the impact of important socio-economic variables. It includes the log of *Bolsa Família*'s transfers per family, the (log) of homicide rate, a standardized measure of the mortality rate, the (log) of dependency ratio (a measure of social vulnerability), and the municipal human development index, a measure of the quality of life in a municipality. Next, it includes measures of socio-demographic measures: population (logged), the percent of urban population, population density (logged), and the percentage of seniors in a municipality.

6.7.3 Distribution of the Dependent Variables and Government Advertising

Spending

Before I proceed to the multivariate analyses, I briefly examine government advertising spending varies with the three dependent variables used in the analyses. Figure 28 presents two-way plots of government advertising spending and the dependent variables. The upper left and lower left quadrants show the plots for the incumbent governor's party's vote share and election turnout, respectively. There is not a clear pattern (positive or negative) between government advertising spending and the aforementioned variables. The fitted value in both graphs is flat. There is a different pattern, though, on the graph located in the upper right quadrant. The fitted value presents a positive slope. However, there are three outliers that may possibly be influencing the relationship between government advertising and personal vote share. Posterior

analysis found that the three observations correspond to the municipality of Belo Horizonte, the state's capital and most populous municipality. Thus, in the analyses that follow of the effect of government advertising on personal vote share, I will estimate a second random effects model without the three outlier observations to ensure that the results are not being driven by outliers.

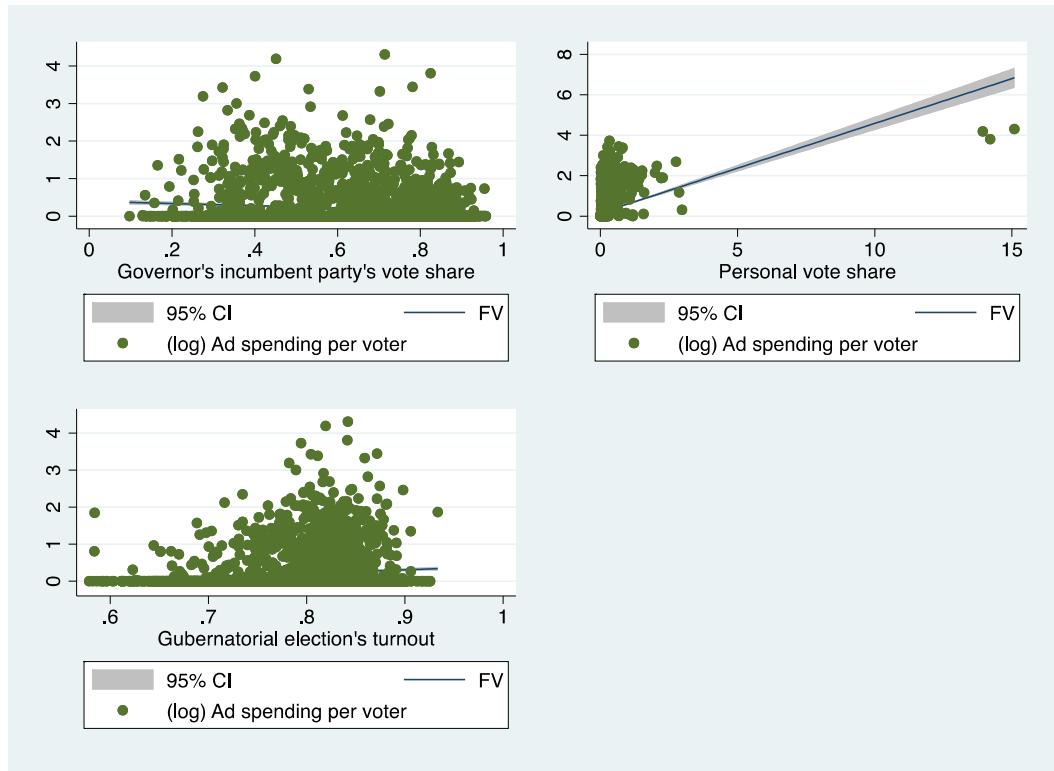


Figure 28 Distributions of Governor's Incumbent Party's Vote Share, Personal Vote Share, Gubernatorial Election Turnout, and Municipal Ideology Score

6.7.4 Multivariate Analysis: Estimation Methods and Results

In this section, the analyses examine the effects of government advertising spending on the incumbent governor's vote share, his "personal" vote share, and the municipal level turnout in the

gubernatorial election. The data available contain information on 853 municipalities over three elections, resulting in a total of 2,559 observations. The statistical analyses are based on panel data methods.

Once again, the preferred method to analyze the data would be fixed effects. However, once more the data on the dependent variable present very little variation within municipalities whereas most of the variation occurs between municipalities. Preliminary analyses showed very high values of Rho and very high negative correlations of the errors u_i with the regressors in the fixed effects model. For these reasons, models with fixed effects were not estimated. Alternately, random effects estimators were used.

Regarding endogeneity concerns, they are present in the current analyses. The choice to handle endogeneity is to apply instrumental variable estimation models. This time, though, the endogenous variables and the chosen instruments are different. In the analyses that follow, the endogenous variable is the spending with government advertising and the instruments are percent of heat-points concentration, the percent coverage of urban infrastructure, and the percent of agriculture's coverage. I envisioned that the instruments would be correlated to the endogenous variable and that they would be unrelated to u_i and ε . In all instrumental variable models estimated, the Sargan-Hansen test for over identification shows that the estimation is consistent and that the instruments are valid (i.e., p-value > 5%).

The estimates of the effects of government advertising on the incumbent's party vote share for governor can be found on Table 31. The table reports the result for the random effects model (RE) and the two-stage generalized least squares random effects estimator (2GLS). To account for the possibility of heteroskedasticity of the error terms, the models were estimated with robust

standard errors which also account for the potential error term problems produced by unit-level clustering.

**Table 31 The Effects of Government Advertising and Other Covariates on the Incumbent's Party Vote Share
for Governor (2006-2010-2014)**

	(1) RE	(2) RE (2GLS)
(log) Ad spending per voter	0.0095 (0.0059)	0.2734 (0.2396)
(log) Number of voters	0.0271 (0.0244)	0.1633 (0.1728)
(log) Municipal GDP per capita	0.0247*** (0.0065)	0.0470*** (0.0118)
(log) Municipal per capita income formal sector	0.0020 (0.0073)	-0.0336 (0.0217)
Co-partisan mayor	-0.0009 (0.0055)	-0.0006 (0.0121)
Mayor's party aligned with the federal government	0.0038 (0.0043)	0.0036 (0.0091)
Governor's travels	0.00022*** (0.00004)	-0.0007 (0.0011)
Municipality's ideology score	0.2090*** (0.0170)	0.2592*** (0.0353)
Municipal Dalton's Political Polarization Index	-0.0152*** (0.0029)	-0.0196** (0.0092)
(log) Bolsa Família's transfers per family	-0.1145*** (0.0164)	-0.3422*** (0.0409)
(log) Homicide rate	-0.0099 (0.0165)	-0.0717** (0.0334)
Mortality rate (standardized)	0.00309* (0.0017)	-0.0061* (0.0035)
(log) Dependency ratio	0.2689*** (0.0294)	0.4033*** (0.0547)
Municipal Human Development Index	0.1961* (0.1055)	-0.5906** (0.2882)
(log) Population	-0.0598*** (0.0232)	0.0355 (0.0921)
Percent of urban population	-0.0242 (0.0212)	-0.0113 (0.0464)
Percent of seniors	-0.6514***	-1.2861***

	(0.1590)	(0.4785)
(log) Population density	0.0205*** (0.0034)	0.0312*** (0.0079)
Percent coverage of urban infrastructure		0.0820 (0.2609)
Constant	1.5051*** (0.1038)	3.8085*** (0.7912)
FE for governor	Yes	
FE for year	Yes	
F-test		3157.15
F-test (Prob > F)		0.000
Sargan-Hansen statistic (χ^2)		1.319
Sargan-Hansen statistic (p-value)		0.250
R2 (within)	0.855	0.691
R2 (between)	0.244	0.068
R2 (overall)	0.687	0.309
N	2,559	1,706

Robust standard errors in parentheses

Instruments: Percent of heat-points concentration, lag of percent coverage of urban infrastructure, and percent of agriculture's coverage.

*p<0.10 **p<0.05 ***p<0.01

According to the RE model, government advertising is not statistically significantly associated with the incumbent party's vote share for governor, even though the coefficient is positive. The RE-2GLS model provides the same result. This suggests that government advertising does not have the electoral impact that conventional wisdom on the matter would suggest it has. Incumbent governments in the state do not seem to enjoy electoral returns from the investment in government advertising made during their terms in office. Respecting the other independent variable, municipal GDP per capita is positively and statistically significantly related to the incumbent party's vote share for governor, but the result does not hold in the instrumental variable model. The coefficient for municipal income per capita in the formal sector is statistically insignificant in both models. The coefficient for co-partisan mayor is statistically insignificant,

albeit positive, which indicates that co-partisanship with the mayor does not help incumbent governors in the state to enjoy higher electoral support in those municipalities. Regarding the impact of the municipal ideology score and the municipal polarization index, their impact accords to the hypotheses laid out in the previous section. The coefficient for the former is positive and for the latter is negative, as hypothesized, and both are statistically significant in the RE and the RE-2GLS models. In other words, the incumbent governors from PSDB enjoy higher electoral support in municipalities that tend ideologically to the right.

The next table presents the results of the effects of government advertising spending on the incumbent's party's "personal" vote share. Three models are presented: one random effects model, another random effects model without the three outlier observations previously mentioned, and a two-stage GLS random effects model.

Table 32 The Effects of Government Advertising and Other Covariates on the Incumbent's Party's Personal

Vote Share (2006-2010-2014)

	(1) RE	(2) RE	(3) RE (2GLS)
(log) Ad spending per voter	0.0118 (0.0142)	0.0006 (0.0070)	0.559 (0.471)
(log) Number of voters	0.2037*** (0.0791)	0.1275*** (0.0167)	-0.0480 (0.337)
(log) Municipal GDP per capita	-0.0020 (0.0074)	0.0050 (0.0034)	0.00535 (0.0176)
(log) Municipal per capita income formal sector	0.0085 (0.0081)	0.0013 (0.0021)	-0.0256 (0.0370)
Co-partisan mayor	-0.0021 (0.0024)	0.0003 (0.0019)	-0.00353 (0.0187)
Mayor's party aligned with the federal government	-0.0006 (0.0021)	0.0017 (0.0012)	-0.00600 (0.0168)
Governor's travels	0.0061*** (0.0002)	0.0006 (0.0016)	0.0185*** (0.00402)
Municipality's ideology score	0.0189** (0.0189)	0.0242*** (0.0242)	0.0171 (0.0171)

	(0.0084)	(0.0068)	(0.0517)
Municipal Dalton's Political Polarization Index	-0.0017*	-0.0020**	0.0158
	(0.0010)	(0.0009)	(0.0190)
(log) Bolsa Família's transfers per family	-0.0010	-0.0031	0.0563
	(0.0054)	(0.0044)	(0.0759)
(log) Homicide rate	0.0036	-0.0030	-0.0495
	(0.0069)	(0.0052)	(0.0617)
Mortality rate (standardized)	0.0006	0.0006*	0.00170
	(0.0004)	(0.0003)	(0.00560)
(log) Dependency ratio	0.0545**	0.0309***	0.140
	(0.0218)	(0.0106)	(0.159)
Municipal Human Development Index	0.1385	0.0403	-0.408
	(0.1096)	(0.0642)	(0.506)
(log) Population	-0.0343	0.0016	-0.0201
	(0.0379)	(0.0086)	(0.171)
Percent of urban population	-0.0361	0.0254**	-0.136
	(0.0608)	(0.0114)	(0.0886)
Percent of seniors	-0.0564	-0.1475**	-0.173
	(0.0914)	(0.0644)	(0.747)
(log) Population density	0.0774*	0.0314***	-0.0188
	(0.0447)	(0.0094)	(0.0184)
Percent coverage of urban infrastructure			5.242**
			(2.150)
Constant	-1.6641*** (0.4916)	-1.1877*** (0.1474)	0.8259 (1.6103)
FE for governor	Yes	Yes	
FE for year	Yes	Yes	
F-test			3157.15
F-test (Prob > F)			0.000
Sargan-Hansen statistic (χ^2)			2.282
Sargan-Hansen statistic (p-value)			0.130
R2 (within)	0.294	0.015	0.281
R2 (between)	0.526	0.572	0.840
R2 (overall)	0.521	0.564	0.799
N	2,559	2,556	1,706

Standard errors in parentheses

Instruments: Percent of heat-points concentration, lag of percent coverage of urban infrastructure, and percent of agriculture's coverage.

*p<0.10 **p<0.05 ***p<0.01

Overall, few independent variables are statistically significantly associated with the personal vote share of the incumbent governor. Government advertising spending, once again, is not associated with the incumbent governor's personal vote share in the three estimated models. There is no sign that the incumbent governors enjoy electoral support from their investment in government advertising. Municipal GDP per capita and municipal income per capita do not appear to be associated with the incumbent governor's personal vote share either. Co-partisanship with the mayor does not seem to help the incumbent governor. The coefficient for the variable is not statistically significant at any level. The last political variables present varying impacts across the three models. Municipal ideology score has an effect in the first and second models, but not in the third one. The incumbent governor enjoys more support in right-wing constituencies than in more leftist ones. Nevertheless, the results do not hold in the instrumental variable model. Polarization index is only statistically significant in the second model and it presents a negative coefficient in the instrumental variable model.

The last table presents the results of the effects of government advertising spending and other independent variables on the municipal turnout for the gubernatorial election. The results show that government advertising is not statistically significantly associated with turnout. The level of wealth of a municipality seem to matter for turnout in the RE model. The coefficients for both the municipal GDP per capita and the income per capita in the formal sector are positive and statistically significant. These results are congruent with the political science literature on mobilization that emphasize the role that resources broadly defined (including wealth and time) have at lowering the costs of political participation. It has been shown that voting participation, at least in the U.S., is strongly correlated with income (Verba, Schlozman, and Brady, 1995). Co-partisanship with the mayor does not increase turnout, as well as the polarization index.

Table 33 The Effects of Government Advertising and Other Covariates on the Municipal Turnout for the Gubernatorial Election (2006-2010-2014)

	(1) RE	(2) RE (2SLS)
(log) Ad spending per voter	0.0021 (0.0018)	0.2497 (0.2424)
(log) Municipal GDP per capita	0.0121*** (0.0021)	0.0202** (0.0089)
(log) Municipal per capita income formal sector	0.0099*** (0.0025)	-0.0177 (0.0222)
Co-partisan mayor	0.0002 (0.0016)	0.0004 (0.0080)
Mayor's party aligned with the federal government	0.0016 (0.0012)	0.0042 (0.0058)
Governor's travels	-0.00006*** (0.00001)	-0.0011 (0.0012)
Municipality's ideology score	0.0264*** (0.0054)	0.0241 (0.0247)
Municipal Dalton's Political Polarization Index	0.0009 (0.0009)	0.0107 (0.0097)
(log) Bolsa Família's transfers per family	-0.0291*** (0.0053)	-0.0370 (0.0512)
(log) Homicide rate	-0.0058 (0.0055)	-0.0139 (0.0248)
Mortality rate (standardized)	0.0007 (0.0005)	-0.0010 (0.0024)
(log) Dependency ratio	-0.0342*** (0.0074)	-0.0584 (0.0443)
Municipal Human Development Index	0.2947*** (0.0361)	-0.0210 (0.3040)
(log) Population	-0.0231*** (0.0016)	-0.1028 (0.0784)
Percent of urban population	-0.0065 (0.0089)	-0.0295 (0.0327)
Percent of seniors	0.1356*** (0.0446)	-0.6758 (0.7280)
(log) Population density	0.0247*** (0.0014)	0.0286*** (0.0068)
Percent coverage of urban infrastructure		0.0128 (0.2373)

Constant	0.6702*** (0.0339)	1.6624* (0.7545)
Dummies for governor	Yes	
Dummies for year	Yes	
F-test	3069.03	
F-test (Prob > F)	0.000	
Sargan-Hansen statistic (χ^2)	0.904	
Sargan-Hansen statistic (p-value)	0.341	
R2 (within)	0.217	0.012
R2 (between)	0.606	0.094
R2 (overall)	0.559	0.083
N	2,559	1,706

Robust standard errors in parentheses

Instruments: Percent of heat-points concentration, lag of percent coverage of urban infrastructure, and percent of agriculture's coverage.

*p<0.10 **p<0.05 ***p<0.01

Municipal ideology score is positive and statistically significant at p<.001 in the RE model.

It suggests that turnout is higher in municipalities that tend to the right in the political spectrum.

Concerning the other independent variables, the results corroborate the findings in the literature about resources and political participation. Turnout is higher in more prosperous municipalities, that is, municipalities with higher Human Development Index. The coefficient for dependency ratio is negative, which indicates that higher economic vulnerability is negatively related to turnout. Also, turnout is negatively related to population size and positively related to population density.

In summary, the models do not show any sign that government advertising spending matters for turnout in both models estimated. Other political variables seem to matter little as well, except for the municipal ideology score in the RE model. The results are mainly driven by socio-economic factors that indicate municipal wealth or lack thereof.

6.7.5 Hybrid Models for Incumbent's Vote Share, Incumbent's Personal Vote Share, and Municipal Turnout

Given the difficulties found to estimate Fixed Effects models with the current data, this study also applies a “compromise” method called hybrid model, also known as “within-between” model. This model allows for the analysis of the effects of time-invariant covariates, as well as it allows for the analysis of possible correlations between the independent variable X and U_i (i.e., unit-level unobserved heterogeneity). The covariation between X and U_i can be incorporated to the model indirectly by inclusion of the mean of X as an additional independent variable. Through this process, the effects of “regular” X can be estimated, controlling for possible confounding problems, exactly what Fixed Effects models do. The subtraction of X from mean- X provides the within-unit change on the dependent variable. The mean of X provides the effect of a between-unit change on the dependent variable.

Table 34 Hybrid Models: The Effects of Government Advertising and Other Covariates on the Incumbent's Party Vote Share for Governor, the Incumbent's Party's Personal Vote Share, and Municipal Turnout for the Gubernatorial Election (2006-2010-2014)

	(1)	(2)	(3)
(log) Ad spending per voter (within)	-0.0066 (0.0065)	-0.0090 (0.0065)	-0.0005 (0.0017)
(log) Ad spending per voter (mean)	0.0068 (0.0092)	0.0573** (0.0239)	-0.0032 (0.0031)
(log) Number of voters (within)	-0.0057 (0.0405)	0.0289*** (0.0098)	-0.3006*** (0.0134)
(log) Number of voters (mean)	-0.0865** (0.0430)	0.3421*** (0.0826)	-0.0963*** (0.0171)
(log) Municipal GDP per capita (within)	0.0211** (0.0089)	0.0008 (0.0032)	0.0074*** (0.0023)
(log) Municipal GDP	-0.0061	-0.0043	0.0037

per capita (mean)	(0.0091)	(0.0144)	(0.0043)
(log) Municipal per capita	-0.0213**	-0.0023	0.0034
income formal sector (within)	(0.0084)	(0.0019)	(0.0022)
(log) Municipal per capita	0.0179	0.0085	0.0070
income formal sector (mean)	(0.0110)	(0.0132)	(0.0044)
Co-partisan mayor	0.0005	0.0000	0.0009
(within)	(0.0057)	(0.0019)	(0.0013)
Co-partisan mayor	-0.0169	0.0230*	-0.0011
(mean)	(0.0123)	(0.0135)	(0.0049)
Mayor's party aligned with	0.0046	0.0012	0.0020**
the federal government (within)	(0.0044)	(0.0013)	(0.0010)
Mayor's party aligned with	-0.0038	0.0250*	0.0024
the federal government (mean)	(0.0103)	(0.0135)	(0.0037)
Governor's travels	0.0001**	0.0029***	0.0000**
(within)	(0.0000)	(0.0001)	(0.0000)
Governor's travels	0.0002**	0.0340***	0.0000**
(mean)	(0.0001)	(0.0005)	(0.0000)
Municipality's ideology	0.1380***	0.0229***	0.0095**
score (within)	(0.0198)	(0.0076)	(0.0046)
Municipality's ideology	0.3302***	-0.0288	0.0274**
score (mean)	(0.0290)	(0.0347)	(0.0118)
Municipal Dalton's Political	-0.0085**	-0.0018**	0.0011
Polarization Index (within)	(0.0034)	(0.0008)	(0.0007)
Municipal Dalton's Political	-0.0467***	-0.0045	-0.0012
Polarization Index (mean)	(0.0057)	(0.0090)	(0.0020)
Constant	1.9216***	-1.7155***	0.6464
	(0.2071)	(0.5378)	(0.0863)
Includes controls	Yes	Yes	Yes
Dummy for governor	Yes	Yes	Yes
Dummies for year	Yes	Yes	Yes
χ^2	13359.85	249407.24	3400.59
P > χ^2	0.000	0.000	0.000
R2 (within)	0.863	0.320	0.546
R2 (between)	0.321	0.947	0.687
R2 (overall)	0.715	0.945	0.671
N	2,559	2,559	2,559

Robust standard errors in parentheses

Dep. variable of Model 1: incumbent's party vote share for governor; Dep. variable of

Model 2: incumbent's party's personal vote share; Dep. variable of Model 3:

municipal turnout for the gubernatorial election.

*p<0.10 **p<0.05 ***p<0.01

According to the results on Table 34, we can conclude that there is no within effect of government advertising spending on the incumbent's party vote share for governor, the incumbent's party's personal vote share, and municipal turnout for the gubernatorial election. There is only a between effect of government advertising spending on the governor's personal vote share. These results confirm the results found in the RE RE-2SLS models. That is, government advertising does not exert a causal impact on the three dependent variables analyzed in this chapter.

6.8 Conclusion

What factors do explain the allocation of government advertising? Second, what are the electoral effects of such spending? In this chapter, I devised a theory of allocation of government advertising based on the literature of distributive politics and allocation of federal spending in the United States. I argued that governors have incentives to allocate resources according to a particularistic logic in order to reach constituencies that are pivotal to their electoral success, or they can invest advertising according to a universalistic logic with the goal of reaching the largest number of voters. In addition, concerns over reputation building would maintain incumbent governors' incentives to keep spending with government advertising during their last term in office. The data analyses carried out in the chapter provided support for the latter logic.

In sum, the models depict a non-particularistic pattern of allocation of government advertising in the state of Minas Gerais. They also depict a non-partisan allocation, meaning that the governor does not seem to use government advertising to further partisan goals such as support

for candidates running to legislative seats. On the contrary, government advertising is distributed more to municipalities with the highest number of voters. Term limitation does not exert the effect that the political science literature would suggest, that governors would not have incentives to spend more with advertising and with overall spending in particular. Contrarily, the results indicate that the spending with government advertising does not decrease when governors are term limited. The Brazilian legislation establishing spending restrictions with government ads exerts the intended effect. Spending decreases during the years in office, and the result is mostly driven by the decline in spending that occurs in the fourth year of governors in their first term in office. In general, the results indicate that government advertising is used for political purposes, but not in a highly strategic and particularized way. Governors aim at reaching the highest number of voters. The plurality rule that governs gubernatorial elections in Brazil certainly wield an impact.

Regarding the effects of government advertising, the results are clear. Regular panel data models and instrumental variable estimation models showed that government advertising does not have an impact on the incumbent governor's electoral performance and on turnout. Other factors, such as municipal wealth and the ideological composition of a municipality seem to play a more prominent explanatory role. These results go against the conventional wisdom that suggest that governments are effective at swaying voters. That is not what the data analyses allow us to conclude. The electoral impact of government advertising is very limited at best, and more realistic non-existent at the gubernatorial level in the state of Minas Gerais.

Therefore, what factors would explain the lack of electoral impact of government advertising? One possible explanation can be the limited amount spent with government advertising. The data shows that the overall sum spent with government advertising (approximately R\$ 60 million from 2012 onward) is smaller than the amount incumbent candidates

spent in their campaigns. In addition, Minas Gerais is not a small state; it is large in size and population. It is logical to presume, then, that to meaningfully affect millions of voters, the amount spent with government advertising would need to be higher. Furthermore, the state has a larger number of municipalities not affected by government advertising at all, especially the smaller ones. As the data previously analyzed shows, the bulk of the spending with advertising is directed towards the bigger municipalities. Were the spending targeted more to smaller municipalities (as public investment is targeted), it is possible that the potential persuasive impact of spending per capita would be higher.

The analysis so far does not answer all the questions with respect to the effects of the spending with government advertising. We do not know the role that government advertising plays in addition to other important electoral factors, mainly campaign spending. Do both matter electorally? If so, do they exert an impact in isolation or in interaction to each other? These questions cannot be answered with the MG data. The Brazilian data at the municipal level allow us to answer these questions. That is the purpose of the next chapter.

7.0 The Electoral Effects of Spending with Government Advertising: An Analysis of Elections for Mayor in Brazil

7.1 Introduction

In this chapter, I analyze the impact of government advertising on three dependent variables: the incumbent mayor's vote share, electoral turnout for the mayoral election, and the reelection of incumbent mayors. I use data electoral data from Brazilian municipalities for three electoral periods (2008, 2012, and 2016). These data allow us to draw inferences with considerable and relevant external validity for Brazil. The chapter studies the electoral effects of government advertising and campaign spending on mayors. Far from being an irrelevant office, Brazilian mayors have administrative autonomy from subnational and national governments and have become important in the implementation of many public policies. They are the political officials many citizens first look for when looking for help.

This chapter tests the theory developed in Section 3.6 of the dissertation's theoretical chapter. According to the theory, government advertising constitutes a source of incumbency advantage. There are two basic incentives to spend with government advertising: to build a positive reputation before an election and to signal effort to the electorate. The goal of government advertising is to form views of the incumbent administration in the long run. Campaign spending also aims at signaling effort, but in the short run during the campaign period. Government advertising and campaign spending generate different types of information to voters. The information they provide is conveyed at different points in time and are qualitatively different. Depending on the context (i.e., the locality) where voters are, they will process the information

from government advertising and campaign spending differently. Socioeconomic conditions and the degree of electoral competition vary from constituency to constituency and affect the impact each source of information will have. The theory also recognizes that voters have a limited capacity to vote make retrospective evaluations of performance. Voters' focus on recent rather than cumulative performance is the most important of such biases (Huber, Hill, and Lenz, 2012). I expect that campaign spending will be more potent and effective than government advertising. It occurs closer to the time of electoral decision and presents more recent information, whereas government advertising generates information that is cumulative and more easily forgotten during the election.

Respecting the effects of the main variables, the models show that government advertising exerts a statistically significant impact on incumbent's vote share, turnout, and reelection for mayor. The campaign spending from the incumbent and from challengers have statistically significant and substantial impacts on the political dependent variables under study.

The chapter is organized as follows. First, it provides the hypotheses. Second, I provide important descriptive information on the key independent variable, government advertising, showing how its values change (or not) over time and across localities. Next, the chapter provides information on the remaining independent variables and on the dependent variables used in the multivariate statistical analyses. Fourth, I conduct statistical analyses that rely on random effects models, two-stage generalized least squares random effects models, hybrid models, and an additional endogeneity model (i.e., Heckman probit model). Finally, I conclude.

7.2 Hypotheses

Based on the theoretical considerations, it is possible to expect that campaign spending will be more potent and effective than government advertising. The first occurs closer to the election than government advertising and conveys relevant electoral information that government advertising, by law, cannot provide. Concerning turnout, we can expect that government advertising and campaign spending will have a positive impact. More spending on government advertising and more campaign spending help reduce the information costs associated with voting. Further, anything that reduces the cost of acquiring political information associated with voting should increase the likelihood of voting (Downs, 1957). Concerning the spending by incumbents and challengers, I expect to find a decreasing impact of government advertising spending as the incumbent's campaign spending and the challengers' campaign spending increase. The hypotheses to be tested in the empirical section follow below:

Vote share's hypotheses:

H7.1. *Government advertising and vote hypothesis*: the incumbent's vote share will increase with higher levels of spending on government advertising.

H7.2. *Incumbent spending and vote hypothesis*: the incumbent's vote share will increase with higher levels of incumbent's campaign spending.

H7.3. *Challengers' spending and vote hypothesis*: the incumbent's vote share will decrease with higher levels of challengers' campaign spending.

Turnout's hypotheses:

H7.4. *Government advertising and municipal turnout hypothesis*: the higher the spending with government ads per voter by the incumbent mayor, the higher the municipal level turnout.

H7.5. *Campaign spending and municipal turnout hypothesis*: the higher the campaign spending per voter in the mayoral election, the higher the municipal level turnout.

Reelection's hypotheses:

H7.6. *Government advertising and reelection hypothesis*: the probability of reelection will increase with higher government advertising spending.

H7.7. *Incumbent spending and reelection hypothesis*: the probability of reelection will increase with higher incumbent's campaign spending.

H7.8. *Challengers' spending and reelection hypothesis*: the probability of reelection will decrease with higher challengers' campaign spending.

H7.9. *Interaction between government advertising and incumbent's spending hypothesis*: the probability of reelection will increase as a result of the interaction.

H7.10. *Interaction between government advertising and challengers' spending hypothesis:* the probability of reelection will decrease as a result of the interaction.

7.3 Independent Variable: Spending with Government Advertising

Spending with government advertising is operationalized as the logged amount of spending with government ads per voter, or $\ln(1 + \text{Spending with government ads per voter})$. The number 1 is added to government ads when taking the log to avoid dropping observations with zero spending. The data comes from the Brazilian National Treasury.

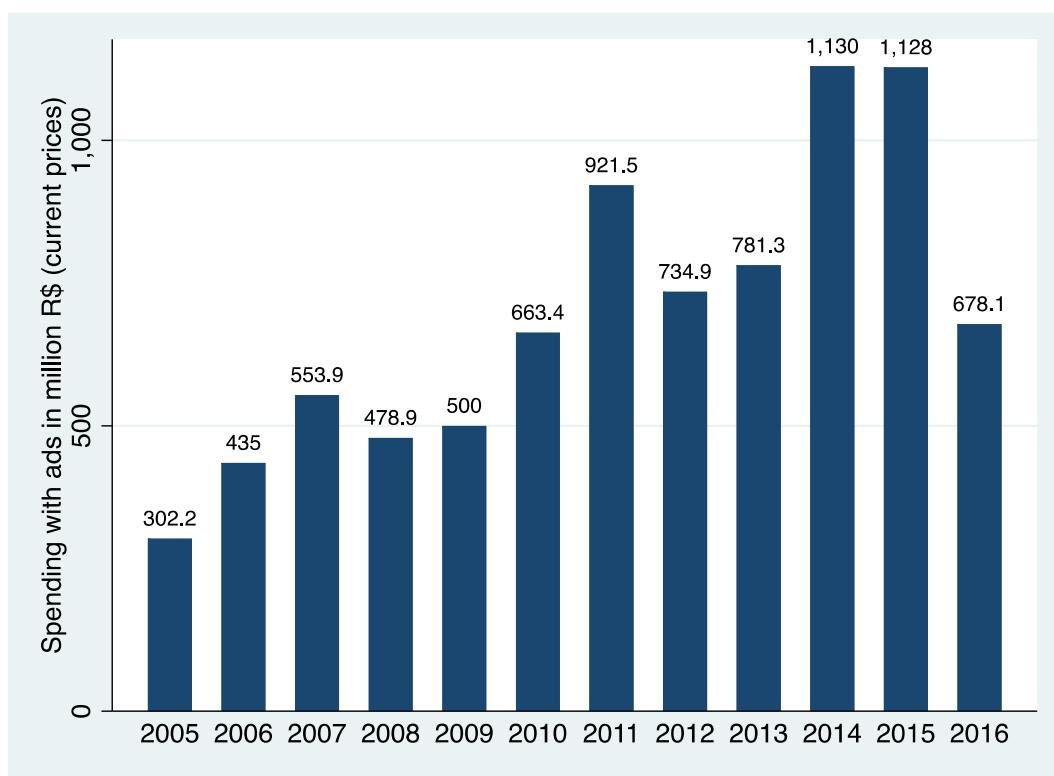


Figure 29 Spending with Government Advertising, by Year (2005-2016)

In this preliminary analysis, the spending with government advertising is presented according to its variation in time and place. Figure 29 displays the amount spent with government ads by year. As the figure shows, there is a gradual increase in spending with government advertising over time. From a spending of 302 million reais in 2005, the spending grew to 1 billion and one hundred twenty-eight million reais in 2015. Election years (i.e., 2008, 2012, and 2016) present lower levels of spending when compared with the three previous years before each election. Such decrease is explained to a considerable degree by a provision in the Electoral Law that limits the amount of that can be spent with government advertising in election periods.

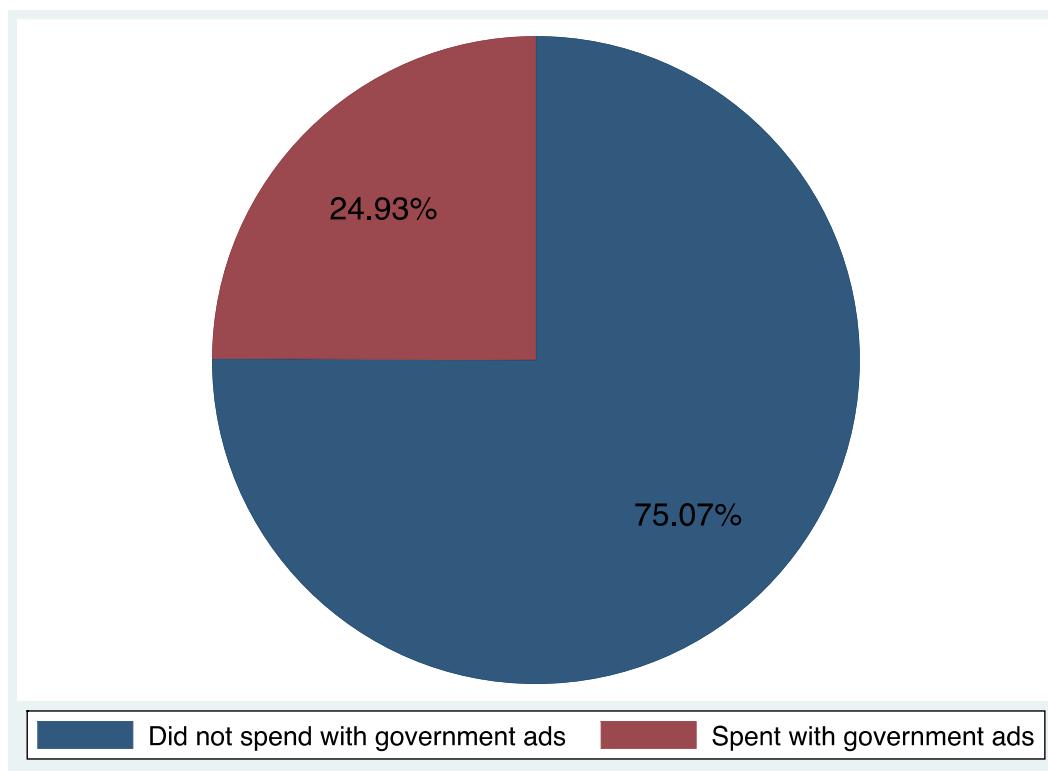


Figure 30 Percent of Brazilian Municipalities that Spent with Government Advertising

What portion of municipalities in the country do spend with government advertising?

Figure 30 shows the percentages. Only a minority of municipalities, approximately 25% of the

more than 5,570 Brazilian municipalities, spend an amount larger than zero with government advertising. Three fourth of the municipalities do not spend any amount of resources with government advertising for the period under consideration.

Table 35 Municipalities that Spent and Did Not Spend with Government Advertising

Year	Government advertising		Did not spend	
	Spent	%	N	%
2008	4,170	74.88	1,399	25.12
2012	4,177	74.99	1,393	25.01
2016	4,196	75.07	1,374	24.67

Table 35 shows the variation in spending with government advertising over electoral periods. As the table shows, there is almost no variation on the number of municipalities that spend resources with government advertising.

Table 36 Distribution of Municipalities by the Size of the Electorate and Spending with Government

Advertising (2016)

Electorate size	Spent		Did not spend		Total
	N	% Municipalities	N	% Municipalities	
Up to 5,000	244	15.66	1,314	84.34	1,558
5,001 - 10,000	248	16.73	1,234	83.27	1,482
10,001 - 20,000	301	23.59	975	76.41	1,276
20,001 - 50,000	289	35.95	515	64.05	804
50,001 - 100,000	143	56.75	109	43.25	252
100,001 - 200,000	66	66.67	33	33.33	99
More than 200,000	83	83.84	16	16.16	99
Total	1,374	24.67	4,196	75.33	5,570

Source: calculated by the author based on TSE data

Information on Table 36 specifies the spending with government advertising according to each municipality's electorate size for 2016. As the table makes it clear, municipalities with larger

electorate sizes tend to spend more with government advertising. Eighty-three percent of the municipalities with more than 200,000 voters spent some amount with government advertising. Also, two thirds of the municipalities with more than electorate sizes between 100,001 and 200,000 voters spend with government advertising. Next, almost 57 percent of the municipalities with electorate size between 50,001 and 100,000 voters spend with government advertising. Figure 31 that follows shows the mean per capita spending with government advertising per municipalities' electorate size. Municipalities with more than 50,000 voters spend considerably more per capita with government advertising than smaller municipalities.

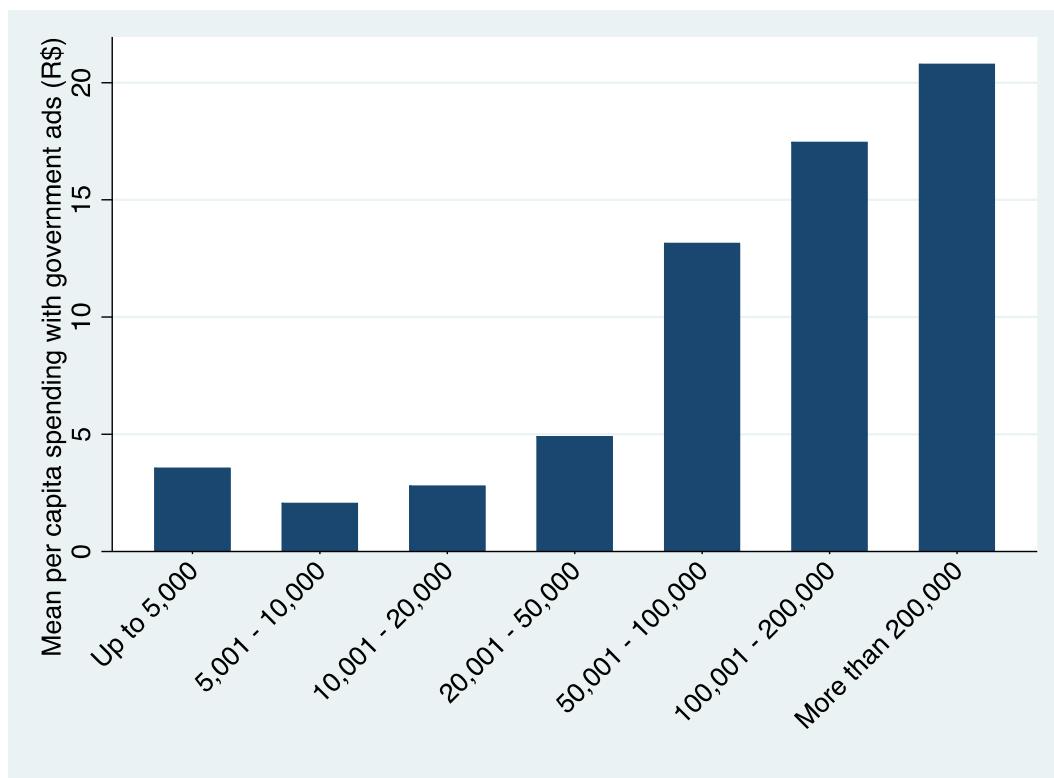


Figure 31 Average Spending with Government Ads, by Municipalities' Electorate Size

7.4 Additional Variables

The next section describes the dependent and the independent variables used in the multivariate analyses. The electoral data were obtained from the *Centro de Política e Economia do Setor Público* – CEPESP, and the Brazilian Superior Electoral Court – TSE. The campaign spending data was obtained from TSE.

The dependent variables in the study are the incumbent's vote share, the electoral turnout for the municipal election, and a dichotomous measure of whether the incumbent mayor won reelection (1 if won reelection, zero otherwise). The main independent variables are the spending with government advertising per voter (logged), and the measures of campaign spending. Regarding the latter, the data contain information about the incumbent's campaign spending per voter (logged), the challengers' campaign spending per voter (logged), and the total mayoral campaign spending per voter, logged (i.e., the sum of campaign spending from all contenders for mayor in a municipality, per voter). These independent variables are used to test the hypotheses.

The remaining variables are included for their possible theoretical impact on the three dependent variables whose exclusion could lead to possible omitted variable bias. The data include electoral measures such as the number of candidates for mayor, which can be used as a measure of electoral competition in a municipality. The data also contain information about the mayor and governor are co-partisans. Co-partisanship with governor can be important for the mayor's reelection prospects for governors can be valuable electoral allies by helping the mayor to raise money for the campaign and also for her possible political endorsement. The data also include political measures of the ideological bent of a municipality (municipality's ideology score), its degree of political polarization (municipal Dalton's Political Polarization Index), and whether a

municipality can hold runoff election in case the winner does not achieve more than 50% plus one of the valid votes (runoff election)

Table 37 Variables' Definitions and Sources

Variable	Definition	Source
Incumbent's vote share	Incumbent's share of the vote	CEPESP Data, TSE
Mayoral election's turnout	Percent of registered voters who turned out to vote in the mayoral election	CEPESP Data, TSE
Incumbent won reelection	Whether incumbent mayor won reelection	CEPESP Data, TSE
(log) Municipal spending with government ads per voter	Municipal spending with government ads	National Treasury
(log) Incumbent's campaign spending per voter	Incumbent's spending with campaign per voter	TSE
(log) Challengers' campaign spending per voter	Challengers' sum of campaign spending per voter	TSE
(log) Total mayoral campaign spending per voter	Sum of municipal campaign spending for mayor from all mayoral candidates	TSE
Number of candidates for Mayor	Total number of candidates running for Mayor in a municipality	CEPESP Data, TSE
Governor and Mayor are co-partisans	Whether the governor and the Mayor belong to the same political party	TSE

Municipality's ideology score	Sum of the proportion of votes for (local or national) legislative elections in a given year multiplied by the ideological score for a given party in the closest year when the Brazilian Legislative Survey (BLS) was conducted. The index varies from approximately -1 to approximately 1, with the values corresponding to: -1, extreme left; 0, center; and 1, extreme right.	Power & Rodrigues-Silveira (2018)
Municipal Dalton's Political Polarization Index	Ten times the squared root of the sum of the products between the proportion of votes of each party and its absolute variation from the mean local ideological position. It ranges from 0 (no polarization) to 10 (extreme polarization) Whether municipality can hold a runoff if no candidate reaches 50% or more of the valid votes	Power & Rodrigues-Silveira (2018)
Runoff election		CEPESP Data, TSE
(log) Real municipal GDP per capita	Real municipal GDP per capita	IBGE
(log) Bolsa Família's transfers per family	Amount of transfers per family in each municipality	IPEA
Municipal Human Development Index (IDHM)	The UNDP index of human development measured at the municipal level	Power & Rodrigues-Silveira (2018)
(log) Population	Municipal population	SNIS
Percent of urban population	Percent of urban population	SNIS
(log) Population density	Ratio of the population to the municipality's total area in km ²	IBGE
AM radio	Presence of an AM radio station in the municipality	IBGE
FM radio	Presence of a FM radio station in the municipality	IBGE

TV generating station	Presence of a generating TV station in the municipality	IBGE
Internet	Presence of internet in the municipality	IBGE

Next, the data contain important socio-demographic information, such as the real municipal GDP per capita. The data also contain information about the amount of *Bolsa Família*'s transfer per family (logged). It is expected that higher transfers from *Bolsa Família* should decrease the vote share for the incumbent mayor and decrease turnout for the spending from the program would make clientelism a less attractive strategy for incumbent mayors (Frey, 2019), especially in smaller municipalities. Also, the data include the municipal Human Development Index, which serves a measure of the level of socio-economic development of a municipality, the size of municipal population (logged), and the percent of urban population of a municipality. Finally, the data have information about the mediums of communication available in each municipality, that is, whether a municipality has AM radio station, FM radio station, a TV generating station, and Internet access.

Summary statistics of the variables can be found on the table below.

Table 38 Variables' Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Incumbent's vote share	7,805	0.500	0.164	0.0005	1
Mayoral election's turnout	16,864	0.867	0.057	0.625	0.989
Incumbent won reelection	16,695	0.271	0.444	0	1
(log) Municipal spending with government ads per voter	16,640	0.589	1.205	0	6.499
(log) Incumbent's campaign spending per voter	7,665	1.580	1.043	-11.009	5.306
(log) Challengers' campaign spending per voter	7,665	1.712	0.810	0	4.933
(log) Total mayoral campaign spending per voter	16,672	2.487	0.812	-5.112	8.122

Number of candidates for Mayor	16,695	2.755	1.163	1	15
Governor and Mayor are co-partisans	16,680	0.189	0.392	0	1
Aligned to the federal government	16,680	0.636	0.481	0	1
Municipality's ideology score	16,699	0.135	0.142	-0.504	0.682
Municipal Dalton's Political Polarization Index	16,699	5.036	0.701	0	7.400
Runoff election	16,696	0.008	0.089	0	1
(log) Real municipal GDP per capita	16,694	9.192	0.713	7.538	13.446
(log) Bolsa Família's transfers per family	16,695	4.507	0.867	-0.819	6.449
Literacy (%)	16,634	0.818	0.107	0.325	0.987
Municipal Human Development Index (IDHM)	16,683	0.686	0.081	0.386	0.898
(log) Population	16,700	9.437	1.152	6.693	16.303
Percent of urban population	16,700	0.632	0.222	0.018	1
(log) Population density	16,696	3.322	1.320	0.080	9.513
AM radio	16,964	0.221	0.415	0	1
FM radio	16,964	0.400	0.490	0	1
TV generating station	16,964	0.114	0.318	0	1
Internet	16,964	0.594	0.490	0	1

7.5 Distributions of Key Dependent and Independent Variables

One of the dependent variables in the study is whether the incumbent mayor runs for reelection. Next, Table 39 presents the number of how many mayors pursued reelection for each electoral period under analysis.

Table 39 Percentage of Municipalities Where Mayors Ran and Won Reelection

Year	Ran for reelection		Won reelection^	
	N	%*	N	%
2008	2,943	52.96	2,031	69.01
2012	2,345	42.10	1,300	55.43
2016	2,529	45.41	1,208	47.77

Note 1: * Percentage of the total number of Brazilian municipalities

Note 2: ^ Among those who ran for reelection

As the table shows, the proportion of mayors who decided to run for reelection declined from 2008 to 2016 (from almost 57% to 45.4% in 2016). There was a clear decline in the reelection rate. From 69% of mayors reelected in 2008, the reelection rate dropped to 47.7%. It is possible that the severe economic crises that affected the country between 2015 and 2017 affected the number of mayors who ran for reelection and, more specifically, the number of mayors who were reelected.

The analyses in the current chapter consider the impact of the spending with government advertising in comparison to the impact of campaign spending. The next table shows the mean amount spent with government advertising per voter and total campaign spending per voter and allow us to know how much the total spending with campaigns at the municipal level differ from the spending with government ads. Table 40 displays the mean amount spent by each type of spending. As expected, Brazilian municipal campaigns for mayor spend more with advertising than the amount with government advertising. However, the difference measured by the ratio of campaign spending by the spending with government ads is not so large. In 2008, the ratio was 2.67 and it increased to 3.12 four years later, whereas the amount spent with government advertising was relatively stable under the period 2008-2016. In 2016, there was a considerable decline in campaign spending per voter, which led to a decline in the ratio of spending to 2.05.

Table 40 Mean Total Campaign Spending and Spending with Government Ads (2008-2012-2016)

Type of spending	Mean (R\$)	Ratio
Total campaign spending per voter in 2008	13.92	2.67
Spending with government advertising per voter in 2008	5.21	
Total campaign spending per voter in 2012	17.96	3.12
Spending with government advertising per voter in 2012	5.75	
Total campaign spending per voter in 2016	11.09	2.05
Spending with government advertising per voter in 2016	5.41	

The next table shows the mean values of the dependent variables and key independent variables (i.e., campaign spending variables and the number of mayoral candidates) by whether a municipality spent or not with government advertising. There are no meaningful differences in the mean values of the first four variables on the table. There are some differences in the mean values of the incumbent's campaign spending, though. The mean value for the variable is larger for municipalities that did not spend with government ads, which may indicate that mayors who spend with government advertising may spend less resources with campaign spending. Also worth noting is the difference in the mean values of the total number of candidates running for mayor. The mean is larger for municipalities that spent with government advertising for the period under consideration (3.08 versus 2.64). These values suggest that the spending with government advertising is higher in more competitive municipalities.

Table 41 Mean Values of Dependent and Independent Variables by Municipality's Spending with Government Ads (2008-2016)

Variable	Spent with ads		Did not spend with ads	
	Mean	SD	Mean	SD
Incumbent's vote share	0.49	0.16	0.50	0.16
Municipal election turnout	0.85	0.05	0.87	0.05
Mayor ran for reelection	0.48	0.49	0.46	0.49
Mayor won reelection	0.28	0.45	0.26	0.44
(log) Incumbent's campaign spending per voter	1.47	1.11	1.61	1.01
(log) Challengers' campaign spending per voter	1.69	0.77	1.72	0.82
(log) Total campaign spending per voter	2.45	0.79	2.49	0.81
Total number of mayoral candidates	3.08	1.47	2.64	1.01

7.6 Multivariate Analyses: Estimation Methods and Results

In the section that follows, I outline the procedures for the multivariate analyses to be conducted. The analyses verify the effects of the spending with government advertising and campaign spending variables on three dependent variables: the incumbent mayor's vote share, the electoral turnout for mayor, and the reelection of the incumbent mayor (dichotomous variable). The data available comprises information on approximately 5,570 municipalities over three election periods (2008-2012-2016). Given the panel structure of the data, the statistical analyses are based on panel data methods.

The method to be used in the current analyses would be the fixed effects model. The capacity of fixed effects models to account for the impact of stable unobserved unit-level factors over time make allow researchers to draw relevant inferences with panel data. However, fixed

effects estimators present problems to estimate the parameters of variables that change little over time. As in Chapter 4, that is the problem with the current data from Brazilian municipalities. Preliminary estimation of fixed effects models showed little variation within municipalities. The analysis showed very high values of Rho and very high negative correlation of the errors u_i with the regressors in the fixed effects model. Because of such problems, fixed effects will not be used in the following analyses. Thus, I use random effects models in the estimations.

Research on political advertising is often affected by endogeneity biases. The same concerns are valid for research with government advertising. Spending with government advertising is not allocated randomly across localities. It is possible that there is mutual causation between money spent with government advertising and expected votes. Another issue of concern is omitted variable bias. There may be many unobserved determinants of both government advertising and electoral outcomes that, if not taken into account, can lead to biased estimates. As usual, observational data analyses hardly can include all the relevant variables. As a result, the correlation between unobservables and government advertising can result in problems for the isolation of the causal effect. To handle concerns with endogeneity, the following analysis will rely on instrumental variable estimation models. For instrumental variable models to work appropriately, it is necessary to find instruments that meet two basic assumptions. First, that the excluded instruments are distributed independently of the error term (exclusion restriction), and second, that the excluded instruments are *sufficiently* correlated with the included endogenous regressors (inclusion restriction). The excluded instruments should affect the independent variable only indirectly. I use measures of the mediums of communication available in a municipality as instruments.

In the analyses that follow, three dependent variables are studied: the incumbent mayor's vote share, the electoral turnout for the mayoral election, and the probability of reelection (code as 1 if reelected, zero otherwise). The incumbent mayor's vote share's variable is analyzed first. Table 42 reports the results of the random effects model (RE) and the two-stage generalized least squares random effects estimator (2SGLS). To account for the possibility of heteroskedasticity of the error terms, the models were estimated with robust standard errors, which also handle potential error term problems produced by unit-level clustering. The RE model also includes dummies for state and year.

Table 42 The Effects of Government Advertising Spending and Other Covariates on Incumbent's Vote Share

	Incumbent's vote share	
	(1) RE	(2) RE (2SGLS)
(log) Spending with government ads per voter	0.0034** (0.0013)	0.1065** (0.0424)
(log) Incumbent's campaign spending per voter	0.0293*** (0.0019)	0.0587 (0.0408)
(log) Challengers' campaign spending per voter	-0.0887*** (0.0025)	-0.1006*** (0.0137)
Number of candidates for mayor	-0.0555*** (0.0023)	-0.0488*** (0.0071)
Mayor's party aligned with the governor	0.0014 (0.0035)	0.0048 (0.0053)
Municipality's ideology score	-0.0025 (0.0118)	-0.0013 (0.0191)
Municipal Dalton's Political Polarization Index	-0.0004 (0.0022)	-0.0076 (0.0051)
Runoff election	0.0802*** (0.0207)	-0.0147 (0.0405)
(log) Municipal GDP per capita	0.0155*** (0.0035)	-0.0191* (0.0104)
(log) Bolsa Família's transfers per family	0.0032 (0.0034)	-0.0119* (0.0066)
Municipal Human Development Index	0.0971**	-0.2413**

(log) Population	(0.0490)	(0.0948)
Percent of urban population	-0.0036*	-0.0265*
(log) Population density	(0.0021)	(0.0146)
	0.0039	0.0600**
	(0.0098)	(0.0260)
Constant	0.0080***	0.0010
	(0.0019)	(0.0042)
Dummies for state	Yes	
Dummies for year	Yes	
F-test	9.750	
F-test (p-value)	0.000	
Sargan-Hansen statistic (χ^2)	1.123	
Sargan-Hansen statistic (p-value)	0.570	
R2 (within)	0.401	0.258
R2 (between)	0.461	0.204
R2 (overall)	0.445	0.216
N	7611	7611

Robust standard errors in parentheses

Instruments: AM radio, FM radio, TV generating station, Internet

*p<0.10 **p<0.05 ***p<0.01

The results in the RE model show that government advertising is positively associated with the incumbent's vote share. It suggests that mayors who invest in government advertising obtain an electoral advantage in terms of votes. The incumbent's campaign spending is also positively related to the incumbent's vote share. The coefficient for challengers' campaign spending is negative and statistically significant, as hypothesized. These results suggest that incumbents benefit from higher spending with government advertising and campaign spending, and that challengers' campaign spending decreases incumbents' vote shares. Concerning the other variables, the coefficient for the number of candidates running for mayor is negative and highly statistically significant, indicating that higher levels of electoral competition as expressed by the

number of candidates decrease incumbents' vote shares. Runoff election appears as positively related to incumbent's vote share. This means that elections in larger municipalities that can go to a second round can benefit incumbents.

The table also presents the results for the 2SGLS-RE model. According to the Sargan-Hansen statistic for overidentification, the estimation is consistent, and the instruments are valid. Regarding the F-test statistic, its value is 9.75. Usual recommendations suggest that the F-statistic should be bigger than 10 in case of a single endogenous regression. In the current analysis, there are four instruments. Hence, results from the 2SGLS-RE model should be seen with a grain of salt. Analyses of the coefficients show that government advertising spending is equal in substantive magnitude as the campaign spending by challengers.

Overall, the models showed support for the three vote share's hypotheses. That is, the incumbent's vote share increase with higher spending with government ads and higher incumbent's campaign spending. Conversely, the incumbent's vote share decreases with higher challengers' campaign spending.

Table 43 displays the results for the impact of the independent variables on electoral turnout for mayor. As before, the first column presents RE results, while the second column presents RE-2SGLS results. Differently from the previous analysis, the results from the following table do not include measures of incumbent's and challengers' campaign spending. Instead, it includes a measure of the overall campaign spending per voter.

The results from column 1 show that higher spending with government advertising increases turnout. Higher total campaign spending also appears positively related to turnout. The results for both variables show that electoral participation is responsive to campaign mobilization efforts from the local political elites via campaign spending or government advertising.

Table 43 The Effects of Government Advertising Spending and Other Covariates on Municipal Turnout

	Municipal turnout	
	(1) RE	(2) RE (2SGLS)
(log) Spending with government ads per voter	0.0007** (0.0003)	0.0864** (0.0367)
(log) Campaign spending per voter	0.0066*** (0.0004)	0.0130 (0.0280)
Number of candidates for mayor	-0.00003 (0.00029)	0.0001 (0.0036)
Mayor's party aligned with the governor	0.0010* (0.0006)	0.0025 (0.0017)
Municipality's ideology score	0.0021 (0.0027)	-0.0021 (0.0102)
Municipal Dalton's Political Polarization Index	-0.0001 (0.0004)	-0.0031** (0.0012)
Runoff election	0.0131*** (0.0039)	-0.0129 (0.0171)
(log) Municipal GDP per capita	0.0099*** (0.0008)	-0.0106 (0.0090)
(log) Bolsa Família's transfers per family	-0.0009 (0.0007)	-0.0167* (0.0099)
Municipal Human Development Index	0.2727*** (0.0123)	-0.1411*** (0.0355)
(log) Population	-0.0299*** (0.0006)	-0.0514*** (0.0114)
Percent of urban population	-0.0332*** (0.0030)	-0.0244 (0.0151)
(log) Population density	0.0103*** (0.0005)	0.0106** (0.0044)
Constant	0.8445*** (0.0125)	1.5345*** (0.1299)
Dummies for state	Yes	
Dummies for year	Yes	
F-test		5.96
F-test (Prob > F)		0.000
Sargan-Hansen statistic (χ^2)		2.972
Sargan-Hansen statistic (p-value)		0.226
R2 (within)	0.251	0.007

R2 (between)	0.559	0.092
R2 (overall)	0.497	0.066
N	16,599	16,599

Robust standard errors in parentheses

Instruments: AM radio, FM radio, TV generating station, Internet

*p<0.10 **p<0.05 ***p<0.01

This time, the mayor's alliance with the state's governor shows sign of statistical significance, although at the $p < .10$. The result is not confirmed in the 2SGLS. The socio-demographic controls indicate that turnout tends to be higher in more affluent and less populated municipalities.

Column 2 shows the results for the RE-2SGLS model. Observing the evaluation statistics for the model, it can be seen that the F-test is 5.96, which recommends caution in the evaluation of the results. That said, the results are consistent with the results on the first column of Table 43. As in the RE model, government advertising is positively and statistically significantly related to turnout. Higher spending with government advertising engenders higher turnout. However, the coefficient for total campaign spending is not statistically significant, even though the coefficient is positive. The sign of the coefficients for some variables is different from the signs in model 1. For instance, the municipal Human Development Index's coefficient is negative in the RE-2SGLS model, but positive in the RE model.

All in all, the two models show partial support for the two turnout's hypothesis. The spending with government advertising is related to higher levels of turnout in both models, but the coefficient for total campaign spending is positive in the first model and statistically insignificant in the second model.

7.6.1 Hybrid Models for Incumbent's Vote Share and Municipal Turnout

As stated before, the estimation of Fixed Effects model with the current data has shown to be problematic due to little variation within municipalities (i.e., high values of Rho and very high negative correlation of the errors u_i with the regressors). As a result, RE models were estimated. However, it is possible to obtain results that Fixed Effects would provide through the use of hybrid model or “within-between” effects model. This model consists in decomposing between and within variation and to estimate the respective effects in a single model (Schunck, 2013, p.66). Its use here aims at evaluating whether the results obtained in the previous RE and RE-2SGLS models on vote share and turnout hold.

Hence, the following model presents the within and between effects of the independent variables on incumbent's vote share. Full results for the models can be found in the Appendix.

**Table 44 Hybrid Model: The Effects of Government Advertising Apending and Other Covariates on
Incumbent's Vote Share**

	(1)
(log) Spending with government ads per voter (within)	0.0006 (0.0025)
(log) Spending with government ads per voter (mean)	0.0032** (0.0015)
(log) Incumbent's campaign spending per voter (within)	0.0264*** (0.0028)
(log) Incumbent's campaign spending per voter (mean)	0.0295*** (0.0023)
(log) Challengers' campaign spending per voter (within)	-0.0910*** (0.0041)
(log) Challengers' campaign spending per voter (mean)	-0.0872*** (0.0029)

Number of candidates for mayor (within)	-0.0583*** (0.0027)
Number of candidates for mayor (mean)	-0.0557*** (0.0030)
Mayor's party aligned with the governor (within)	0.0033 (0.0042)
Mayor's party aligned with the governor (mean)	-0.0014 (0.0063)
Municipality's ideology score (within)	-0.0023 (0.0193)
Municipality's ideology score (mean)	-0.0067 (0.0150)
Municipal Dalton's Political Polarization Index (within)	0.0005 (0.0032)
Municipal Dalton's Political Polarization Index (mean)	-0.0006 (0.0029)
Runoff election (within)	-0.1495*** (0.0437)
Runoff election (mean)	0.1569*** (0.0266)
(log) Municipal GDP per capita (within)	0.0020 (0.0095)
(log) Municipal GDP per capita (mean)	0.0154 (0.0037)
Constant	0.5605*** (0.0595)
Includes controls	Yes
Dummies for state	Yes
Dummies for year	Yes
χ^2	3979.96
P > χ^2	0.000
R2 (within)	0.406
R2 (between)	0.472
R2 (overall)	0.453
N	7,611

Robust standard errors in parentheses

*p<0.10 **p<0.05 ***p<0.01

According to the table, there is no within effect of government advertising spending on the incumbent's vote share, although the coefficient is positive as expected. There is a between effect of government advertising spending on vote share, though. Moreover, the incumbent and challenger's campaign spending variables present within and between coefficients that are highly statistically significant and with coefficients in the right direction (i.e., positive for the former and negative for the latter). Concerning the remaining variables, it must be noted the statistically significant impact of the within effects of the number of candidates for mayor and the “runoff election” variable, both with negative coefficients.

Respecting turnout, Table 45 presents the results of the impact of the within and between effects of the independent variables on municipal level turnout.

Table 45 Hybrid Model: The Effects of Government Advertising Spending and Other Covariates on

Municipal Turnout

	(1)
(log) Spending with government ads per voter (within)	0.0002 (0.0003)
(log) Spending with government ads per voter (mean)	0.0012*** (0.0004)
(log) Campaign spending per voter (within)	0.0067*** (0.0005)
(log) Campaign spending per voter (mean)	0.0063*** (0.0009)
Number of candidates for mayor (within)	-0.0002 (0.0003)
Number of candidates for mayor (mean)	0.0005 (0.0007)
Mayor's party aligned with the governor (within)	0.0013** (0.0006)
Mayor's party aligned with the governor (mean)	-0.0016 (0.0019)
Municipality's ideology score	-0.0080**

(within)	(0.0033)
Municipality's ideology score	0.0227***
(mean)	(0.0049)
Municipal Dalton's Political	0.0002
Polarization Index (within)	(0.0005)
Municipal Dalton's Political	-0.0001
Polarization Index (mean)	(0.0009)
Runoff election	-0.0052
(within)	(0.0046)
Runoff election	0.0533***
(mean)	(0.0060)
(log) Municipal GDP per capita	0.0057***
(within)	(0.0013)
(log) Municipal GDP per capita	0.0125***
(mean)	(0.0011)
	0.9024
Constant	(0.0178)
Includes controls	Yes
Dummies for state	Yes
Dummies for year	Yes
χ^2	13815.26
$P > \chi^2$	0.000
R2 (within)	0.256
R2 (between)	0.566
R2 (overall)	0.504
N	16,599

Robust standard errors in parentheses

*p<0.10 **p<0.05 ***p<0.01

Based on the results, we find that there is no within effect of government advertising spending on municipal turnout, even though there is a between effect. Concerning the campaign spending variable, there are both within and between effects that are highly statistically significant and with positive coefficients. Thus, the result does not show a “within” mean-deviated effect of government advertising on turnout.

In sum, the results of Table 44 and 45 disagree with respect to the causal impact of government advertising spending on vote share and municipal turnout. However, the results from the tables 44 and 45 confirm the causal impact of the incumbent spending, the challenger's spending, and the total campaign spending variables.

7.6.2 The Effect of Government Advertising on the Probability of Reelection

The third dependent variable to be analyzed is the probability of reelection. Because this variable is dichotomous, I estimate panel random effects probit models. Two models were estimated, one without interactions and another with interactions. The models report robust standard errors. Table 46 displays the results for both models.

Table 46 Random Effects Probit Models: Probability of Reelection

	(1) Coef/SE	P> z	(2) Coef/SE	P> z
(log) Spending with govt ads per voter	0.0364*** (0.0142)	0.010	0.0867** (0.0362)	0.016
(log) Incumbent's campaign spending per voter	0.3104*** (0.0229)	0.000	0.1907*** (0.0399)	0.000
Spending with government ads x Incumbent's campaign spending			-0.0307* (0.0165)	0.062
(log) Challengers' campaign spending per voter	-0.6916*** (0.0310)	0.000	-0.8470*** (0.0521)	0.000
Spending with govt ads x Challengers' campaign spending			-0.0011 (0.0202)	0.955
Incumbent's campaign spending x Challengers' campaign spending			0.0867*** (0.0212)	0.000
Number of candidates for mayor	-0.0478*** (0.0183)	0.009	-0.0420** (0.0183)	0.021
Mayor's party aligned with the governor	0.0298 (0.0388)	0.443	0.0252 (0.0387)	0.515

Municipality's ideology score	-0.0870 (0.1337)	0.515	-0.1051 (0.1340)	0.433
Municipal Dalton's Political Polarization Index	-0.0351 (0.0242)	0.147	-0.0363 (0.0243)	0.134
Runoff election	0.3880** (0.1945)	0.046	0.3720* (0.198)	0.060
(log) Municipal GDP per capita	0.0534 (0.0356)	0.134	0.0471 (0.0356)	0.185
(log) Bolsa Família's transfers per family	0.0117 (0.0372)	0.754	0.0090 (0.0373)	0.808
Municipal Human Development Index	0.1369 (0.5054)	0.787	0.1197 (0.5057)	0.813
(log) Population	-0.0910*** (0.0218)	0.000	-0.0918*** (0.0218)	0.000
Percent of urban population	0.2128** (0.1007)	0.035	0.2047** (0.1009)	0.043
(log) Population density	0.0464** (0.0199)	0.020	0.0464** (0.0200)	0.020
Constant	1.2735** (0.5216)		1.5515** (0.5274)	
Dummies for state	Yes		Yes	
Dummies for year	Yes		Yes	
Wald χ^2	824.48		835.93	
Prob > χ^2	0.000		0.000	
Log pseudolikelihood	-4409.7		-4395.56	
N	7645		7645	

Robust standard errors in parentheses

*p<0.10 **p<0.05 ***p<0.01

The results for Model 1 show that government advertising is positively and statistically significantly associated with reelection for mayor. The same occurs for incumbent's campaign spending. The coefficient for challengers' campaign spending is negative and statistically significant. Among the remaining political independent variables, the number of candidates for mayor is negatively related to the mayors' reelection, whereas the runoff election is positively

related to reelection. These results show that higher competition decreases the chances of reelection, while the chance of a runoff election increases the incumbent's reelection chances.

Model 2 shows the results with interaction terms. Except for the interaction between the spending with government advertising and challengers' campaign spending, all main variables and their interactions are statistically significant. Differently from hypothesized in hypothesis 9 (*Interaction between government advertising and incumbent's spending hypothesis*), the coefficient for the interaction between the spending with government advertising and the incumbent's campaign spending turned out to be negative. Among the other political independent variables, it can be seen that higher electoral competition decreases reelection chances, while the possibility of runoff elections increases reelection chances.

Overall, the two models show support for the four of the five reelection's hypotheses. We still need to know more about the substantive effects of the main variables. In the figures that follow, I report the marginal effects of the main independent variables and their interactions. Figure 32 shows the marginal effect for the log of spending with government advertising while holding other independent variables at their means. The next figure shows the substantive effect of government advertising spending on the probability of reelection.

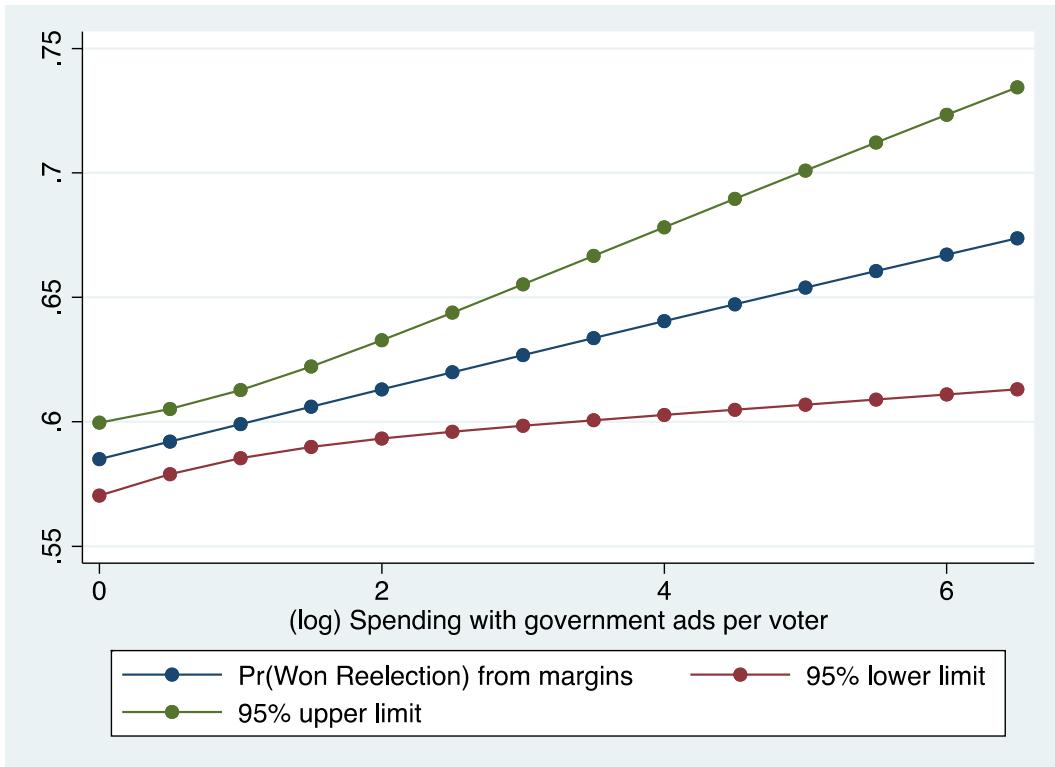


Figure 32 Marginal Effects of (Log) Spending with Government Ads per Voter

According to the figure, as spending with government advertising increases, the probability of reelection also increases. However, the rate of increase is small and more significant at lower levels. At higher levels of spending, the confidence intervals become wider. From zero spending to 6, the probability of reelection increases by approximately 7 percent.

The next figure shows the marginal effects for the challengers' campaign spending and the incumbent's campaign spending. As expected, higher levels of challengers' spending decrease the probability of reelection substantively. For an intermediate low-to-medium level of challengers' spending (i.e., 2), the probability of reelection is only 50 percent. The graph on the bottom shows the marginal effects for incumbent's campaign spending. According to the graph, holding all other variables to their means, for a candidate to achieve 60% of reelection probability, he or she must spend a considerable sum of campaign resources, that is, the incumbent must spend comparatively

more than the challenger to achieve a 60% chance of reelection. On the whole, both campaign spending categories are effective. However, it seems that the challengers' spending is more effective without interactions.

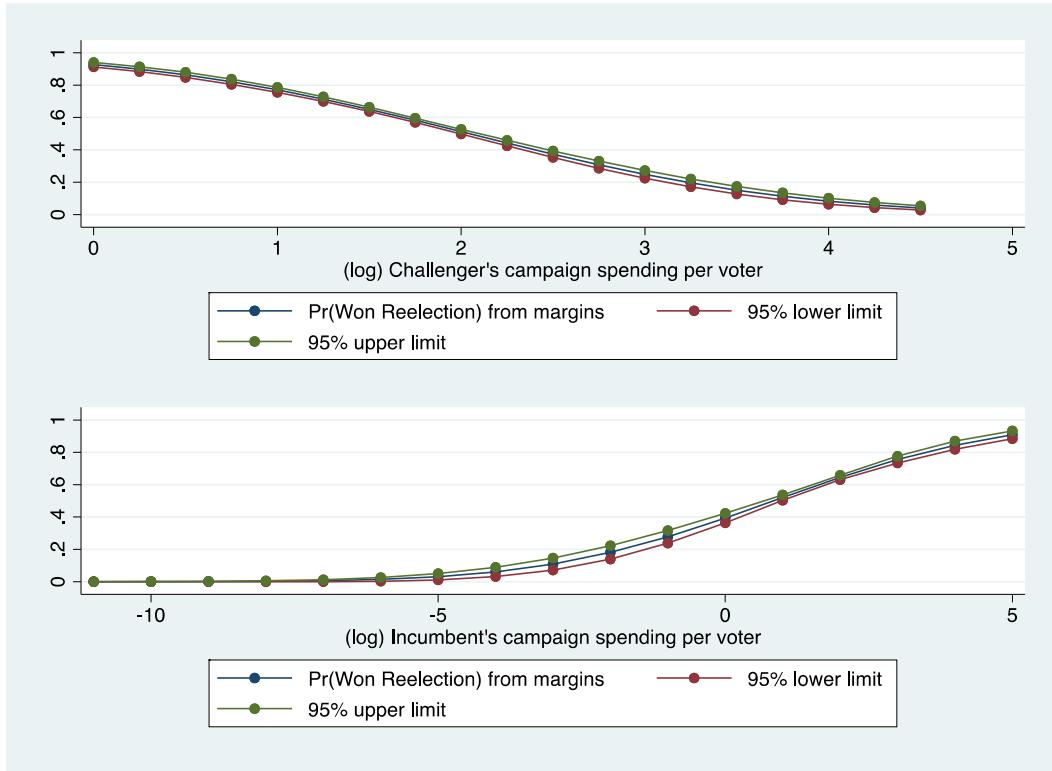


Figure 33 Marginal Effects of (Log) Challenger's Campaign Spending per Voter and (Log) Incumbent's Campaign Spending per Voter

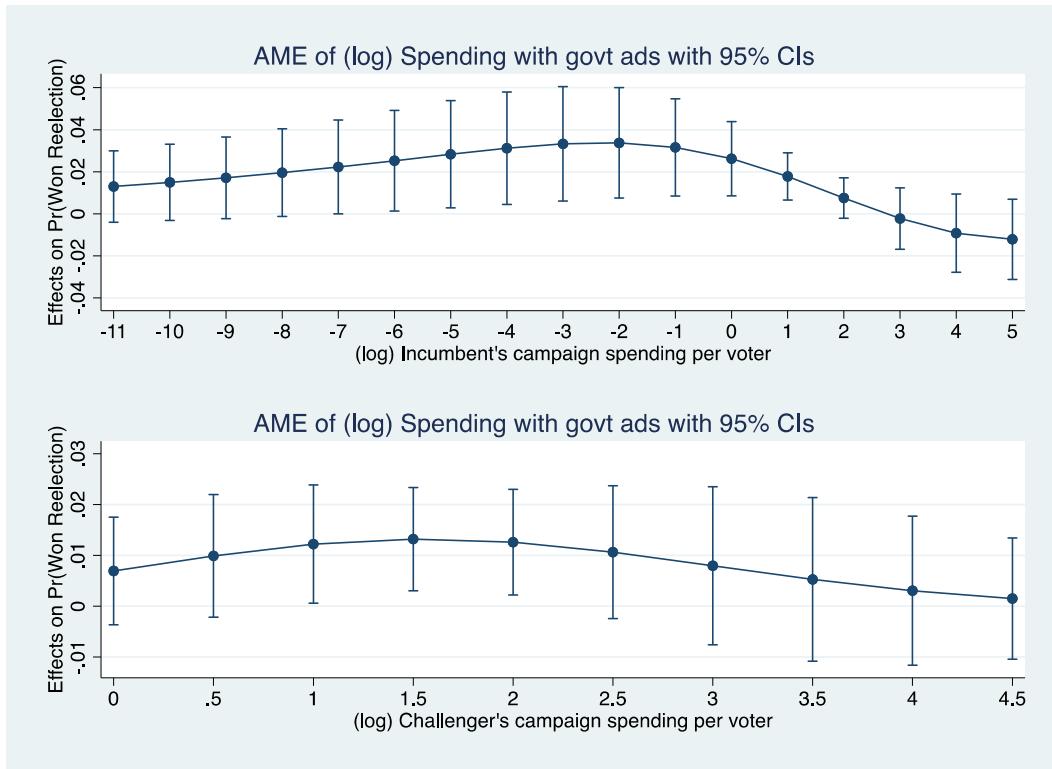


Figure 34 Average Marginal Effects of the Interaction Between (Log) Spending with Government Ads and the (log) Incumbent's Campaign Spending, and (log) Spending with Government and the (log) Challenger's Campaign Spending

The next two figures show the marginal effects for the interaction between government advertising spending and the two campaign spending variables (i.e., incumbent's and challengers' campaign spending), and also the interaction between incumbent's campaign spending and the challengers' campaign spending. Figure 34 displays the result of the first two interactions. The graph on the top indicates that at higher levels of incumbent's campaign spending, the spending with government advertising becomes ineffective at increasing the probability of reelection. Actually, the probability diminishes. The graph on the bottom shows that the effect of the spending with government advertising tends to be stable as the level of challengers' spending increases.

There is a gradual decrease, though, at the probability of reelection as the challengers' campaign spending increases.

Lastly, Figure 35 shows the marginal effects of the interaction between incumbent's campaign spending and challengers' campaign spending.

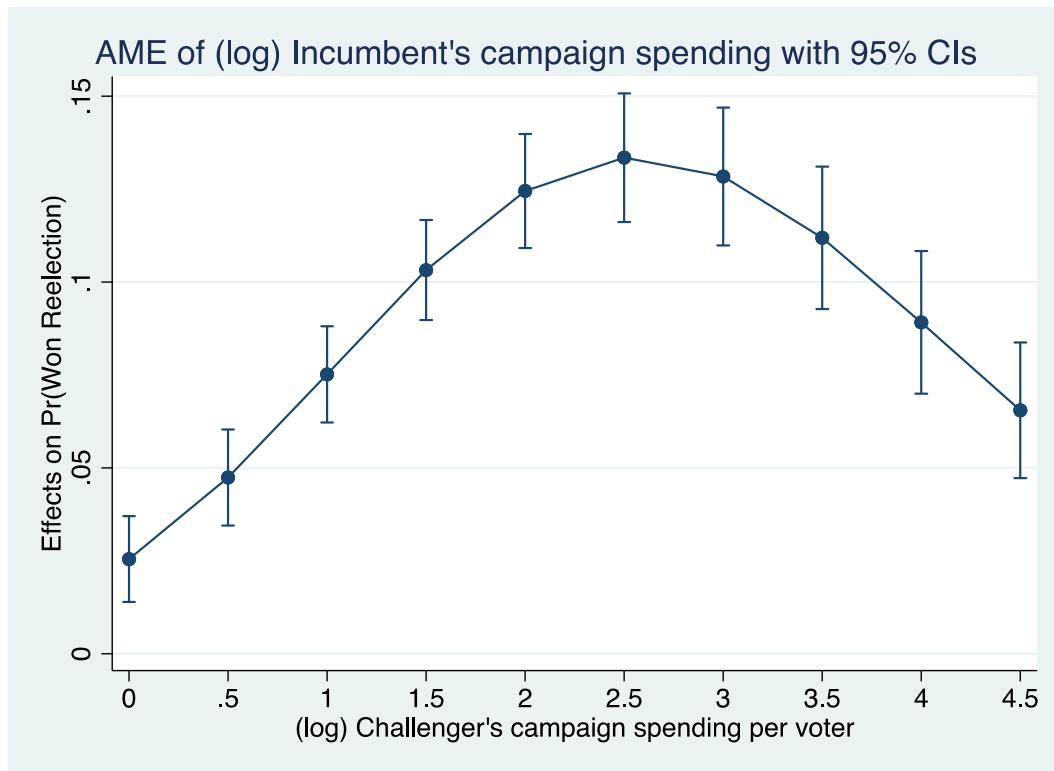


Figure 35 Average Marginal Effects of the Interaction Between (Log) Incumbent's Campaign Spending and the (Log) Challenger's Campaign Spending

The marginal effects follow an inverted U-shaped form, indicating that increases in the incumbent's campaign spending are capable of increasing the probability of reelection at lower-to-intermediate levels of challengers' spending. However, as the challengers' spending becomes more significant (i.e., 2.5 and higher), the probability of the incumbent's reelection decreases

substantially. Thus, challengers need to spend considerable campaign resources to decrease the incumbent's chances of winning reelection.

7.7 Robustness Check: Additional Endogeneity Model

The instrumental models already estimated help us handle endogeneity. However, there is a serious concern that must be taken into account, which is selectivity bias. Incumbents who decide to run for reelection might not constitute a random sample of mayors. Potentially, the decision to run for a further term is endogenous to the prospects of electoral success.

I use a Heckman model to control for this potential selection bias. This system of two equations (selection and outcome) addresses the threat of bias in the estimates generated by systematic differences in incumbents who decided to run for reelection versus incumbents who decided not to run for reelection. In the selection equation, I assume that the decision to run for reelection is the result of the mediums of communication available in the municipality (i.e., the same variables that were used as instruments in the RE-2SGLS models), plus the municipality's GDP per capita.

The results for the Heckman probit model are reported in Table 47. The sample includes 16,516 elections, in 8,871 of which the incumbent did not stand for reelection. The table show the selection equation and the outcome equation. The dependent variable is the reelection of the incumbent mayor. The independent variables in the model are the same included in the previous regression models. These models do not include interaction terms.

Table 47 Heckman Probit Selection Model: Probability of Reelection

	Heckman model	
	Coef.	P> z
(log) Spending with govt ads per voter	0.0307** (0.0125)	0.014
(log) Incumbent's campaign spending per voter	0.263*** (0.0296)	0.000
(log) Challengers' campaign spending per voter	-0.591*** (0.0552)	0.000
Number of candidates for mayor	-0.0398** (0.0160)	0.013
Mayor's party aligned with the governor	0.0266 (0.0329)	0.419
Municipality's ideology score	-0.0746 (0.114)	0.514
Municipal Dalton's Political Polarization Index	-0.0304 (0.0206)	0.139
Runoff election	0.317* (0.166)	0.056
(log) Municipal GDP per capita	0.0595* (0.0321)	0.064
(log) Bolsa Família's transfers per family	0.0101 (0.0320)	0.752
Municipal Human Development Index	0.105 (0.433)	0.808
(log) Population	-0.0781*** (0.0201)	0.000
Percent of urban population	0.188** (0.0884)	0.033
(log) Population density	0.0390** (0.0176)	0.026
Constant	1.5196*** (0.4591)	
Selection equation DV: ran for reelection		
FM radio	-0.0343 (0.0211)	0.105
TV generating station	0.0829*** (0.0317)	0.009
Internet	-0.0114	0.575

		(0.0204)
(log) Municipal GDP per capita	-0.0305**	0.029
	(0.0140)	
Constant	0.1983	0.120
	(0.1277)	
Dummies for state	Yes	
Dummies for year	Yes	
Rho	-0.6504	
Wald test of indep. eqns. (Rho = 0): $\chi^2(1)$	9.06	
Wald test of indep. eqns. Prob > χ^2	0.002	
Wald χ^2	143.39	
Log pseudolikelihood	-15805.62	
N	16,516	
N (selected)	7,645	
N (non-selected)	8,871	

Robust standard errors in parentheses

*p<0.10 **p<0.05 ***p<0.01

The Wald test of independent equations conclusively rejects the null hypothesis with an estimated Rho of -0.65 between the two equation errors, indicating that ignoring the selection into running for reelection would render the estimates biased and inconsistent.

Concerning the main results, the table's results corroborate the results from the panel random effects models for incumbent's reelection. The data show that higher spending with government advertising does increase the probability of reelection. In the same way, the coefficient for incumbent's campaign spending is positive and statistically significant. The coefficient for challengers' campaign spending is negative and statistically significant, indicating that the probability of reelection decreases as the challengers' spending increases. The number of candidates running for mayor is a meaningful political variable. As in previous models, higher number of candidates running decreases the incumbent's reelection chances. Runoff election is positive and statistically significant at p < .10, indicating that the incumbent mayor tends to have a higher chance of reelection in municipalities that hold runoff elections. Among the socio-

economic variables, it is worth noting that the coefficient for municipal GDP per capita is positive and statistically significant. In all, the Heckman model confirms the positive impact of government advertising on the incumbent's chances of reelection.

In general, the Heckman probit model confirmed the main results from the random effects models. Spending with government advertising affects the reelection chances of the mayor. Further, the incumbent's campaign spending and the challengers' campaign spending also matter. Both affect the probability of reelection. The first increases the chances of reelection, whereas the latter decreases it. As in previous models, the competitive conditions of the municipalities are also relevant predictors of a mayor's reelection chances.

7.8 Conclusion

Does government advertising impact electoral outcomes? If so, how does the impact of government advertising stand in comparison to campaign spending by incumbents and challengers? In this chapter, I used data from more than 5,570 Brazilian municipalities to evaluate the impact of government advertising and campaign spending on the incumbent mayor's vote share, the electoral turnout for mayor, and the probability of the mayor's reelection. This analysis is extremely important for it allows us to know the impact of government advertising at an important level of government of the Brazilian political system, the local level of mayors. The occupants of this office command important budgetary resources and exert an important political role by connecting voters to higher level political candidates (i.e., candidates for state and federal deputy, governor, and senator).

Theoretically, I argued that mayors spend with government advertising with the goals of building their reputations before the election and to signal effort to voters before the next election starts. Government advertising works by helping voters build a view of the incumbent, and such view is formed cumulatively over the course of an incumbent's term. The information provided by government advertising consists in descriptions of accomplishments, problems solved, and services provided to the citizenry. Campaign spending, on the other hand, conveys electorally relevant information to voters in the short term, during the electoral period. It aims at affecting the voters' view of the candidate not cumulatively, but at a specific point in time, during the campaign period. As a result, we can expect government advertising and campaign spending to have different effects on voters. Government advertising may complement the incumbent's campaign spending, but it does not replace it. It was expected then that campaign spending should exert a more potent impact on electoral outcomes than government advertising. Based on the theory, a set of hypotheses were derived.

The main results mostly confirmed the hypotheses. Government advertising is positively related to the incumbent's vote share, turnout, and reelection for mayor. Concerning the latter variables, challengers' spending has a potent effect, especially at high levels of spending. Incumbent's spending is also relevant, but to ensure reelection, incumbents must spend a significantly high amount of resources per capita to "secure" reelection from opponents. Hybrid models were estimated to verify whether the results obtained in the RE models hold. The results were mixed. There is no "within" effect of government advertising spending on incumbent's vote share and turnout, even though there are "between" effects for both dependent variables. The hybrid models confirmed the relevant impact of the incumbent's and challenger's campaign spending, as well as the impact of the total campaign spending, on the dependent variables.

To verify the robustness of the main results for the probability of reelection, a Heckman probit model was estimated. It takes into account selectivity bias. The results confirmed that government advertising affects the incumbent's chances of reelection, as well as the two campaign spending variables.

The results of the empirical analyses lead to some relevant implications. First, it is possible to say that the spending with government advertising constitutes a source of incumbent *advantage*. That is, the spending with government advertising does not decrease the incumbent's vote share and her chances of reelection. Instead, government advertising increases both. The substantive impact of government advertising, however, is smaller in comparison with campaign spending by incumbents and challengers. This means that mayors who cannot spend with government advertising may not necessarily be at disadvantage when facing opponents in the next election, as long as the incumbent is capable of raising enough resources to outspend challengers. As the analyses showed, high levels of challengers' spending significantly decrease the incumbents' chances of reelection even when the incumbent spends considerable amounts on her campaign. Another implication is that government advertising deserves to be included in the political calculus of incumbents who decide to run for reelection, especially when competition is expected to be fierce.

What factors do explain the limited impact of government advertising on the electoral outcomes? One factor is the smaller spending per capita with government advertising in comparison to the amount spent with campaigns (as described on Table 41). The second factor, as laid out by the theory, is the recency bias involved in retrospective evaluations of incumbents (Huber, Hill, and Lenz, 2012). Brazilian voters are certainly not immune to the tendency of weighting recent factors more heavily in their judgments of incumbents than more distant ones.

The implication is that government advertising, to be effective, must be massive at the eve of the electoral period. In Brazil, that is not possible by force of the law. The result is that incumbents should expect limited electoral returns from government advertising. There is one caveat, though. Recent changes on campaign finance introduced by TSE resulted in the reduction of the amount of campaign spending by candidates. Based on this alone, and holding spending with government advertising constant, we can expect a higher impact of government advertising in the future, although the impact should still be small in comparison to the amount spent in campaigns by incumbents and challengers.

8.0 Conclusion

8.1 Introduction

The questions that orient this dissertation are four. First, *what is the content of government advertising?* Second, *how does government advertising affect citizens' political attitudes and behavior?* Third, *what factors explain governments' expenditures with advertising?* Fourth, *does government advertising have political impacts on outcomes that matter for incumbent governments, more particularly electoral outcomes?* Except for a few empirical studies (Romero, Magaloni, and Díaz-Cayeros, 2015; Kopp, 2017; Barboza Ribeiro, 2017), the scholarly literature has few answers to these questions. Most scholarship on the topic of government advertising is essayistic, anecdotal, descriptive in nature, and based only on journalistic accounts. Thus, the literature does not offer theoretical and empirically-based evidence to answer these questions. I study Brazil as a case and provide empirical results to answer these questions.

I argue that government advertising is a tool that incumbent officeholders use to influence citizens' perceptions about their performance or competence in office. It conveys governmental action and performance information. Government advertising aims at nurturing the incumbent's personal reputation and signaling effort to voters. Additionally, the effect of government advertising is not supposed to be instantaneous, but cumulative. Continuous inflows of government advertising should build the view among citizens that the government is doing something on their behalf.

Concerning the reasons to invest in government advertising, I draw from the literature on distributive politics and the federal allocation of funds in the United States. I contend that incumbents have incentives to pursue a particularistic strategy in the allocation of advertising funds,

or they can pursue a universalistic criterion in the allocation of advertising funds, that is, to reach the highest number of people. The allocations take into consideration political considerations (i.e., term limits and particularistic incentives), as well as characteristics of the local context (especially socio-demographic factors). Regarding term limits, I state that differently from what would be expected, the need to engage in reputation building makes incumbents more prone to keep investing in government advertising when they are term limited, that is, when they are lame ducks.

The dissertation also provides a classification scheme for government advertising. Based on a content analysis of government advertising from the MG state and its municipalities, I state that the current classifications of political advertising are not adequate to the classification of government advertising. Instead, I say that government advertising can be classified according to the goal conveyed by the ad, which can be basically three: information provision (to publicize or promote a policy), credit claiming (to claim credit for past, present, or future policies), and behavior change (to inform, educate, guide, or alert the viewer to adopt or change a behavior). All three can be used by government to claim credit, but they vary according to their “degree of explicitness”. Credit claiming ads are explicit in their communicated intent of claiming credit, whereas information provision is less explicit and behavior change is the least explicit in credit claiming.

I also explored how government advertising affects individuals’ attitudes and behaviors. To that end, I carried out an online survey experiment on Brazilian respondents. Based on insights from attribution theory (Kelley, 1967) and ad sponsorship literatures, I contend that government advertising differs from political advertising in the degree citizens assess self-interest. Because government advertising would be seen as less self-interested than usual political advertising, it could be expected that government ads would have more source credibility. Another relevant

factor in the capacity of government advertising to affect people's attitudes and behaviors is the interaction of government advertising with the information environment. Such interaction provides important clues that help citizens process the information found in the government advertising. The more congruent the message in government ads with the environment of a citizen, the higher the persuasive capacity of government advertising.

In the sections that follow, I synthesize the empirical findings with respect to the individual research questions and hypotheses. Second, I examine the theoretical and normative implications from the study. I also offer some brief policy implications. Finally, I discuss the study's limitations and recommend possible avenues for future research.

8.2 Empirical Findings

Chapter 4 analyzed the content of government advertising in the MG state and its municipal city halls. The chapter provides descriptive analyses of the ads. The results showed that a majority of ads by the MG state government (59.9 percent) were credit claiming ads, whereas the incidence of credit claiming ads in the state's city halls were even more pronounced: 72 percent of the ads aired by municipal governments in the state were credit claiming ads. Information provision and behavior change came in second and third place in the types of ads aired for both types of governments, respectively.

Chapter 5 promoted the analysis of the impact of government advertising on individuals' attitudes and behaviors. I implemented a between-subjects factorial online survey experiment on 1,800 Brazilian citizens using as experimental scenario a fictitious municipality to verify the impact of government advertising and information on unemployment on four dependent variables.

It was found that government advertising can affect responsibility attribution – in this case, who is responsible for the issue of employment. However, the experiment did not find statistically significant differences of the impact of government advertising versus party advertising on the other dependent variables. Government advertising and party advertising were equally effective at shaping respondents' attitudes and behaviors. The impact of the second experimental factor, news on unemployment, was very relevant. As a result, it is possible to infer that government advertising is more effective when aired in environments where there are little-to-no countervailing messages.

Evidence from the Brazilian state of Minas Gerais in Chapter 6 shows that, differently from what would be expected by the particularistic logic of allocation, governors in the state allocate government advertising funds according to a universalistic logic that consists in reaching the largest number of people with advertising. Moreover, the spending with government advertising increases the visibility of overall spending in the state (i.e., spending with public policies in general per municipality). Respecting the effects of the spending with government advertising, the chapter finds no electoral effects on turnout for the gubernatorial election, nor electoral effects on the incumbent's "personal" vote share and on the governor's incumbent party's vote share.. They also show that government advertising is not a panacea for incumbents desirous of using it as a reelection strategy.

The analyses on Chapter 7 verified the effects of government advertising in Brazilian municipalities in elections for mayor. I advanced a theory standing for the differential impacts of government advertising and campaign spending and argued that, based on the theory, campaign spending should have a higher impact than government advertising. Most hypotheses in the analyses were confirmed. Overall, it was found that government advertising had a statistically significant impact on the incumbent's vote share, turnout, and reelection for mayor.

8.3 Theoretical and Normative Implications

The findings from this dissertation also have theoretical ramifications for social scientists' understanding of campaigns and the conditions of political competition in Brazil.

It is clear from the analyses that government advertising does constitute an important component of Brazilian incumbent's electoral *advantage*. Having the capacity to use it is better electorally for the incumbent than not having the capacity to spend with ads. However, the impact is limited in comparison to what incumbents can accomplish with campaign spending. As with access to community radio stations (Boas and Hidalgo, 2011), government advertising can be a valuable office perk that can complement (but not replace) campaign spending.

Curiously, term limitation is not a barrier for investment in government advertising, as the political science scholarship would suggest. The analyses of the allocation of government advertising spending in the MG state clearly showed that spending with government advertising does not decrease as some would expect. Instead, it is maintained at previous levels or even increases, which suggest that incumbents have concerns about reputation building and the signaling of effort even when they are term limited. As a result, should students of Brazilian politics necessarily see term limited incumbents as weak chief executives? Probably not.

Another finding that deserves attention is that universal allocation predominated over particularistic allocation in the MG context. Does this result suggest that government advertising is used as a spending category whose goal is to "be spent" without any further electoral consideration in mind? In the dissertation, it is suggested that the impact can be indirect by increasing the visibility of overall spending. A possible implication of these results is that the particularistic logic necessitates more resources to be effective. Another possibility is that the conditions of electoral competition must differ. Unfortunately (for the dissertation's purposes), the

electoral results for governor in the state of Minas Gerais were mostly lopsided – i.e., the incumbent governor’s party obtained a very high percentage of the vote in many municipalities.

Respecting the content of government advertising, it is clear that credit claiming advertising prevail over other types of advertising. It is also clear that claiming credit for accomplishments is not the only logic involved in government advertising. Provision of information and change of behavior also important aspects of government advertising. The results show that the electoral logic is not the only one orienting the spending with government advertising. Public policy is also a concern.

Important theoretical implications can also be derived from the individual level analysis of the impact of government advertising. The results in the study found that government advertising is not *more* effective than party advertising. Does this mean that government advertising is generally ineffective? Or does it mean that variation in context make government advertising more effective? In this dissertation, I found that both types of ads are equally effective. Nevertheless, more comparisons are needed between government advertising and political advertising.

Normatively, the study shows that government advertising can be used either to foster or to hinder accountability. If government advertising is framed to convey information that is useful to voters, that is, that help them assess the incumbent’s work, government advertising can help voters in their retrospective evaluations. Conversely, government advertising can be used to hinder accountability. Incumbent chief executives can use advertising to promote some public policies (i.e., those they favor or those in which they have a better performance) at the expense of others in which they have a poorer performance. Another way government advertising can be used to hinder accountability is through its impact on media outlets. As studied by Di Tella and Franceschelli (2011) and others, government advertising can be used to “buy” favorable media coverage

irrespective of the incumbent government's "real" performance. The consequences for democratic accountability are severe in countries where the spending with government advertising is non-negligible, such as Brazil, Argentina, and Mexico.

In practice, it does not seem possible to separate "responsible" from "irresponsible" accountability. More likely, government advertising will never have the potential to be fully accountable to citizens. In other words, it may never be possible to prevent incumbents from using government advertising for narrow electoral purposes at the expense of policy ones. Hence, it is possible to make sure that government advertising is used less for self-promotion and more to advance accountability? Regulation may be required, and it could be quantitative (i.e., the amount spent with government ads) and/or qualitative (i.e., based on the type of message). The goal to be maximized would be the provision of information that benefits accountability and make self-promotion less desirable. To that end, one possibility would be the implementation of limits to the amount that incumbents can spend with government advertising *per capita* rather than *overall* spending, as it is currently the case in Brazil. Another possibility would be to regulate the type of ad that is aired, favoring more information provision and behavior change advertising in contraposition to credit claiming advertising. Both types of measures would necessitate some degree of bureaucratic organization and oversight that is currently small or non-existent. In Brazil, the national and the electoral courts could be put in charge of overseeing such regulations.

8.4 Limitations and Recommendations for Future Research

Despite covering a lot of empirical ground, the present study presents some important limitations worth noting. Some revolve around data. Other limitations emerge from features of the research design chosen, as is the case of the experiment.

The data chosen in this study was local (Brazilian municipalities) and subnational (the state of Minas Gerais) instead of national data. The main reason for such choice was that the national study of the determinants of government advertising in Brazil has already been carried out (Barboza Ribeiro, 2017). The data available was the amount spent with government advertising. Even though these data are valuable and worth using, they have some limitations. One of the key limitations of these data is that they somehow assume equal exposure of all citizens, which is obviously an unrealistic assumption. A better measure would be the “gross average point” (GRP) measure, as it is available for Designated Market Areas (DMAs) in the United States. GRPs are scored to reflect the percentage of the media market that is exposed to an ad¹⁴. However, a similar type of measure is not available for Brazil. Another limitation is the reliance on only one state for the analysis of the allocation of spending and its effects. Even though it has been argued that the state of Minas Gerais reflects somehow Brazil, some may argue that comparisons with more states are needed. The reliance on one country and one state bring another type of limitation: they do not provide enough institutional variation. The electoral rules are the same for the whole country and do not vary by municipality and state. The only important institutional variation is the occurrence or not of a second round. As a result, the present’s study capacity to engage in an institutional analysis of the determinants of government advertising is very limited.

¹⁴ “Buying a hundred GRPs for an ad would mean one exposure for each viewer; a thousand GRPs would mean that viewers would see an ad ten times” (Iyengar, 2015).

Moreover, the dissertation does not study the role that the incumbent's approval rating – a more immediate political concern – may have on his or her decision to spend with government advertising. It is possible that the spending with advertising fluctuates more than the data suggest in response to more immediate factors such as scandals or changes in unemployment rate. Thus, it becomes imperative to study these possibilities. Unfortunately, there was no public opinion data available for MG to test the impact of approval rating. Data on scandals and unemployment rate were also unavailable.

Also, the dissertation could not evaluate the relationship between incumbent governments and the media that receives (or not) government advertising. As reported in many journalistic accounts and in some scholarly work (e.g., Di Tella and Franceschelli, 2011), several governments – particularly in Latin America – use government advertising to obtain favorable media coverage or to induce self-censorship. The available data for Brazil did not allow me to study the possible use of advertising to “buy” favorable media coverage in Brazilian municipalities or in the MG state.

Last but not least, the experiment had limitations that were very difficult to avoid. The fictitious nature of the experimental setup (i.e., artificial polity and political party) constrains our capacity to generalize the findings. In addition, the issue content of the experimental data is limited, that is, it considers only unemployment. It is almost certain that the choice of other types of issues could have led to different results. Nonetheless, the issue chosen is politically relevant and the results obtained in the experiment are robust enough to allow us to conclude that government advertising can be effective at leading to changes in people's political attitudes and behaviors.

The present study advanced our knowledge of government advertising in Brazil. However, much remains to be done. This research raises a number of questions that merit future study. More

data is required to foster these studies. To begin with, more comparative works needs to be done. This, way, we can answer other important research questions. For instance, what is the importance of government advertising in countries where reelection is not allowed, as in Mexico? In this case, is government advertising used for party building efforts? Or to foster progressive career ambitions?

There needs to be more studies on the policy impacts of government advertising. For instance, we do not know if information provision advertising and behavior change advertising “work” (i.e., if they inform or change the behavior of citizens). One possibility would be to study whether healthcare measures such as preventive measures against dengue fever work. Also, the allocation of government advertising funds by national governments deserve more scholarly work. We do not know which national bureaucracies receive more funds for government advertising than others and why, nor do we know the uses of government advertising by different bureaucracies.

Concerning the content of government advertising, we do not know which type of advertising is more effective at changing people’s attitudes and behaviors. Are credit claiming ads more “effective” than information ads and behavior change ads. If they are not, what would be the reason? Relatedly, more comparative effort is needed to collect and process content data of ads from different countries.

In all, this work constitutes the first comprehensive analysis of government advertising in the Brazilian context. It adds to our knowledge of comparative political communication in important ways and improves our understanding of the Brazilian politics at the local level. It is also the first study to use the experimental method to study the effectiveness of government advertising in a comprehensive way. Further, it applies content analysis to study the types of goals of government advertising by using a new classification scheme. In combination with the work

done here, political scientists will be better able to advance our understanding of government advertising in differently settings and to structure a research agenda on the topic for the foreseeable future.

Appendix A Theory



98.1.2 - Governo de Minas Gerais - JO / Jornal do Brasil / RJ - Fev/2008 - Arquivo da Propaganda - 968765

Appendix Figure 1 Example: Information Provision Advertising

Translation: 7th Waters' Forum of Minas Gerais. An open debate surrounded by water from all sides. From March 24 to March 28, it takes place in Belo Horizonte the 7th Waters' Forum of Minas Gerais. An event that will gather committees of river basin, environmental technicians,

biologists, teachers and society. Among the addressed subjects are the preservation, the reuse and reduction of water consumption, climate change and its impact on the watersheds and the Brazilian electrical grid. Once again, Minas advances in the search for solutions to water preservation and the environment.


Arquivo da Propaganda





LOCUTOR: Bom dia, Seu João! Como vai o senhor? **JOÃO:** Agora tudo bem.
LOCUTOR: Ué! Mas o que é que houve? **JOÃO:** O coração deu problema, né!
LOCUTOR: Mas e aí! O socorro chegou rápido? **JOÃO:** Foi rápido. Eu senti mal, minha filha ligou, em menos de 10 minutos o socorro chegou e fui atendido. Estou satisfeito. **LOCUTOR:** Ainda bem, Seu João. O senhor sabia que isso está





acontecendo porque o Governo de Minas continua ampliando o atendimento de urgência nos municípios? Tudo isso pra saúde ficar assim, cada vez mais perto das pessoas. **JOÃO:** Isso é muito bom. **LOCUTOR:** É! Apesar da crise do ano passado, que o mundo inteiro sentiu e o Brasil também, Minas continuou investindo nas redes de urgência e emergência, na recuperação dos hospitais regionais, na criação de novos leitos





de UTI Neonatal e na distribuição de remédios gratuitos. E pode se orgulhar viu! Porque Minas foi o 1º Estado do Brasil a produzir a vacina contra Meningite C. É, Seu João! Família reunida faz um bem danado pro coração, hein! **JOÃO:** É isso aí! **LOCUTOR:** Minas vai bem, quando os mineiros vão bem. Governo de Minas.

(11) 5585-3834 - www.arquivo.com.br

98.1.2 - Governo de Minas Gerais - TV/Record/MG Record - Belo Horizonte/MG - 60'' - 20/06/2012 - T585540

Appendix Figure 2 Example: Credit Claiming Advertising

Translation: **Speaker:** Good day, Mr. João! How are you doing? **João:** Now I'm doing well. **Speaker:** But what did it happen? **João:** My heart presented a problem. **Speaker:** So, did the help arrive fast? **João:** It was fast. I felt bad, my daughter called, and in less than 10 minutes help came and I was treated. Now I'm happy. **Speaker:** That's great, Mr. João. Do you know this is happening because the government of Minas Gerais keeps expanding urgent care service in the municipalities? All for healthcare to be closer to people. **João:** This is very good. **Speaker:** Yeah! Despite the crisis last year, that the whole world felt and Brazil too, Minas kept investing in urgency care, in the recovery of regional hospitals, and in the creation of new rooms in the neonatal IR and in the distribution of free medicine. We can be proud of that! Because Minas is the first state in Brazil to produce vaccine against Meningitis C. Yeah, Mr João. Family gathered is very good for the heart. **João:** That's it. **Speaker:** Minas goes well when mineiros go well. Minas' government.



Appendix Figure 3 Example: Behavior Change Advertising

Translation: Respect others and the road sign. Never park in forbidden places. The street belongs to all.

Appendix B Content Analysis

Appendix B.1 Questionnaire

var2. In your judgment, is the primary purpose of the ad to promote a policy or government actions, to claim credit for accomplishments, or to inform and alert the population to adopt or change a behavior?

1. To publicize or promote a policy, event, or government action
 2. To claim credit for past or future policy measures and accomplishments
 3. To inform, educate, guide, or alert the viewer to adopt or change behavior
88. DK
99. N/A

var3. Does the ad mention or picture specific examples of services, works, or improvements (e.g., a new bridge, a service being provided, etc.)?

1. No
2. Yes
88. DK

var4. (If “Yes” to var3). How many examples?

1. One
2. Two
3. Three
4. More than three
88. DK
99. N/A

var5. What is the time horizon used in the ad?

1. Past
2. A mix of past and present

- 3. Present
 - 4. A mix of present and future
 - 5. Future
88. DK
99. N/A

var6. Does the ad mention the amount of money spent in the provision of a service or improvement?

- 1. No
 - 2. Yes
88. DK

var7. Does the ad show supporting sources of evidence to bolster various claims? Select all that apply.

- 1. No
 - 2. Yes, personal testimony from individual(s)
 - 3. Yes, news' headlines
 - 4. Yes, statistical information
 - 5. Other
88. DK
99. N/A

var8. Is a policy with a specific name mentioned or pictured in the ad? (e.g., Bolsa Família, Minha Casa Minha Vida, etc.)

- 1. No
 - 2. Yes
88. DK

var9. Does the ad sponsor or endorse some third-party initiative?

1. No 2. Yes 88. DK

var10. [For video ads only] Who speaks to the audience in the ad?

1. Supporting actor(s) 2. Voiceover/announcer 3. Nobody 88. DK

var11. Does the ad feature a celebrity?

1. No 2. Yes 88. DK

var12. (Group targeting). Aside from a narrator or central figure (who is or is not shown), who else figures prominently in the ad, in image or words? Select all that apply.

Citizens/People

Children

Adolescents

Elderly

Workers

Teachers

Public servants

Parents/families

Handicapped

Law enforcement

Women

Doctors/medical personnel/pharmacists

Celebrities

Businessmen

Farmers

Other (please specify)

None

88. DK

var13. Ad themes or issues:

Economic policy

Minimum wage

Farming and cattle raising

Business

Union

Employment/jobs

Poverty

Trade

Economy (generic reference)

Social issues

Abortion

Homosexuality/LGBT rights

Moral/Family/Religious values

Tobacco

Affirmative action

Sexually transmitted diseases

Race relations/Civil rights

Human rights

Women

Gender

Law and order

Crime/Violence/Public security

Police

Firefighters

Narcotics/Illegal drugs

Sexual violence

Corruption

Honesty/integrity

Other (please specify)

Social welfare issues

Education/Schools

Childcare

Other child-related issues

Physical handicapping

Health care (not prescription drugs)

Prescription drugs

Social security

Inequality

Welfare

Women's health

Leisure

Social action

Professional training

Sports

Quality of life

Infrastructure

Transit

Public transportation

Infrastructure (e.g., roads, bridges, airports)

Public sanitation (e.g., water and sewage)

Housing

Urbanism (e.g., street lighting, pathways, trash collection)

Energy

Telecommunications

Government

Taxes

Deficit/surplus/budget/debt

Government spending

Government (public administration)

Other

Local issues

Environment

Culture

Tourism

Event/Holiday/Anniversary/Tribute

Other (please specify)

88. DK

Appendix Table 1 Summary of Intercoder Reliability Results (Minas Gerais's State Government's Ads)

Variable	Percent agreement			Cohen's Kappa		
	Coef.	Std. Err.	P> t 	Coef.	Std. Err.	P> t
Ad's goal	0.851	0.036	0.000	0.763	0.056	0.000
Specific examples of improvements	0.914	0.028	0.000	0.699	0.100	0.000
Quantity of improvements	0.904	0.030	0.000	0.677	0.097	0.000
Ad's time horizon	0.776	0.043	0.000	0.649	0.059	0.000
Ad shows supporting sources of evidence	0.829	0.039	0.000	0.657	0.078	0.000
Ad mentions or shows image of a public policy with a specific title	0.840	0.038	0.000	0.577	0.096	0.000
Ad supports third-party initiatives	0.883	0.033	0.000	0.365	0.147	0.015
Who communicates with the audience on TV	0.307	0.153	0.045	0.293	0.142	0.042
Ad features a celebrity	0.978	0.015	0.000	0.655	0.228	0.005

Ad's issue: Economy	0.840	0.038	0.000	0.548	0.095	0.000
Ad's issue: Social issues	0.957	0.020	0.000	0.643	0.166	0.000
Ad's issue: Law and order	0.904	0.030	0.000	0.674	0.098	0.000
Ad's issue: Social welfare	0.797	0.041	0.000	0.603	0.077	0.000
Ad's issue: Infrastructure	0.893	0.032	0.000	0.628	0.105	0.000
Ad's issue: Government	0.840	0.038	0.000	0.410	0.116	0.001

Appendix Table 2 Summary of Intercoder Reliability Results (Minas Gerais's City Halls' Ads)

Variable	Percent agreement			Cohen's Kappa		
	Coef.	Std. Err.	P> t 	Coef.	Std. Err.	P> t
Ad's goal	0.815	0.038	0.000	0.647	0.071	0.000
Specific examples of improvements	0.835	0.036	0.000	0.636	0.077	0.000
Quantity of improvements	0.805	0.039	0.000	0.622	0.073	0.000
Ad's time horizon	0.611	0.048	0.000	0.440	0.060	0.000
Ad shows supporting sources of evidence	0.815	0.038	0.000	0.626	0.077	0.000
Ad mentions or shows image of a public policy with a specific title	0.767	0.041	0.000	0.438	0.087	0.000
Ad supports third-party initiatives	0.893	0.030	0.000	0.363	0.151	0.018
Who communicates with the audience on TV	0.689	0.045	0.000	0.364	0.057	0.000
Ad features a celebrity	0.990	0.009	0.000	0.883	0.115	0.000
Ad's issue: Economy	0.902	0.029	0.000	0.408	0.144	0.005
Ad's issue: Social issues	0.990	0.009	0.000	0.000	1.000	0.000
Ad's issue: Law and order	0.961	0.019	0.000	0.648	0.162	0.000
Ad's issue: Social welfare	0.767	0.041	0.000	0.545	0.083	0.000
Ad's issue: Infrastructure	0.796	0.039	0.000	0.593	0.073	0.000
Ad's issue: Government	0.912	0.028	0.000	0.704	0.091	0.000

Appendix C Experiment

Appendix C.1 Experiment's Questionnaire

PRE-TREATMENT SURVEY QUESTIONS

INDEPENDENT VARIABLES:

Gender. (1) male (2) female

Age. What is your year range?

(1) 18 a 24 year

(2) 25 a 29 year

(3) 30 a 39 year

(4) 40 a 49 year

(5) 50 a 59 year

(6) 60 years or more

State. In which state do you live?

Income. What is the family income of your household? Please, consider the combined income of members in the household.

- (1) Until 1 minimum wage (until R\$ 998,00)
 - (2) 1 to 2 minimum wages (R\$ 999,00 a R\$ 1.996,00)
 - (3) 2 to 3 minimum wages (R\$ 1.997,00 a R\$ 2.994,00)
 - (4) 3 to 5 minimum wages (R\$ 2.995,00 a R\$ 4.990,00)
 - (5) 5 to 10 minimum wages (R\$ 4.991,00 a R\$ 9.980,00)
 - (6) 10 to 15 minimum wages (R\$ 9.991,00 a R\$ 14.970,00)
 - (7) More than 15 minimum wages (More than de R\$ 14.970,00)
-

Test sound. Which sound did you hear?

- (1) Rain
 - (2) Siren
 - (3) Bark
 - (4) Car horn
-

Turnout. Did you vote in the last election?

(1) Yes

(2) No

Education. What is the highest level of schooling you completed?

(1) None

(2) Primary incomplete

(3) Primary complete

(4) Secondary incomplete

(5) Secondary complete

(6) Technical school

(7) University incomplete

(8) University complete

(9) Graduate degree (Doctorate, MA, MBA, Specialization)

Political awareness – Attention to news (media exposure). About how often do you pay attention to the news, whether on TV, the radio, newspapers, or the Internet?

- (1) Daily
 - (2) A few times a week
 - (3) A few times a month
 - (4) Rarely
 - (5) Never
-

Political awareness – Interest in Politics. How much interest do you have in politics? Would you say you are extremely interested, very interested, interested, a little interested, or not at all interested?

- (1) Extremely interested
 - (2) Very interested
 - (3) Interested
 - (4) A little interested
 - (5) Not interested
-

Issue relevance (or involvement). To what degree would you say that the issue of UNEMPLOYMENT has personal relevance to you? To you, the issue of unemployment is extremely relevant, very relevant, relevant, a little relevant, or not at all relevant

(1) Extremely relevant

(2) Very relevant

(3) Relevant

(4) A little relevant

(5) Not relevant

Trap question (paying attention). This is a question to verify your attention to this study. From the options below, select the option “Very important”

(1) Extremely important

(2) Very important

(3) Important

(4) A little important

(5) Not important

Favorite media. Which of the following mediums do you use the most to obtain the news?

(1) TV

(2) Radio

(3) News' websites

(4) Printed newspaper

(5) Printed magazine

(6) Social Media (such as Facebook, Twitter, YouTube, What'sApp, etc.)

(7) Other

Trust in the media. In general, how much trust do you have in the media (such as TV, radio, newspapers, among others) concerning the presentation of news in a fair, thorough, and trustworthy manner? Would you say you have an extreme amount of trust, a lot of trust, a moderate amount of trust, a little trust, or no trust?

(1) Extreme amount of trust

(2) A lot of trust

(3) A moderate amount of trust

(4) A little amount of trust

(5) No trust

Unemployed. What do you currently do?

(1) I am employed or work by myself

(2) I am not working but am looking for work

(3) I am a student

(4) I do domestic chores

(5) I am retired

(6) I am neither working nor looking for work

Party ID 1. Do you currently identify with a political party?

(1) Yes [Continue to Party ID 2]

(2) No

(88) DK

(98) DA

Party ID 2. Which political party do you identify with?

(1) MDB

(2) PSDB

(3) PT

(4) PSL

(5) Democratas

(6) PP

(7) PR

(8) NOVO

(9) REDE

(10) PDT

(11) PCdoB

(12) PSOL

(13) Other

POST-TREATMENT SURVEY QUESTIONS

MANIPULATION CHECKS:

Manipulation check (Ad). Who is the advertiser of the video ad you watched?

(1) The City Hall of Cruzeiro Novo

(2) A political party (PBR)

(3) Cruzeiro Novo's Chamber of Commerce (ACCN)

Manipulation check (News story). Based on the news story you read, what did the story say about the level of unemployment in the city?

-
- (1) That unemployment increased
 - (2) That unemployment decreased
 - (3) News about the Municipal Soccer Championship in Cruzeiro Novo
-

DEPENDENT VARIABLES:

Vote intention for mayor. If the mayor in question were running for reelection, how likely would you be to vote for him: highly likely, likely, unsure, unlikely, or highly unlikely?

- (1) Highly likely
 - (2) Likely
 - (3) Unsure
 - (4) Unlikely
 - (5) Highly unlikely
-

Responsibility attribution. From the following list of entities, who do you think is the most responsible for the situation of employment in Cruzeiro Novo?

- (1) The business' people
- (2) The City Hall of Cruzeiro Novo
- (3) The state government

(4) The Mayor Marcelo Costa

(5) Other

Ad effectiveness. On a scale from 1 to 5 where 1 is “Not at all” and 5 is “Very”, I thought the ad was: (Not at all, A little, Some, A lot, Very)

Fair Important Truthful Convincing Informative Impartial

Mayor’s performance. On a scale from 0 to 100, how much do you approve of the mayor’s job performance? Zero means disapprove strongly, and 100 means approve strongly. Fifty means you do not approve or disapprove. You can use any number between zero and 100.

Appendix C.2 Video Treatment and News Treatment Conditions in Portuguese

Ad spot: Prefeitura de Cruzeiro Novo

A Prefeitura está trabalhando para gerar mais empregos. E tem dado certo. Cruzeiro Novo já atraiu mais de 100 novas empresas e é destaque regional na geração de empregos. No último ano, mais de 10 mil novas vagas foram criadas. A renda média da população aumentou e o potencial de consumo também. Mais trabalho, vida mais digna. Prefeitura de Cruzeiro Novo.

Ad spot: PBR

O PBR está trabalhando para gerar mais empregos. E tem dado certo. Graças ao Prefeito Marcelo Costa, Cruzeiro Novo já atraiu mais de 100 novas empresas e é destaque regional na geração de empregos. No último ano, mais de 10 mil novas vagas foram criadas. A renda média da população aumentou e o potencial de consumo também. Mais trabalho, vida mais digna. PBR.

Ad spot: Campeonato de Futebol de Cruzeiro Novo

Pelo décimo ano consecutivo, a bola irá rolar nos gramados da cidade, mantendo a histórica relação entre o Cruzeirense e o futebol. Partidas de tirar o fôlego! Cerca de 20 equipes disputarão o primeiro lugar nas colocações. Uma grande festa do futebol. Parabéns a todos os atletas e que comece o próximo campeonato! Apoio: Associação Comercial de Cruzeiro Novo

Appendix C.3 News Treatment Condition

Desemprego em Cruzeiro Novo [caiu/aumentou] no último semestre, aponta levantamento

Dados divulgados ontem pela Associação Comercial, Industrial e de Serviços de Cruzeiro Novo (ACISCN) relativos ao último semestre mostram que o nível do desemprego no município [diminuiu/aumentou] e está em [6%/12%]. No ranking da região do estado, o município foi um dos que mais [gerou/perdeu] empregos.

O levantamento também mostra que, ao todo, o número de contratações foi [superior/inferior] ao de demissões no último semestre. Os primeiros seis meses do ano registraram uma [melhora/piora] no saldo de empregos criados para o período nos últimos três anos, com 13428 vagas de trabalho com carteira assinada [criadas/fechadas]. Este número representa [um ganho/uma perda] de 34% em relação ao último período levantado. Em [crescimento/queda], a indústria foi responsável pela maioria das [contratações/demissões] no município, com 5380 vagas [a mais/a menos], seguida pela agricultura com [a criação/o fechamento] de 4297 vagas. O setor de comércio, serviços e construção civil também [aumentou/reduziu] as contratações e registrou [a criação/o fechamento] de 3900 vagas.

Assim, os dados também apontam que a economia vem dando sinais de [melhora/piora] no município. Para Márcia Lisboa Teixeira, presidente da Câmara de Dirigentes Lojistas (CDL) de Cruzeiro Novo, são vários os fatores que contribuem para o aumento das [contratações/demissões]. O [desenvolvimento/recuo] do setor primário e sua ligação com o setor de serviços é um deles. “[Com/Sem] emprego e renda, as pessoas [vão/não vão] comprar. Temos um setor primário em forte [expansão/retração], no qual gira [muito/pouco] dinheiro. Isso também contribui para [o crescimento/a redução] no comércio”, observa.

Appendix C.3.1 News Treatment Control Conditions in Portuguese

[Grupo de controle]. Campeonato Municipal começa com muitos gols

Começou no último final de semana a 1ª rodada do Campeonato Municipal de Futebol de Cruzeiro Novo. No total, 20 times participam da competição. Os jogos da 1ª rodada aconteceram no Centro Esportivo Antônio Mônaco, no Estádio Jardim das Rosas e no “Cruzeirão”.

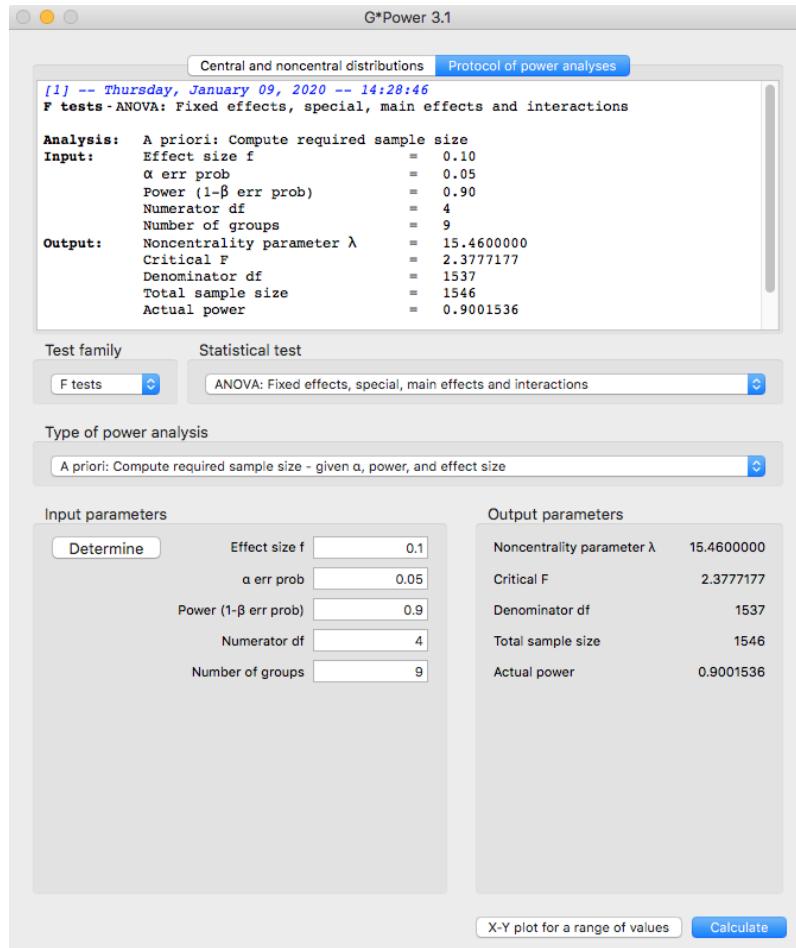
O início da rodada foi marcado por muitos gols. O Atlético Alvorada venceu o Cohab por 4 a 1 com gols de Diguinho e André Macedo. Já no estádio Jardim das Rosas, o SET/Lagoa derrotou o Alvorada por 3 a 0, sendo dois gols de pênalti de Roberto Alves. Fechando a rodada, o Cruzeirense venceu o São Lucas por 3 a 2 com três gols de Newton Jordão.

Appendix C.4 Principal Component Factors Analysis of Ad's Effectiveness

Appendix Table 3 Principal-Component Factor Analysis of Ad's Effectiveness Items

Retained factors		Variance	Proportion	Cumulative
	1	3.582	0.597	0.597
Rotated factor loadings (pattern matrix) and unique variances				
Items	Factor 1		Uniqueness	
Fair	0.833		0.305	
Important	0.784		0.383	
Truthful	0.840		0.293	
Convincing	0.793		0.37	
Informative	0.781		0.388	
Impartial	0.570		0.675	
<u>$\chi^2(15) = 4700.85$, Prob > $\chi^2 = .000$</u>				

Appendix C.5 Power Analysis



Appendix Figure 4 Experiment's Power Analysis

Appendix Table 4 Comparison of the Experimental Sample's Distributions of Region, Gender, and Education in Comparison to the Electoral Tribunal Court's (TSE) Data

Variable	Item	TSE (%)	Experiment (%)
Region	Midwest	7.30	8.22
	North	7.83	5.00
	Northeast	26.63	22.22
	South	14.53	15.39
	Southeast	43.38	49.17
Gender	Man	47.50	49.78
	Woman	52.50	50.22
Education	Illiterate (None)	4.40	0.06
	Primary incomplete	25.80	1.83
	Primary complete	6.80	3.33
	Secondary incomplete	16.80	4.94
	Secondary complete	22.70	30.06
	College incomplete	4.90	19.39
	College complete	9.10	20.78

Appendix Table 5 Panel Participants

	Panel %	N
Age		
18 - 24	24.94	449
25 - 29	14.11	254
30 - 39	22.33	402
40 - 49	20.17	363
50 - 59	13.44	242
60+	5.00	90
Gender		
Male	49.78	896
Female	50.22	904
Education		
None	0.06	1
Primary incomplete	1.83	33
Primary complete	3.33	60
Secondary incomplete	4.94	89
Secondary complete	30.06	541
Technical school	7.00	126
University incomplete	19.39	349

University complete	20.78	374
Graduate degree	12.61	227
Family income		
Until 1 minimum wage	15.22	274
1 - 2 minimum wage	24.78	446
2 - 3 minimum wage	17.89	322
3 - 5 minimum wage	19.39	349
5 - 10 minimum wage	15.17	273
10 - 15 minimum wage	5.33	96
15+	2.22	40

Appendix C.6 Balance Tables

Appendix Table 6 Balance Table for Treatment: Video Ad

	(1) Control ad	(2) City Hall ad	(3) Party ad	t-test Difference	t-test Difference	t-test Difference
Variable	Mean/SE	Mean/SE	Mean/SE	(1)-(2)	(1)-(3)	(2)-(3)
Age group	2.987 [0.064]	2.985 [0.062]	2.970 [0.061]	0.002	0.017	0.015
Gender	0.495 [0.020]	0.498 [0.020]	0.513 [0.020]	-0.003	-0.018	-0.015
Education	6.323 [0.070]	6.417 [0.074]	6.497 [0.072]	-0.093	-0.173*	-0.080
Family income	3.178 [0.060]	3.133 [0.064]	3.270 [0.068]	0.045	-0.092	-0.137
Looking for job	0.140 [0.014]	0.155 [0.015]	0.145 [0.014]	-0.015	-0.005	0.010
Turnout	0.935 [0.010]	0.917 [0.011]	0.933 [0.010]	0.018	0.002	-0.017
Media - TV	0.290 [0.019]	0.283 [0.018]	0.285 [0.018]	0.007	0.005	-0.002
Attention to news	4.677 [0.028]	4.608 [0.030]	4.677 [0.028]	0.068*	0.000	-0.068*
Political interest	3.142 [0.042]	3.115 [0.044]	3.202 [0.046]	0.027	-0.060	-0.087
Issue involvement: unemployment	4.417 [0.033]	4.433 [0.032]	4.473 [0.030]	-0.017	-0.057	-0.040
Trust on the media	3.117	3.102	3.175	0.015	-0.058	-0.073

	[0.031]	[0.031]	[0.034]			
Party preference	0.330	0.320	0.358	0.010	-0.028	-0.038
	[0.019]	[0.019]	[0.020]			
N	600	600	600			
F-test of joint significance (F-stat)				0.523	0.488	0.932
F-test, number of observations				1200	1200	1200

The value displayed for t-tests are the differences in the means across the groups.

The value displayed for F-tests are the F-statistics.

***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Appendix Table 7 Balance Table for Treatment: News on Unemployment

Variable	(1) Control news	(2) Unempl. increase	(3) Unempl. decrease	t-test	t-test	t-test
	Mean/SE	Mean/SE	Mean/SE	Difference	(1)-(2)	(1)-(3)
Age group	2.993 [0.062]	2.907 [0.062]	3.042 [0.063]	0.087	-0.048	-0.135
Gender	0.495 [0.020]	0.437 [0.020]	0.575 [0.020]	0.058**	-0.080***	-0.138***
Education	6.475 [0.070]	6.382 [0.072]	6.380 [0.073]	0.093	0.095	0.002
Family income	3.332 [0.066]	3.125 [0.061]	3.125 [0.065]	0.207**	0.207**	0.000
Looking for job	0.137 [0.014]	0.153 [0.015]	0.150 [0.015]	-0.017	-0.013	0.003
Turnout	0.940 [0.010]	0.922 [0.011]	0.923 [0.011]	0.018	0.017	-0.002
Media - TV	0.283 [0.018]	0.257 [0.018]	0.318 [0.019]	0.027	-0.035	-0.062**
Attention to news	4.673 [0.028]	4.653 [0.028]	4.635 [0.030]	0.020	0.038	0.018
Political interest	3.192 [0.045]	3.153 [0.045]	3.113 [0.043]	0.038	0.078	0.040
Issue involvement: unemployment	4.398 [0.033]	4.458 [0.031]	4.467 [0.031]	-0.060	-0.068	-0.008

Trust on the media	3.080 [0.033]	3.168 [0.031]	3.145 [0.032]	-0.088* 0.012	-0.065 0.010	0.023 -0.002
Party preference	0.343 [0.019]	0.332 [0.019]	0.333 [0.019]			
N	600	600	600			
F-test of joint significance (F-stat)				1.477	1.382	0.971
F-test, number of observations				1200	1200	1200

The value displayed for t-tests are the differences in the means across the groups.

The value displayed for F-tests are the F-statistics.

***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Appendix C.7 Regression Results

Appendix Table 8 Determinants of Attribution to Responsibility for Unemployment to City Hall and the City's Mayor (Additional Independent Variables)

	Attribution to City Hall				Attribution to Mayor			
	Odds ratio	Std. Err.	P> z	% change in odds	Odds ratio	Std. Err.	P> z	% change in odds
Control ad x								
Unempl. increased	0.516**	0.113	0.002	-48.4	0.854	0.229	0.556	-14.6
Control ad x								
Unempl. decreased	0.928	0.191	0.716	-7.2	1.409	0.352	0.171	40.9
City Hall ad x								
Control news	1.835**	0.375	0.003	83.5	1.374	0.346	0.207	37.4
City Hall ad x								
Unempl. increased	1.194	0.244	0.386	19.4	0.460*	0.143	0.013	-54.0
City Hall ad x								
Unempl. decreased	1.728**	0.355	0.008	72.8	1.505	0.374	0.099	50.5
Party ad x Control news	0.706	0.148	0.097	-29.4	3.144***	0.746	0.000	214.4
Party ad x Unempl. increased	0.667	0.141	0.055	-33.3	1.819*	0.445	0.014	81.9
Party ad x Unempl. decreased	0.705	0.148	0.096	-29.5	3.922***	0.926	0.000	292.2
Age group	0.901**	0.031	0.003	-9.9	1.136**	0.044	0.001	13.6
Gender	0.941	0.097	0.557	-5.9	1.252	0.147	0.056	25.2
Education	1.008	0.033	0.808	0.8	0.860***	0.032	0.000	-14.0
Family income	0.972	0.038	0.478	-2.8	1.002	0.045	0.956	0.2
Looking for job	0.794	0.118	0.120	-20.6	1.039	0.172	0.815	3.9
Turnout	0.880	0.171	0.513	-12.0	1.251	0.288	0.330	25.1

Media - TV	1.290*	0.147	0.025	29.0	0.763*	0.100	0.040	-23.7
Attention to the news	1.190*	0.095	0.031	19.0	.843*	0.070	0.041	-15.7
Political interest	1.015	0.057	0.794	1.5	0.996	0.063	0.953	-0.4
Issue involvement: unemployment	0.995	0.066	0.943	-0.5	1.020	0.077	0.797	2.0
Trust in the media	1.042	0.068	0.534	4.2	1.080	0.079	0.298	8.0
Party preference	1.077	0.119	0.504	7.7	0.993	0.126	0.957	-0.7
N	1800				1800			
Log Likelihood	-1165.04				-954.31			
LR chi2(17)	91.94				150.18			
Prob > chi2	0.000				0.000			
McFadden R2	0.038				0.072			

* p<0.05, ** p<0.01, *** p<0.001

Appendix Table 9 Impact of Video Ads and News on the Likelihood of Supporting the Mayor's Reelection

(Additional Independent Variables)

	Odds ratio	Std. Err.	P> z	% change in odds
Control ad x Unempl. increased	0.431***	0.079	0.000	-56.9
Control ad x Unempl. decreased	2.554***	0.475	0.000	155.4
City Hall ad x Control news	4.217***	0.777	0.000	321.7
City Hall ad x Unempl. increased	0.675*	0.125	0.035	-32.5
City Hall ad x Unempl. decreased	6.931***	1.304	0.000	593.1
Party ad x Control news	4.202***	0.775	0.000	320.2
Party ad x Unempl. increased	0.810	0.151	0.260	-19.0
Party ad x Unempl. decreased	5.505***	1.027	0.000	450.5
Age group	1.020	0.030	0.507	2.0
Gender	1.038	0.093	0.681	3.8
Education	0.950	0.027	0.079	-5.0
Family income	0.981	0.033	0.571	-1.9
Looking for job	0.897	0.115	0.394	-10.3
Turnout	1.101	0.188	0.572	10.1
Media - TV	1.039	0.104	0.703	3.9
Attention to the news	0.987	0.066	0.850	-1.3
Political interest	1.296***	0.064	0.000	29.6
Issue involvement: unemployment	1.130*	0.066	0.037	13.0
Trust in the media	1.447***	0.087	0.000	44.7
Party preference	1.014	0.096	0.888	1.4
N	1800			

Log Likelihood	-2465.53
LR chi2(10)	546.99
Prob > chi2	0.000
McFadden R2	0.099

* p<0.05, ** p<0.01, *** p<0.001

Appendix Table 10 Impact of Treatment, Interactions, and Additional Variables on Ad's Sponsor's

Credibility, Ad's Effectiveness, and Mayor's Approval

Variable	(1) Ad's sponsor's credibility	(2) Ad's effectiveness	(3) Mayor's approval
Control ad x Unempl. increased	-0.034 (0.082)	-0.023 (0.082)	-10.800*** (2.225)
Control ad x Unempl. decreased	0.213** (0.081)	0.143 (0.082)	8.548*** (2.218)
City Hall ad x Control news	0.480*** (0.081)	0.396*** (0.082)	15.100*** (2.219)
City Hall ad x Unempl. increased	0.088 (0.082)	0.001 (0.082)	-5.822** (2.224)
City Hall ad x Unempl. decreased	0.556*** (0.082)	0.496*** (0.082)	18.860*** (2.228)
Party ad x Control news	0.265*** (0.081)	0.320*** (0.082)	12.550*** (2.218)
Party ad x Unempl. increased	0.032 (0.081)	-0.019 (0.082)	-2.618 (2.219)
Party ad x Unempl. decreased	0.496*** (0.081)	0.457*** (0.082)	16.870*** (2.219)
Age group	-0.026 (0.013)	-0.009 (0.013)	0.592 (0.369)
Gender	0.060 (0.040)	0.056 (0.040)	1.109 (1.095)
Education	-0.057*** (0.013)	-0.085*** (0.013)	-1.454*** (0.354)
Family income	-0.004 (0.015)	-0.005 (0.015)	0.854* (0.417)
Looking for job	-0.044 (0.057)	-0.065 (0.057)	0.261 (1.547)
Turnout	0.011 (0.076)	0.119 (0.076)	4.424* (2.065)
Media - TV	-0.039 (0.044)	-0.015 (0.044)	1.559 (1.211)
Attention to the news	0.057 (0.030)	0.055 (0.030)	0.744 (0.816)
Political interest	0.052* (0.021)	0.036 (0.021)	1.627** (0.592)

Issue involvement: unemployment	0.058*	0.042	0.563
	(0.025)	(0.026)	(0.701)
Trust in the media	0.193***	0.208***	4.202***
	(0.025)	(0.025)	(0.694)
Party preference	0.052	0.055	0.713
	(0.043)	(0.043)	(1.170)
N	1800	1800	1800
Adj. R2	.117	.125	.210
F	12.89	13.84	24.92
Prob > F	.000	.000	.000

Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Appendix D Hybrid Models (Full Results) – Minas Gerais

Appendix Table 11 Hybrid Models: The Effects of Government Advertising and Other Covariates on the Incumbent's Party Vote Share for Governor, the Incumbent's Party's Personal Vote Share, and Municipal Turnout for the Gubernatorial Election (2006-2010-2014)

	(1)	(2)	(3)
(log) Ad spending per voter (within)	-0.0066 (0.0065)	-0.0090 (0.0065)	-0.0005 (0.0017)
(log) Ad spending per voter (mean)	0.0068 (0.0092)	0.0573** (0.0239)	-0.0032 (0.0031)
(log) Number of voters (within)	-0.0057 (0.0405)	0.0289*** (0.0098)	-0.3006*** (0.0134)
(log) Number of voters (mean)	-0.0865** (0.0430)	0.3421*** (0.0826)	-0.0963*** (0.0171)
(log) Municipal GDP per capita (within)	0.0211** (0.0089)	0.0008 (0.0032)	0.0074*** (0.0023)
(log) Municipal GDP per capita (mean)	-0.0061 (0.0091)	-0.0043 (0.0144)	0.0037 (0.0043)
(log) Municipal per capita income formal sector (within)	-0.0213** (0.0084)	-0.0023 (0.0019)	0.0034 (0.0022)
(log) Municipal per capita income formal sector (mean)	0.0179 (0.0110)	0.0085 (0.0132)	0.0070 (0.0044)
Co-partisan mayor (within)	0.0005 (0.0057)	0.0000 (0.0019)	0.0009 (0.0013)
Co-partisan mayor (mean)	-0.0169 (0.0123)	0.0230* (0.0135)	-0.0011 (0.0049)
Mayor's party aligned with the federal government (within)	0.0046 (0.0044)	0.0012 (0.0013)	0.0020** (0.0010)
Mayor's party aligned with the federal government (mean)	-0.0038 (0.0103)	0.0250* (0.0135)	0.0024 (0.0037)
Governor's travels (within)	0.0001** (0.0000)	0.0029*** (0.0001)	0.0000** (0.0000)
Governor's travels (mean)	0.0002** (0.0001)	0.0340*** (0.0005)	0.0000** (0.0000)
Municipality's ideology score (within)	0.1380*** (0.0198)	0.0229*** (0.0076)	0.0095** (0.0046)

Municipality's ideology score (mean)	0.3302*** (0.0290)	-0.0288 (0.0347)	0.0274** (0.0118)
Municipal Dalton's Political Polarization Index (within)	-0.0085** (0.0034)	-0.0018** (0.0008)	0.0011 (0.0007)
Municipal Dalton's Political Polarization Index (mean)	-0.0467*** (0.0057)	-0.0045 (0.0090)	-0.0012 (0.0020)
(log) Bolsa Família's transfers per family (within)	-0.0481** (0.0190)	0.0051 (0.0045)	-0.0034 (0.0045)
(log) Bolsa Família's transfers per family (mean)	-0.1865*** (0.0348)	0.1393** (0.0701)	-0.0347** (0.0142)
(log) Homicide rate (within)	0.0194 (0.0182)	-0.0027 (0.0046)	-0.0018 (0.0043)
(log) Homicide rate (mean)	-0.0471 (0.0355)	0.2125*** (0.0767)	-0.01597 (0.0151)
Mortality rate (standardized) (within)	0.0010 (0.0019)	0.0002 (0.0003)	0.0007 (0.0004)
Mortality rate (standardized) (mean)	-0.0016 (0.0044)	-0.0208*** (0.0066)	0.0031* (0.0015)
(log) Dependency ratio (within)	0.3030*** (0.0326)	0.0446*** (0.0117)	0.0088 (0.0075)
(log) Dependency ratio (mean)	0.0755 (0.0725)	-0.4122*** (0.1294)	-0.3590*** (0.0302)
Municipal Human Development Index (within)	-0.6761*** (0.1719)	-0.0781 (0.0731)	0.0386 (0.0425)
Municipal Human Development Index (mean)	0.2569* (0.1390)	-0.0895 (0.1416)	0.1251** (0.0538)
(log) Population (within)	-0.7554* (0.3939)	-0.1354 (0.0883)	-0.0374 (0.1195)
(log) Population (mean)	0.0562 (0.0400)	-0.2372*** (0.0695)	0.0685*** (0.0162)
Percent of urban population (within)	0.0664 (0.0570)	0.0293* (0.0158)	0.0268 (0.0182)
Percent of urban population (mean)	-0.0741*** (0.0230)	-0.0452** (0.0227)	-0.0200** (0.0097)
Percent of seniors (within)	-1.0712*** (0.1963)	-0.1158* (0.0612)	0.4641*** (0.0504)
Percent of seniors (mean)	0.0747 (0.2926)	0.3581 (0.3841)	0.5353*** (0.1199)
(log) Population density (within)	0.7336* (0.4229)	0.1503 (0.1016)	0.1437 (0.1285)

(log) Population density	0.0168***	0.0323***	0.0177***
(mean)	(0.0216)	(0.0106)	(0.0014)
Constant	1.9216*** (0.2071)	-1.7155*** (0.5378)	0.6464 (0.0863)
Dummy for governor	Yes	Yes	Yes
Dummies for year	Yes	Yes	Yes
χ^2	13359.85	249407.24	3400.59
P > χ^2	0.000	0.000	0.000
R2 (within)	0.863	0.320	0.546
R2 (between)	0.321	0.947	0.687
R2 (overall)	0.715	0.945	0.671
N	2,559	2,559	2,559

Robust standard errors in parentheses

Dep. variable of Model 1: incumbent's party vote share for governor; Dep. variable of

Model 2: incumbent's party's personal vote share; Dep. variable of Model 3:

municipal turnout for the gubernatorial election.

*p<0.10 **p<0.05 ***p<0.01

Appendix E Hybrid Models (Full Results) – Brazilian Municipalities

Appendix Table 12 Hybrid Model: The Effects of Government Advertising Spending and Other Covariates on Incumbent's Vote Share

	(1)
(log) Spending with government ads per voter (within)	0.0006 (0.0025)
(log) Spending with government ads per voter (mean)	0.0032** (0.0015)
(log) Incumbent's campaign spending per voter (within)	0.0264*** (0.0028)
(log) Incumbent's campaign spending per voter (mean)	0.0295*** (0.0023)
(log) Challengers' campaign spending per voter (within)	-0.0910*** (0.0041)
(log) Challengers' campaign spending per voter (mean)	-0.0872*** (0.0029)
Number of candidates for mayor (within)	-0.0583*** (0.0027)
Number of candidates for mayor (mean)	-0.0557*** (0.0030)
Mayor's party aligned with the governor (within)	0.0033 (0.0042)
Mayor's party aligned with the governor (mean)	-0.0014 (0.0063)
Municipality's ideology score (within)	-0.0023 (0.0193)
Municipality's ideology score (mean)	-0.0067 (0.0150)
Municipal Dalton's Political Polarization Index (within)	0.0005 (0.0032)
Municipal Dalton's Political Polarization Index (mean)	-0.0006 (0.0029)
Runoff election (within)	-0.1495*** (0.0437)
Runoff election	0.1569***

(mean)	(0.0266)
(log) Municipal GDP per capita	0.0020
(within)	(0.0095)
(log) Municipal GDP per capita	0.0154
(mean)	(0.0037)
(log) Bolsa Família's transfers per Family (within)	0.0129*** (0.0076)
(log) Bolsa Família's transfers per Family (mean)	0.0032* (0.0077)
Municipal Human Development Index (within)	-0.1822 (0.1129)
Municipal Human Development Index (mean)	0.1153** (0.0553)
(log) Population (within)	-0.1777 (0.1507)
(log) Population (mean)	-0.0068*** (0.0021)
Percent of urban population (within)	-0.0366 (0.0890)
Percent of urban population (mean)	0.0072 (0.0098)
(log) Population density (within)	0.2371 (0.1724)
(log) Population density (mean)	0.0065*** (0.0019)
Constant	0.5605*** (0.0595)
Dummies for state	Yes
Dummies for year	Yes
χ^2	3979.96
P > χ^2	0.000
R2 (within)	0.406
R2 (between)	0.472
R2 (overall)	0.453
N	7,611

Robust standard errors in parentheses

*p<0.10 **p<0.05 ***p<0.01

**Appendix Table 13 Hybrid Model: The Effects of Government Advertising Spending and Other Covariates
on Municipal Turnout**

	(1)
(log) Spending with government ads per voter (within)	0.0002 (0.0003)
(log) Spending with government ads per voter (mean)	0.0012*** (0.0004)
(log) Campaign spending per voter (within)	0.0067*** (0.0005)
(log) Campaign spending per voter (mean)	0.0063*** (0.0009)
Number of candidates for mayor (within)	-0.0002 (0.0003)
Number of candidates for mayor (mean)	0.0005 (0.0007)
Mayor's party aligned with the governor (within)	0.0013** (0.0006)
Mayor's party aligned with the governor (mean)	-0.0016 (0.0019)
Municipality's ideology score (within)	-0.0080** (0.0033)
Municipality's ideology score (mean)	0.0227*** (0.0049)
Municipal Dalton's Political Polarization Index (within)	0.0002 (0.0005)
Municipal Dalton's Political Polarization Index (mean)	-0.0001 (0.0009)
Runoff election (within)	-0.0052 (0.0046)
Runoff election (mean)	0.0533*** (0.0060)
(log) Municipal GDP per capita (within)	0.0057*** (0.0013)
(log) Municipal GDP per capita (mean)	0.0125*** (0.0011)
(log) Bolsa Família's transfers per Family (within)	0.0031*** (0.0011)
(log) Bolsa Família's transfers per Family (mean)	-0.0063*** (0.0011)

Municipal Human Development Index (within)	0.2777*** (0.0185)
Municipal Human Development Index (mean)	0.2001*** (0.0176)
(log) Population (within)	-0.0246 (0.0199)
(log) Population (mean)	-0.0307*** (0.0007)
Percent of urban population (within)	0.0077 (0.0127)
Percent of urban population (mean)	-0.0322*** (0.0031)
(log) Population density (within)	0.0266 (0.0226)
(log) Population density (mean)	0.0096*** (0.0005)
Constant	0.9024 (0.0178)
Dummies for state	Yes
Dummies for year	Yes
χ^2	13815.26
P > χ^2	0.000
R2 (within)	0.256
R2 (between)	0.566
R2 (overall)	0.504
N	16,599

Robust standard errors in parentheses

*p<0.10 **p<0.05 ***p<0.01

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