

Wp

## WORKING PAPERS

INSIDE THE REVOLVING DOOR: CAMPAIGN FINANCE, LOBBYING  
MEETINGS AND PUBLIC CONTRACTS. AN INVESTIGATION FOR  
ARGENTINA  
January 2019  
No. 2019/03

# INSIDE THE REVOLVING DOOR: CAMPAIGN FINANCE, LOBBYING MEETINGS AND PUBLIC CONTRACTS. AN INVESTIGATION FOR ARGENTINA

Freille, S.  
Avramovich, C.  
Moncarz, P.  
Sofietti, P.

# INSIDE THE REVOLVING DOOR: CAMPAIGN FINANCE, LOBBYING MEETINGS AND PUBLIC CONTRACTS. AN INVESTIGATION FOR ARGENTINA

Freille, S.  
Avramovich, C.  
Moncarz, P.  
Sofietti, P.

CAF – Working paper No. 2019/03  
January 2019

## ABSTRACT

This paper explores the relationship between political influence activities by interest groups and benefits obtained in the form of public contracts. We propose an electoral competition model where interest groups make ex-ante campaign contributions to candidates and ex-post lobbying contributions (efforts). Campaign contributions are useful to bias the election result although an aggressive campaign fight encourages interest groups to concentrate in lobbying activities. Using a novel and unique dataset at the individual level, we find that lobbying meetings are positively correlated with public contract amount and the probability of obtaining a contract. This result holds when controlling for unobserved heterogeneity. Campaign contributions are not significantly related to either public contract amount or the probability of winning contracts.

Small sections of text, that are less than two paragraphs, may be quoted without explicit permission as long as this document is stated. Findings, interpretations and conclusions expressed in this publication are the sole responsibility of its author(s), and it cannot be, in any way, attributed to CAF, its Executive Directors or the countries they represent. CAF does not guarantee the accuracy of the data included in this publication and is not, in any way, responsible for any consequences resulting from its use.

© 2019 Corporación Andina de Fomento

# ENTENDIENDO LA PUERTA GIRATORIA: FINANCIAMIENTO DE CAMPAÑAS, REUNIONES DE CABILDEO Y CONTRATOS PÚBLICOS. UNA INVESTIGACIÓN PARA ARGENTINA

Freille, S.  
Avramovich, C.  
Moncarz, P.  
Sofietti, P.

CAF - Documento de trabajo N° 2019/03  
Enero 2019

## RESUMEN

Este documento explora la relación entre las acciones tomadas por los grupos de interés para influir la política pública y los beneficios obtenidos en forma de contratos públicos. Proponemos un modelo de competencia electoral en el que los grupos de interés realizan aportes a la campaña de los candidatos ex ante e invierten en esfuerzos de cabildeo ex post. Las contribuciones de campaña son útiles para sesgar el resultado de la elección, aunque una competencia electoral agresiva alienta a los grupos de interés a concentrarse en actividades de cabildeo. Utilizando un conjunto de datos novedoso de nivel individual, encontramos que las reuniones de cabildeo se correlacionan positivamente con el monto de contratos públicos y la probabilidad de obtener un contrato. Este resultado se mantiene cuando se controla por la heterogeneidad no observada. Las contribuciones de campaña no están significativamente relacionadas con el monto del contrato público o la probabilidad de obtener contratos.

Small sections of text, that are less than two paragraphs, may be quoted without explicit permission as long as this document is stated. Findings, interpretations and conclusions expressed in this publication are the sole responsibility of its author(s), and it cannot be, in any way, attributed to CAF, its Executive Directors or the countries they represent. CAF does not guarantee the accuracy of the data included in this publication and is not, in any way, responsible for any consequences resulting from its use.

© 2019 Corporación Andina de Fomento

# Inside the revolving door: Campaign finance, lobbying meetings and public contracts. An investigation for Argentina

Sebastián Freille<sup>\*1</sup>, Cecilia Avramovich<sup>2</sup>, Pedro Moncarz<sup>3</sup>, and Pablo Soffietti<sup>4</sup>

<sup>1</sup>Unidad Asociada al CONICET (UCC)

<sup>2</sup>Facultad de Ciencias Económicas (UNC)

<sup>3</sup>CONICET - Facultad de Ciencias Económicas (UNC)

<sup>4</sup>CONICET - UCC

January 21, 2019

## Abstract

This paper explores the relationship between political influence activities by interest groups and benefits obtained in the form of public contracts. We propose an electoral competition model where interest groups make ex-ante campaign contributions to candidates and ex-post lobbying contributions (efforts). Campaign contributions are useful to bias the election result although an aggressive campaign fight encourages interest groups to concentrate in lobbying activities. Using a novel and unique dataset at the individual level, we find that lobbying meetings are positively correlated with public contract amount and the probability of obtaining a contract. This results holds when controlling for unobserved heterogeneity. Campaign contributions are not significantly related to either public contract amount or the probability of winning contracts.

---

<sup>\*</sup>The authors gratefully acknowledge financial support from CAF-banco de Desarrollo de América Latina. Sebastián Freille and Pablo Soffietti gratefully acknowledge financial support from the Secretaría de Investigación de la Universidad Católica de Córdoba. We are extremely grateful to Néstor Grión for helpful advice. We benefited from excellent research assistance from Franco Aguirre, Rocío Carrizo Pinchetti, Belén Schmidt y Adrián Mazzuco. We are grateful for comments and suggestions from Pablo Sanguinetti, Guillermo Alvez, Gustavo Fajardo and Leandro Arozamena. All error and omissions are our own.

**JEL Codes:** D72, D73, O2

**Keywords:** Political Investments; Campaign finance; Lobbying Audiences; Public Procurement

## 1 Background and motivation

“A great noble craved office to enrich himself by a war, an embassy a governorship. An Italian farmer craved the franchise more humbly to fatten on the favors handed to him for electing the great noble to office. The results were almost inevitable”.

---

*William Stearn Davis, “The Influence of Wealth in Imperial Rome”, pp. 12*

The principle “one person, one vote” represents one of the essential bedrocks of democratic systems all over the world. However, in modern and complex democracies where multiple actors and interest groups mix in the political-economic process, this principle has to be reconsidered. While strictly it is true that the principle is supported in the voting process, it may not be the case when considering other aspects of the political process. Individual actors, both organized and unorganized, are likely to affect political and economic outcomes through different channels. Some of these channels include donations to political campaigns, bribes and side payments to candidates and politicians, preferential access to elected politicians and legislators, business associations, public endorsements for candidates and politicians, and even direct actions such as strikes and mass protests. In this paper, we propose to focus on the relationship between two of these channels –contributions to political campaigns and lobbying meetings– and the awarding and amounts of public contracts<sup>1</sup>

---

<sup>1</sup>The selection of these channels is not arbitrary when considering the Argentine case. Based on [Schneider and Wolfson \(2005\)](#), [Stein \(2006\)](#) identify and measure the intensity of five types of political investments in Latin America: business associations, lobbying, campaign contributions, networks and corruption. Aside from corruption, both lobbying and campaign contributions are considered relatively intense as compared with influence through business associations and networks.

Although these practices can be traced as far back as the the early western empires, it is with the establishment of representative democracies and the separation of powers that these phenomena come to the surface as part of the daily trade of the political-economic process. Lobbying was already present in the very first Congress of the United States. According to [Holyoke \(2014\)](#), agents representing banking interests pressured Treasury secretary Alexander Hamilton to shape fiscal policy and against the creation of a Bank of United States. During the 1850s, several famous lobbyists came under scrutiny due to alleged bribes paid to members of Congress in exchange for votes on trade tariff levels. This launched the first real investigation of undue corporate influence. Stories like these proliferate throughout the ascent and consolidation of democracies.

Yet, in recent times, there appears to be growing voter dissatisfaction with the extent these practices and more importantly with the influence of such actions on economic and political outcomes. In a 2015 survey by the Pew Research Center, 75% of respondents thought money's influence on politics is greater today than ever before regardless of a respondent being Republican or Democrat<sup>2</sup>. Outside candidates have tackled this issue to some extent in their campaign platforms. During the 2016 USA Presidential Election campaign, both Trump and Sanders advocated for the reduction of legal (private) money in politics, albeit for different reasons and motives. This was in stark contrast with the stance adopted by less extreme, pro-establishment candidates such as Clinton, Bush and Rubio<sup>3</sup>.

Even if many of these activities are legal and regulated, some argue that that extent of these and the fact that there remains channels of ilegal influence may be taking a toll on several democracies and will continue to do so. The phenomenal corruption scheme uncovered by the Lava Jato investigation in Brazil and with ramifications all over the world, shows that these problems extend far beyond rightful donations and contributions to political parties. In fact, after the scandal, the legislation allowing for corporate donations to political parties was declared unconstitutional. In Argentina, an ongoing judicial investigation has unearthed links between the financing of the 2007 Presidential campaign and the drug trafficking business and the so-called "mafia de los laboratorios". The two main parties competing in the election have had their accounting challenged. Only a few months ago, Mariano Rajoy was ousted as Spain's Prime Minister on the back of a vote of no confidence from the Parliament over a corruption scandal that involved kickbacks-for-contracts between businessmen and the

---

<sup>2</sup>Pew Research Org, "As more money flows into campaigns, Americans worry about its influence". Available at: <http://www.pewresearch.org/fact-tank/2015/12/07/as-more-money-flows-into-campaigns-americans-worry-about-its-influence/>

<sup>3</sup>Indeed, several observers and analysts believe that Clinton's electoral chances were hampered by relying on the corporate establishment.

People's party between 1999 and 2006.

The relationship between money and politics –and more generally, the relationship between private interests and public policy- has long attracted the attention of scholars in political science and political economy. Theoretical work in the late 80's and early 90's in the field of political economy fueled a surge in research in this field. The interest is not merely academic since in recent decades, the spread of democratic conditions through the developing world has brought along various concerns regarding the effective functioning of political institutions. One such concern is related with the role of money in politics, or more specifically, the effects of political and electoral finance on various political and economic outcomes. This concern is of particular relevance for most Latin American countries which have sustained democratic conditions for several decades and have evolved into increasingly complex democracies with multiple political and economic actors. Another aspect that has been tackled at the theoretical level is related with the effects of political connections on political and economic performance.

However, as some scholars noted during the 70's and 80's, there is an evident paradox. Tullock's puzzle, as it was to be known, wondered why there was so little money in US politics considering the value of public policies at stake. In 1972, total campaign spending in federal elections was about \$200 million and total federal spending was \$400 billion. In 2000, total campaign spending was around \$3 billion while total federal government spending was around \$2 trillion. The Federal government awarded \$134 billion in defense contracts in 2000 while defense contracting firms and individuals associated with those firms donated only around \$13.2 million. By any account, the value of policy is much larger than the amounts donated by individuals and interest groups through campaign contributions. The situation is not much different in Argentina. In 2007, the national government awarded \$886 million in all public contracts whereas the total amount of campaign contributions *by all firms and individuals* were \$15 million. The figures for 2013 were \$1.62 billion and \$18 million, respectively. In a very neat paper, [Ansolabehere et al. \(2003\)](#) argue that campaign contributions are not a form of policy-buying but rather a form of political participation and consumption. If this is the case, then, why would organized interest give any money at all?

On the empirical front, progress has been much slower. There are essentially two reasons for this. Firstly, the nature of political influence activities makes it often impossible to identify and measure it. Secondly, even when data which allows us to identify and measure these activities are available, it is often not disaggregated at the individual-level, which is essentially the most basic level at which individuals exert differing power. In this paper, we provide an initial exploration of the linkages between influence activities by interest groups and benefits received by them using individual-level data available from unrelated and unstructured administrative records. To the

best of our knowledge, this is the first empirical work studying the relationship between political influence activities and economic and political outcomes for Argentina.

This issue is all the more important considering the recent debate in the Latin America region concerning accountability and transparency and the efforts aimed at improving the institutional design and its implementation. A recent study conducted by IDEA International (2012) shows that 23% of democratic countries do not have any regulation on political finance. As the recent wave of democratization sweeps across much of the globe, more democratic countries are likely to introduce regulations on political finance. Traditionally in Latin America, political parties relied heavily upon public funding for running their campaigns. Indeed, there existed strict limits to the amount of contribution allowed to both individual and firms. But in the last two decades most countries have introduced institutional reforms aiming to strengthen transparency and to regulate the activities involving money and politics. Uruguay restricted private donations in 2009 while Chile eliminated the reserved contributions (“aportes reservados”) to political parties.

Argentina is also part of this regional trend. There is evidence that money into politics has become increasingly important in Argentina. In the last decade, official registered private contributions to all political parties increased from 77 million pesos in 2005 to 226 million pesos in 2015 in constant terms<sup>4</sup>. However, this is in only a partial account since some electoral analysts and experts suggest that it would take around 1000 million pesos for a major party to hold a competitive election in 2015<sup>5</sup>. An estimate is four times higher than that officially reported by all parties in the 2015 election<sup>6</sup>.

Despite this mismatch between official reporting and the real costs involved in campaign finance, it is hardly arguable that money has been playing an increasingly active role in electoral politics in Argentina. The structure of parties total funding is also important. The ratio of private to total contributions for all parties during the 2005-2015 periods is around 50%. Since recorded public funding is equivalent to actual public funding, this ratio is likely to be higher (if we include total (official and unofficial) private contributions).

Similarly, and with the aim of improving transparency, several Latin American countries have provisions on keeping public records of meetings (“audiences”) between politicians and public officials and individuals. For instance, there is a lobbying registry

---

<sup>4</sup>Note that we used private inflation estimates to deflate. Using official inflation measures, money in politics increases as many as 5 times.

<sup>5</sup>“¿Cuánto cuestan las campañas electorales?”, online newspaper available at <https://www.lanacion.com.ar/1781894-cuanto-cuestan-las-campanas-electorales>

<sup>6</sup>In fact, the legal spending limit for any party for the 2015 Presidential election was 250 million pesos



in Chile and México where citizens can track who registered as a lobbyist and audiences with politicians and public officials. Lobbying in Argentina is currently not formally recognized, although there are several draft bills aiming at regulating it. As part of a 2003 Decree on Access to Public Information, Argentina created a National Registry of Interest Hearings (“Registro Nacional de Audiencias de Interés”). This is a public registry recording all the audiences solicited and attended by politicians and public officials from the range of Sub-Secretary and upwards. However, the regulation is deficient and incomplete. Although the public records are available from a public website, the quality and consistency of the information included is incomplete. It falls short of extending the transparency requirement to many politicians: the Decree only holds accountable politicians, public officials and members of the Executive power.

These institutional reforms and policy changes may not always have the desired effect. Does prohibiting private contributions have the same effect as limiting them? Is it better in terms of fostering transparency to formally recognize and regulate lobbying activity? It is not in the aim of this paper to address these questions directly, but rather to provide a theoretical framework for modeling influence of interest groups during the electoral competition-policy implementation process and to provide new empirical evidence of how exchanges between interest groups and politicians affect a particular policy outcome. While this evidence does not capture all the possible channels of influence, we believe that we are considering two of the three most important channels of political investments by interest groups for Argentina –where corruption would be the third one. Our research seeks to provide a theoretical explanation, an empirical estimation and a detailed interpretation of how both private campaign contributions and lobbying meetings (“audiencias de intereses”) affect a specific outcome: the probability of obtaining public contracts and the money that is awarded through them.

More specifically, we propose that both, campaign contributions and lobbying meetings, are part of a wider menu of “political investments” by special interest groups. These two activities differ in their nature and effects. Our model seeks to capture these differences and derive implications for the empirical analysis. We propose three original contributions. To this end, we provide a way for identifying two alternative channels of political influence, both theoretically and empirically, and to explore the interactions that exists between them. Second, to the best of our knowledge, we provide the first empirical investigation of the political-economy effects of political influence activities using –previously unavailable- micro-level data for Argentina. Third, we derive some implications for institutional design and particularly for specific reforms aimed at limiting the impact of corporate interests in public policy outcomes. Finally, we believe that our assembling of highly disaggregated data in a unique political influence dataset may have a positive impact on advancing the empirical research in this topic

for Argentina.

The rest of the paper is organized as follows. Section 2 presents a review of the relevant literature. Section 4 introduces our theoretical framework. Section 5 discusses the data and the methods we used to match individuals and firms between three different databases. Section 6 provides a descriptive analysis and empirical estimation. Section 7 presents some preliminary implications for policy and mechanism design.

## 2 Literature

The traditional study of political influence activities by interest groups is anchored in the rent-seeking literature which viewed these activities as a straightforward quid-pro-quo exchange of money for favorable policies [Krueger (1974), Becker (1983), Snyder Jr (1990), Snyder Jr (1991)]. Further work expanded this literature suggesting that political influence activity may also play an informational role [Ball (1991), Potters and Van Winden (1992), Austen-Smith (1993), Rasmusen (1993), Lohmann (1995)]. In this view, political influence activities may have a welfare-improving effect on policies due to their information content, and not (at least primarily) due the money given to lawmakers and public officials. Most of the theoretical progress linking political influence activities with policy changes and effects considered political influence as a catchall phenomenon, viewing campaign contributions, personal connections and lobbying expenditures as mostly interchangeable.

In recent years, however, researchers in political science have offered arguments to disentangle the different ways in which political influence activities take place. For example, Schneider (2010) argues that business participate in politics in terms of a portfolio of political investments. Business people are faced with a menu of political influence activities including participation in business associations, making campaign donations to parties and candidates, private meetings with politicians and public officials, networking with candidates and outright corruption. Patterns of business politics varies across countries mostly due to formal institutions and informal institutions and practices. Most Asian countries rely heavily on networks of government and business representatives to discuss policy. Campaign contributions and legislative lobbying are very important both in the US and Japan. Influence through business associations is more relevant in Chile and Colombia than it is in Brazil and Argentina. In these two countries, businesses tend to balance their political investments between lobbying, campaign contributions, networks and corruption.

We focus on two of these political investments, campaign contributions and lobbying activity. This decision was made both on theoretical and practical grounds. Although we are aware that all the above channels may influence policy to a certain

degree, both campaign contributions and lobbying activity are, due to their nature, linked to more specific policy outcomes such as the award of public contracts. Participation in business associations is more likely to result in rewards that are aggregated at sector or industry level<sup>7</sup>. Thus, since political influence exerted through this channel is only indirectly linked to specific rewards and outcomes for individual firms, we leave it out from the analysis. We also exclude from consideration influence through personal ties and networks and corruption. In the first case, although personal connections and networks<sup>8</sup>, are likely to be associated with some sort of political favors, these relations are often informal, opaque and undisclosed. The literature is divided on the a priori theoretical effect [Teichman (2001)] but most agree that, at a minimum, personal ties are a means to opening up channels of access and communication. In some sense, we can view lobbying meetings to be an imperfect substitute of personal ties, all the more so when meetings are regular and periodic. Finally, although corruption has been said to be pervasive in Argentine business politics, it is unreported by design and we were unable to obtain any estimate of firm-level corruption effort –bribes paid or willingness to pay.

As in De Figueiredo and Richter (2014), we define lobbying as the transfer of information in private meetings and venues between interest groups and politicians, their staffs, and agents. In practice, information can take many forms: messages, forecasts, announcements, threats, signals, commitments, among others. While interest groups have funds to spend in lobbying activities, money is not transferred explicitly to politicians. In this sense, lobbying is different from private campaign contributions and corruption. Anecdotal evidence suggests that lobbying expenditures are becoming ever more important. Total lobbying spending in US was 1.45 billion in 1998 and 3.37 billion in 2017. Total campaign contributions given by PACs to all parties was 220.2 millions in 1998 and 472.7 millions in 2016.

Yet, there is another, more theoretically relevant reason why lobbying activity may be different from campaign contributions. Several authors argue that campaign contributions and lobbying activity (efforts) are aimed at separate goals. On one hand, campaign contributions are often driven by an electoral motive having little impact on policies and on building long-term political capital [Hersch et al. (2008)]. This

---

<sup>7</sup>Business associations may influence policymaking through several actions. Their leaders appear in the news media regularly. In many cases, these associations have dedicated staff to communicate with news outlets providing them with dependable information and institutional communications and policy positions. In some countries, powerful business associations run their own media outlets, such as cable TV programs and dedicated newspapers. Among business associations, examples are Pharma Television from PharmaVentures in the UK and RFD-TV which is owned by the Rural Media Group in the US. Among non-business associations, there is the example of the Igreja Universal conglomerate in Brazil, and the NBA and NFL TV channels.

<sup>8</sup>This connections can refer to personal and family ties, to school and college ties, and to work ties.

argument gives one potential explanation as to why campaign contributions are low compared to the potential returns in the form of private benefits to firms. [Lohmann \(1995\)](#).

Although we define and characterize these two alternative channels of political influence separately –campaign contributions and lobbying meetings-, there is evidence that shows these efforts by firms and special interest groups may not be entirely independent. [Tripathi et al. \(2002\)](#) show that there is a strong correlation between campaign contribution and lobbying expenditures using rich filing data required under the Lobbying Disclosure Act of 1995. They also note that groups that engage heavily in lobbying contribute in ways that are consistent with access motivation while groups that do relatively little lobbying respond to more ideological and partisan and in line with an electoral motivation. The evidence thus points to some form of complementarity between both activities. Other authors suggests ideology may have a role in the relative mix of campaign contributions and lobbying expenditures. [McKay \(2010\)](#) finds that more ideologically extreme and more liberal groups spend more money on campaign contributions relative to lobbying expenditures.

There is a large number of studies examining the relationship between campaign contributions and electoral outcomes for industrial countries, most notably the US. Early studies looked into the effect of campaign contributions on legislator voting and other electoral outcomes. Empirical work in this area gives mixed results. Some studies find that electoral returns to private campaign contributions are much higher for the challenger than for the incumbent, given the incumbent’s campaign spending [[Jacobson \(1978, 1985\)](#), [Abramowitz \(1988\)](#), [Chappell \(1982\)](#), and [Palda and Palda \(1998\)](#)]; other find similar electoral returns for both incumbent and challenger; others find that neither contribution to uincumbent/challenger is significantly related with electoral results [[Green and Krasno \(1988\)](#), [Gerber \(1998\)](#), [Levitt \(1994\)](#)]<sup>9</sup>

However, very little empirical research has been conducted for Latin American countries and specifically for Argentina. For the latter, aside from [Ferreira Rubio \(1997\)](#) and [Rubio \(2004\)](#) and a few other studies analyzing the political financing system, there are no empirical studies that deal with this issue. [Samuels \(2001\)](#) analyses the effect of campaign contributions on electoral results in Brazil for both incumbents and

---

<sup>9</sup>A small number of studies find that campaign spending has a negative effect on incumbents election chances in legislative elections [[Feldman and Jondrow \(1984\)](#) and [Ragsdale and Cook \(1987\)](#)]. More recently, it has been suggested [[Green and Krasno \(1988\)](#), [Gerber \(1998\)](#), [Moon \(2002\)](#)] that the independent variable –campaign spending- is likely to be influenced by the dependent variable –some measure of electoral returns; taking this into account, these authors find that there are no significant differences between the electoral returns of campaign spending for incumbents and challengers. These results are somewhat puzzling against the evidence that politicians seem to invest a lot of effort in raising funds and in light of the popular belief that money wins elections.

challengers.

More recently, the literature has shifted the attention to studying influence processes beyond the realm of campaign finance. This literature has produced work studying the process of lobbying, its channels and impacts. Lobbying has been addressed profusely in the US literature. [Heinz \(1993\)](#), [Nownes and Freeman \(1998\)](#), [Hedrick \(1988\)](#) and [Birnbaum \(1992\)](#) have produced studies on lobbying focusing on legislative power in the United States. More recently, [Baumgartner et al. \(2009\)](#) addressed lobbying influence in public policies. Similar work was done by [Bouwen \(2002\)](#), which addresses the influence of corporate governance and interest groups through lobbying in the European Union in a multilevel setting. They analyze the access mechanisms of the private interests to the European Commission, the European Parliament and the Council of Ministers of Europe, and how this influences the process of *policy-making*. [Berry \(2015\)](#) examines how interest groups select the topics in those who focus their activities, the way they allocated resources to these influence activities and the strategies they use to influence government. Lastly, another area which has been very actively researched in recent times and which is indirectly related to our work is that of the value and effects of political connections [[Acemoglu et al. \(2016\)](#), [Wu et al. \(2012\)](#), [Claessens et al. \(2008\)](#)].

One interesting paper that addresses lobbying activity in a different light is [You \(2017\)](#) where she proposes to systematically analyze the actions of influence (lobbying) on Congressional votes. She distinguishes between two different lobbying activities: *ex-ante* and *ex-post* lobbying. In previous studies, lobbying was approached as an activity that happened before the vote. However the author argues that the *ex-post* moment opens the game for the intervention of the actors in a new scenario, especially if it deals with laws that need specific regulations after being voted.

In the Latin American region, this phenomenon has been studied mainly in Mexico, by authors such as [Gómez Valle \(2008\)](#), [Estefan and Sosa \(2005\)](#), and [Astié-Burgos \(2011\)](#). Until recent years, the study of lobbying activity by individuals and interest groups in Argentina was largely absent from the research agendas of both economists and political scientists. This may be due to the fact that lobbying activity is currently unregulated and not accounted for. Another possible reason is that lobbying is just not that important in the political process as in other countries. Finally, it is also possible that lobbying activity takes different forms from what happens elsewhere. Whatever the reasons, there are only a few selected accounts of the nature, characteristics and effects of lobbying activity in Argentina [[Molinelli \(1996\)](#), [Malamud \(2001\)](#)].

Our model is loosely based on the traditional model of electoral competition with special interest groups [[Baron \(1994\)](#); [Grossman and Helpman \(1996\)](#), [Grossman and Helpman \(1999\)](#), and [Grossman and Helpman \(2001\)](#)]. In these models, political candi-

dates seek to attract monetary contributions from special interest groups. Candidates use these donations to increase their campaign spending targeted to uninformed voters. Informed voters, on the other hand, are not swayed by campaign spending so a trade-off between attracting uninformed voters (through campaign spending) and attracting informed voters (through policy) appears. Campaign contributions in his model have a productive role since candidates compete for the uninformed voters. Monetary contributions depend on the policy announced by the competing candidates. [Grossman and Helpman \(2001\)](#) examine the process of trading endogenous monetary contributions for political favours. Interest groups exert influence through a variety of actions. One such action is related to providing information for legislators through lobbying audiences<sup>10</sup>. According to the authors, monetary campaign contributions can work in several ways in the influence-peddling process. They can be seen as means of buying “access” to politicians. In other words, they are buying privileged access to meetings and audiences. They can also be a means of buying “credibility” since large contributions signal commitment and the stakes involved. Finally, they speculate that campaign contributions may be a way of buying “influence”.

Unlike most of the referenced works, in the work that we develop here, the lobbying actions are not studied about the legislative power, as most of literature, but on the officials of the Executive Branch. This decision is based on studies of the 90s where, such as it holds [Jones \(2001\)](#) many academics have preferred to qualify the Argentine democracy as a system with strong dominance of executive power, a “delegative democracy”, in where the legislative power is important but not decisive in the policy decision process.

In this paper, our focus is the study of two separate (albeit related) channels of political influence: campaign contributions (ex-ante) and lobbying meetings (ex-ante and ex-post). In other words, we are interested in exploring whether actions exerted *before* and/or *after* the election has any impact on benefits that may be allocated to donors (ex-ante campaign contributors) and visitors (ex-post hearings attendees).

### **3 Money and politics: Regimes and practices. The Argentine case.**

Political finance varies across regions and countries due that each one establishes specific regulations and practices. is due both to regulation and practices. A survey by IDEA finds that countries in Eastern and Central Europe and Asia countries have a

---

<sup>10</sup>Although not as common, special interest groups also engage in alternative actions such as strikes and mass protests.

much higher level of formal regulations than countries in Africa and Western Europe<sup>11</sup>. Countries also vary in the level of enforcement imposed in these rules and regulations and in the various informal practices used in the absence of regulations and/or to bypass the in-practice legislation.

In most countries, political parties and candidates obtain income from three sources: private campaign contributions, public finance and membership fees. Private campaign contributions take the form of monetary donations, from either individual or corporate actors, handed out to parties and candidates during the legal campaign period. In general, countries impose several types of bans and limits on private contributions, with the purpose of curbing donations that are seen as particularly damaging for democratic process. Probably, the most common of these are donations from foreign institutions, corporations, public and semi-public entities, and from anonymous sources. While these restrictions are generally invoked as a way to keep the political process isolated from the influence of interest groups, sometimes they can create perverse incentives.

Political influence by interest groups has until recent years been something of a taboo topic in Argentina. All the actors involved in the political process acknowledge that interest groups and politicians have found ways to communicate and to develop relationships that have policy implications. It is not clear, however, as to which are the key channels and activities interest groups pursue in looking to influence the government although anecdotal evidence suggest a high degree of informality in such relations. As an unnamed lobbyist stated, “In Argentina there are two ways to exert influence: one, more traditional, through formal meetings and opinion leaders, and another, directly related to electoral campaigns and the amount of *under-the-table* contributions in exchange of future favors”<sup>12</sup>.

Argentina has a mixed system of party financing. As “fundamental institutions of the democratic system”<sup>13</sup>, political parties finance their activities with public and private funds. We focus strictly on electoral financing, therefore we will not consider the regular funding that parties receive for institutional strengthening and development<sup>14</sup>. Public electoral contributions include a fixed amount of money for ballot-printing and a variable amount of money for campaigning. While the former is equal for all parties, the latter depends on past electoral performance of each one<sup>15</sup>. Parties can also collect

---

<sup>11</sup>This is based on a calculation of the number of regulations that are in place in a country compared to a standard set of regulations that are part of the IDEA survey. As such, it gives an idea of the extent of political regulations not of its effectiveness

<sup>12</sup>Unnamed lobbyist source. Link: [La Nacion](#)

<sup>13</sup>The fundamental provisions for the existence and functioning of parties are laid out in article 38 in the National Constitution. This was introduced by a constitutional reform in 1994.

<sup>14</sup>Although not intended for electoral campaigning, in recent years parties have often been accused of using the receipts in these funds to spend money during campaign times.

<sup>15</sup>Parties are required a certain amount of minimum votes to be entitled to this campaigning money

private electoral contributions –from firms and individuals up until 2009 when contributions from firms were prohibited<sup>16</sup>. All political parties are required to keep and file records on these contributions and to submit two reports –preliminary and final- to the National Electoral Chamber. Parties that fail to comply with this requirement are fined and/or excluded from being benefited from public electoral contributions in future elections. Up to the moment of writing this paper, despite improvements in reporting standards, a significant number of parties do not comply with the regulations.

Since lobbying in Argentina is not formally regulated, it is not surprising to find very little discussion in the academic and policy arenas. However, there are currently a few draft bills circulating in the Argentine Congress aimed at regulation lobbying activity and more generally the management of special interests. [Molinelli \(1996\)](#) provides a characterization of lobbying activity in Argentina for the 1983-1995 period. He notes that lobbying activity has been systemic in Argentina gradually becoming an active part of political and business life. He also suggests that interest groups are evolving all the time; new groups are formed and traditional groups lose power. In a similar vein, [Malamud \(2001\)](#) stresses that organized interest groups evolved from what is called “corporatism” to a pluralist system of oligopolistic lobbying. Both authors note that lobbying in Argentina is aimed primarily at the executive power, unlike the US and Europe where most lobbying activity gets channeled through Congress.

## 4 An analytical approximation to the problem

In this section, we develop a theoretical model capturing the key features of the political-economy process involving parties, voters and interest groups and the implementation of public policy in the form of (contracted) public spending. Following up on the aspects covered in the previous two sections, we provide a general story that aims at capturing some specifics of the Argentine case.

The basic idea is that interest groups participate in the political-economy game in essentially two ways. First, they may alter the probability of electing a particular candidate. Candidates propose policies on single dimension, the amount of contracted public spending to be implemented after the election takes place. Second, they may alter the share of specific policy benefits (contracted public spending) accruing exclusively to them. Since election and policy implementation are different events, interest groups use two different channels to try and influence both outcomes. Interest groups can offer ex-ante campaign contributions to (to-be-elected) political parties and they can also hold ex-post lobbying hearings with (elected) officials. It is informative to split

---

so that the total amount allocated to parties in each election year may vary significantly

<sup>16</sup>This restriction was implemented in the 2011 election.



influence in this way: not only are these activities different in nature but they also are likely to affect different outcomes<sup>17</sup>.

We assume that interest groups have opposite preferences<sup>18</sup>. This means each interest group contribute to one party. In this case, the interest groups must solve two problems: how much to contribute to the campaign (the ex-ante problem) and how much lobbying effort to exert on the elected party (the ex-post problem). Contributing ex-ante is a dominant strategy for both interest groups since in doing so they affect the probability that their favourite party (policy) gets elected. The ex-post problem –i.e. how much lobbying effort- crucially depends on how much the own interest group and the rival contributed to the campaign and how much lobbying effort the rival interest group chooses. If the interest group’s favourite party takes office, all her campaign contributions offset her lobbying efforts –contributions and lobbying are perfect substitutes. In the opposite case, for the interest group whose favourite candidate lost the election, lobbying is mandatory to increase the share of contracted public spending received by the interest group.

In other words, while campaign contributions are important in swaying the probability of winning an election, lobbying contributions (efforts) are crucial towards increasing the value of public spending obtained by the interest group. This is so that even an interest group whose favourite party lost the election may be able to obtain contracts from the elected government provided she made positive lobbying efforts. These theoretical implications are important in terms of the empirical modelling in section 6. They may also be interpreted in light of how interest groups decide to allocate their influence efforts between these two channels under different circumstances of electoral competition and incumbency power.

The next sections outline and develop the model in some detail and derive propositions and implications that will serve as an informative basis for specifying our empirical modelling.

---

<sup>17</sup>In countries where lobbying is regulated, these two channels are reported, studied and analyzed separately. This is the case of the United States.

<sup>18</sup>As is explained later on, this is not an arbitrary decision. It is based on observed features and practices of interest groups in Argentina at least when it comes to formal contributions to parties. Most interest groups donate only to one party. This behaviour is more consistent with the type of partisan interest groups. If preferences are opposite then interest groups would tend to value more policies they prefer and therefore donate to the single party which offers these policies. In the case of aligned preferences, we would likely see interest groups contributing to more than one party, especially if both offer similar policies. For generality and for the interested reader, we have included the aligned-preferences case in Appendix B.

## 4.1 Set-up

Consider an election game between two candidates,  $A$  and  $B$ , with a unique source of randomness: the outcome of the election. With probability  $P$  candidate  $A$  wins the election and with probability  $1 - P$  candidate  $B$  does it.

Candidates differ in their positions with respect to a one-dimensional set of government policy options, which entail a total expenditure  $V^k > 0$  on public contracts for the winning candidate  $k$ ,  $k = A, B$ . Candidates' campaigns are based on these policy positions, so they are publicly announced at the beginning of the campaign period.

The economy is composed of voters and Interest Groups (IGs). A priori, voters are indifferent between both candidates. However, their preferences can be influenced by additional information developed during the campaign period. The *IGs*, instead, are not indifferent to candidates, since their government policies affect their interests differently. Therefore, during the campaign period, each one will try to skew the outcome of the election in favor of its interests. To this end, each *IG*  $i$  makes monetary campaign contributions  $C_i > 0$  to inform voters on its preferred candidate and, ultimately, induce them to vote for him.

After the election - and regardless of the winning candidate- the *IGs* compete against each other for the highest share  $\alpha^k \in [0, 1]$  of the committed spending  $V^k$ . In this competition, the ex-ante campaign contributions are relevant, but also any ex-post lobby contributions  $L_i > 0$ . The higher the total own contribution for the candidate in office related to that of rivals, the higher the share  $\alpha^k$  obtained<sup>19</sup>.

For the rest of the paper, and in favor of simplicity, the number of *IG* is limited to two,  $i = 1, 2$ <sup>20</sup>.

### The probability of winning elections

A priori, both candidates have an equal probability of winning the election. However, through campaign contributions  $C_1$  and  $C_2$ , the *IGs* can bias this likelihood in favor of one of them.

Whithin this context, two alternative scenarios can be considered: a scenario of *aligned-preferences*, where both *IGs* share their preferences for the same candidate, and another of *opposite preferences*, where the *IGs*' campaign contributions go to rival candidates. Given  $P(C_1, C_2)$  the probability that the candidate  $A$  wins the election, these scenarios can be illustrated by:

---

<sup>19</sup>This is a standard payoff-allocation rule in electoral games.

<sup>20</sup>This simplifying assumption is in line with the existence of multiple interest groups merged into two strong coalitions. It is not the purpose of this paper to address how these coalitions are formed, nor to analyze how the distribution of payoffs among the members is solved.

- *Aligned-preferences*:  $\frac{\partial P(\cdot)}{\partial C_i} > 0$ ,  $\frac{\partial^2 P(\cdot)}{\partial C_i^2} < 0$ , for  $i = 1, 2$ , if candidate  $A$  is preferred over  $B$ , or  $\frac{\partial P(\cdot)}{\partial C_i} < 0$ ,  $\frac{\partial^2 P(\cdot)}{\partial C_i^2} > 0$ , the other way around.
- *Opposite preferences*:  $\frac{\partial P(\cdot)}{\partial C_i} > 0$ ,  $\frac{\partial P(\cdot)}{\partial C_j} < 0$ ,  $\frac{\partial^2 P(\cdot)}{\partial C_i^2} < 0$ ,  $\frac{\partial^2 P(\cdot)}{\partial C_j^2} > 0$  for  $i \neq j$ , if  $i$  supports candidate  $A$ , while  $j$  supports  $B$ .

In any case, it is assumed that all political contributions are handled with equal efficiency across the *IGs* and regardless of the candidate to whom they are driven. That is:  $\left| \frac{\partial P(\cdot)}{\partial C_i} \right| = \left| \frac{\partial P(\cdot)}{\partial C_j} \right|$ , for  $i \neq j$ . This assumption takes particular relevance under *opposite preferences*, since it implies that an *IG* can only increase the likelihood that its favorite candidate wins by contributing more than its rival. Otherwise, if both *IGs* make the same level of contribution, their corresponding effects on  $P(\cdot)$  cancel each other.

The rest of this Section deals in detail with the case of opposite-preferences, following some empirical regularities observed for Argentina during the period of analysis<sup>21</sup>.

## Timing

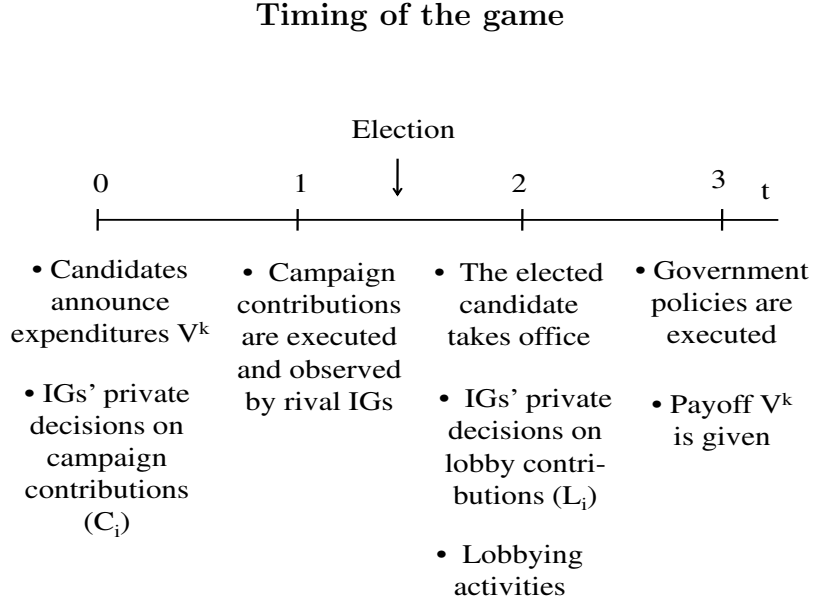
The timing of the game is as follows. At stage 0, the *IGs* observe the candidate's policy options and privately and simultaneously decide on their campaign contributions. That is, whether to contribute to some candidacy and, if so, on the size of such a contribution. At stage 1, campaign contributions are executed and observed by rivals. Also, at the end of this stage, the election process takes place. At stage 2, the elected candidate takes office and the *IGs* make private decisions on their lobby contributions. If applicable, these are executed immediately.

Finally, at stage 3, the elected candidate executes his promised campaign policy conditioned on having received some political contribution. Otherwise, this is not implemented<sup>22</sup>. Also at this time, policy payoffs are executed, if hold.

<sup>21</sup>Please, see Section 5, particularly Figure 3 and Table 7 for this empirical evidence and the Appendix 7 for a stylized analysis of the case of *aligned-preferences*.

<sup>22</sup>For political purposes, this non-implementation clause constitutes a trigger strategy to induce the *IGs* to participate in the financing of politics. For modeling purposes, it simplifies the game by reducing to zero the outside payoff of an *IG* that does not involve in politics. In any case it is not restrictive for the main results of the paper.

Figure 1: Time-structure of the model



### IG payoff function

In this game, the utility function of an *IG* is given by its expected monetary payoff from exerting political contributions  $C_i$  and  $L_i$ <sup>23</sup>:

$$U_i = P(C_i, C_j) (\alpha^A V^A - L_i^A) + (1 - P(C_i, C_j)) (\alpha^B \theta_i V^B - L_i^B) - C_i \quad , \quad i \neq j \quad (1)$$

Where  $\theta_i \in \mathfrak{R}^+$  is an exogenous parameter that distorts the relative interest that each *IG* has on the monetary payoffs  $V^A$  and  $V^B$ . A value of  $\theta_i < \frac{V^A}{V^B}$  states that  $i$ 's interests are closer to those of candidate  $A$ , and so contributing to his campaign is the most profitable for it. The opposite holds the other way around<sup>24</sup>.

W.l.o.g., for the rest of this section it is assumed that  $V^A > V^B$  and that  $\theta_i = 1$  and  $\theta_j = \theta > \frac{V^A}{V^B}$ . Hence, while the *IG*  $i$  prefers the policies of the candidate  $A$  over those of the candidate  $B$ , the *IG*  $j$  prefers the opposite<sup>25</sup>.

<sup>23</sup>In equation (1), the coefficients  $\alpha^k$  are defined in terms of the  $i$ 's shares of  $V^k$ . The analogous coefficients for the rival *IG* are  $1 - \alpha^k$ .

<sup>24</sup>The reader can consider  $\theta_i$  as an expertise-parameter that distorts the relative interest that the *IGs* have on the monetary values  $V^A$  and  $V^B$  according to the specific policy to which they are committed. Indeed, given equal campaign contributions  $V^A$  and  $V^B$ , but associated to different policies: expanding an existing port and building schools, respectively; an *IG* conformed by port construction companies will prefer to support  $A$ 's campaign rather than that of  $B$ . The opposite will hold with an *IG* widely experienced in building schools.

<sup>25</sup>The possibility of contributing to both candidacies, while possible, is left aside from the analysis

Within this context, if the candidate  $A$  takes office, the share  $\alpha^A = \frac{L_i^A + C_i}{L_i^A + C_i + L_j^A}$ , while if the candidate  $B$  takes office the share  $\alpha^B = \frac{L_i^B}{L_i^B + L_j^B + C_j}$ .

From this allocation rule, three things should be remarked. First, the own contribution to the campaign of a winning candidate constitutes a positive externality in the after-election period; e.g., if the candidate  $A$  wins the election  $\frac{\partial \alpha^A}{\partial C_i} > 0$ . In this line of analysis, the rival's contributions of a winning candidate constitutes a negative externality; e.g., if the candidate  $B$  takes office  $\frac{\partial \alpha^B}{\partial C_j} < 0$ .

Second, the own ex-ante and ex-post contributions to a winning candidate are substitutes intertemporally; e.g., if the candidate  $A$  takes office  $\frac{\partial^2 \alpha^A}{\partial C_i \partial L_i^A} < 0$ <sup>26</sup>.

Finally, what if the supported candidate loses the election? Specifically: How the campaign contributions to a non-winning candidate affect the  $IG$ s' lobbying behavior? Following the above described rule, the campaign contributions to a non-winning candidate do not affect lobbying decisions. Hence, it is ruled out from the political system the possibility of retaliation against an  $IG$  for the simple fact of having contributed to the campaign of the rival candidate.

Clarified these issues, the  $IG$   $i$ 's problem yields:

$$\left\{ \begin{array}{l} \max_{C_i} U_i^{EA} = P(C_i, C_j) (\alpha^A V^A - L_i^A) + (1 - P(C_i, C_j)) (\alpha^B V^B - L_i^B) - C_i \\ st : L_i^k \in \arg \max_{L_i^k} \{ U_i^{EP} = (\alpha^A(\bar{C}_i, \bar{C}_j) V^A - L_i^A) I + (\alpha^B(\bar{C}_i, \bar{C}_j) V^B - L_i^B) (1 - I) \} \end{array} \right. \quad (2)$$

for  $k \in \{A, B\}$ ,  $i \neq j$

Where  $I$  is an identity variable that takes the value 1 (one) if the candidate  $A$  takes office, or 0 (zero) if the candidate  $B$  does it.

The problem of the rival  $IG$  (i.e., for the  $IG$   $j$ ,  $j \neq i$ ), is analogous to this, but for the fact that for this  $IG$  the relevant monetary payoff in the case that the candidate  $B$  wins the election is given by  $\theta V^B$  (instead of  $V^B$ ), and that its payoff shares are defined by  $(1 - \alpha^k)$ .

---

since contributing to the favorite candidate is always a dominant strategy. This is true since: (i) the contributions to opposite candidates cancel each other, hence what finally matters to bias the likelihood of the election outcome are net contributions, and (ii) for someone who did not contribute ex-ante to the winning candidate, lobbying is always a useful ex-post strategy to fight for  $V$ .

<sup>26</sup>One way to interpret this is by considering that  $C_i$  finance the acquisition of information useful in the after-election competition for  $V$ . From a less legal point of view, this can be interpreted as political favors, in the sense that to allocate  $V$  the 'political system' favors the  $IG$  that contributed the most to the campaign of the elected candidate.

## 4.2 Solving the ex-post election problem

Solving (2) by backward induction, at  $t = 1$  the problem of each  $IG$  is to choose how much lobby to exert in the after-election period given a rival that also lobbies and ex-ante contributions  $C_i$  and  $C_j$  to candidates  $A$  and  $B$ , respectively. That is:

$$\left\{ \begin{array}{l} \max_{L_i^k} U_i^{EP} = (\alpha^A V^A - L_i^A) I + (\alpha^B V^B - L_i^B) (1 - I) \quad , \quad k \in \{A, B\} \\ st : \alpha^A = \frac{L_i^A + \bar{C}_i}{L_i^A + \bar{C}_i + L_j^A} \quad , \quad \text{if: } I = 1 \\ \alpha^B = \frac{L_i^B}{L_i^B + L_j^B + \bar{C}_j} \quad , \quad \text{if: } I = 0 \end{array} \right.$$

From the first partial derivatives with respect to the own lobbying contribution under each possible election outcome, the interior solution for the lobby reaction functions of each  $IG$  in terms of the rival's lobby behavior are referenced by equations (3) and (4) and illustrated in Figure (2).

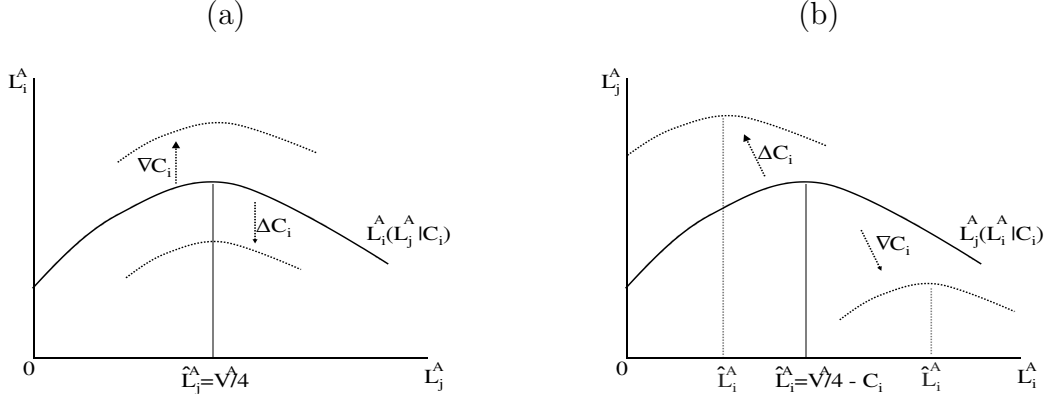
$$L_i^k(L_j^k) = \begin{cases} L_i^A = \sqrt{L_j^A V^A} - L_j^A - C_i & \text{if: } I = 1 \\ L_i^B = \sqrt{(L_j^B + C_j) V^B} - L_j^B - C_j & \text{if: } I = 0 \end{cases} \quad (3)$$

$$L_j^k(L_i^k) = \begin{cases} L_j^A = \sqrt{(L_i^A + C_i) V^A} - L_i^A - C_i & \text{if: } I = 1 \\ L_j^B = \sqrt{L_i^B \theta_j V^B} - L_i^B - C_j & \text{if: } I = 0 \end{cases} \quad (4)$$

Figure 2 highlights two main results. First, the each  $IG$ 's lobbying strategy differs radically according to how much the rival lobbies. Faced against a rival that makes little lobby (e.g.,  $L_j^A < \hat{L}_j^A$  in Figure 2-a), the best strategy for an  $IG$  is to play aggressively; that is to increase its lobby contributions each time that the rival increases his. The opposite holds if the rival lobbies a lot (e.g.,  $L_j^A > \hat{L}_j^A$  in Figure 2-a), and an 'accommodative' strategy always follows an increase in the rival's lobby. As expected, if  $B$  is the elected candidate, the corresponding threshold  $\hat{L}_i^B$  depends positively on  $\theta$ , since for the  $IG j$  each monetary unit of the payoff  $V^B$  values  $\theta > 1$  times (Figure 2-c).

The second result to highlight refers to how the  $IGs$ ' lobbying strategies depend on the campaign contributions to a winning candidate. Regarding the own contribution:  $C_i$  and  $L_i^A$  (Figure 2-a) and  $C_j$  and  $L_j^B$  (Figure 2-d) are perfect substitutes; hence each additional unit of the own ex-ante campaign contribution implies an equal reduction in the own ex-post lobby. Regarding the rival's contribution: Figure 2-b shows how an increase in  $C_i$  induces  $j$  to lobby more or less depending on whether  $j$  is competing aggressively for the highest fraction of  $V^A$  or playing an 'accommodative'-strategy, respectively.

### Lobby reaction functions when candidate $A$ takes office



### Lobby reaction functions when candidate $B$ takes office

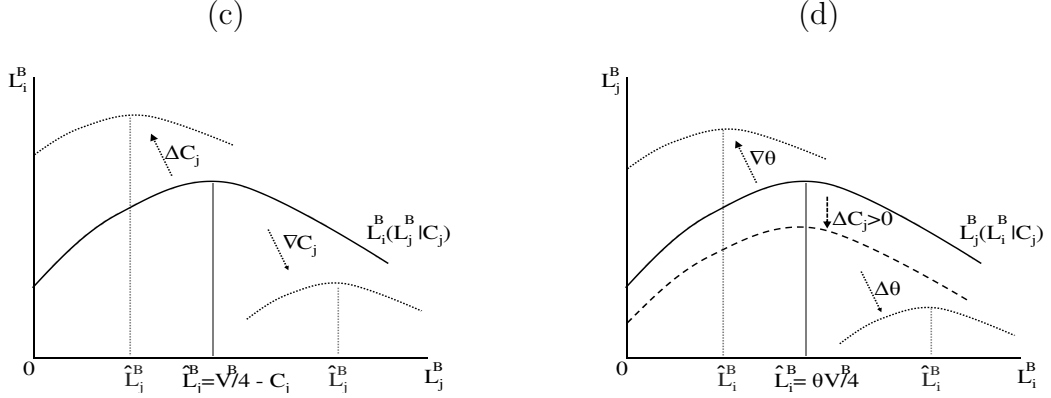


Figure 2: The  $IG$   $i$ 's lobbying contribution  $L_i^k$  in terms of the rival's lobby  $L_j^k$  for a winning candidate  $k$ . In all the cases, the  $i$ 's optimal lobby response to  $j$ 's lobby behavior is to play aggressively each time that  $j$  lobbies less than some threshold  $\hat{L}_j^k$ , and to 'accommodate' the other way around.

Solving equations (3)-(4) for the alternative election outcomes, Proposition 1 summarizes the interior solution for the optimal lobbying behavior:

**Proposition 1** *Under opposite preferences, lobbying is non-decreasing in the total expenditure  $V^k$ , and:*

- (i) *For the  $IG$  whose favorite candidate takes office, ex-ante and ex-post contributions are perfect substitutes. That is:  $L_i^A + C_i^A = \frac{1}{4}V^A$  if  $A$  takes office, or  $L_j^B + C_j^B = \frac{\theta^2}{(1+\theta)^2}V^B$  the other way around.*
- (ii) *For the rival  $IG$ , however, lobbying is the unique tool to compete ex-post for  $V$ . Particularly:  $L_i^B = \frac{\theta}{(1+\theta)^2}V^B$  if  $B$  takes office, or  $L_j^A = \frac{1}{4}V^A$  the other way*

around.

**Corollary 1** *When both IG value the payoff  $V$  equally, competition leads to equal shares. Otherwise, the one with the highest valuation for  $V$ , gets the highest share.*

*Given  $\theta_i = 1 < \theta = \theta_j$ , that is:  $\alpha^A = 1/2$  and  $\alpha^B = \frac{1}{(1+\theta)} < 1/2$ .*

### 4.3 The ex-ante election problem

Given the ex-post optimal behavior described in Proposition 1, at  $t = 0$  the IG  $i$ 's problem is reduced to<sup>27</sup>:

$$\begin{cases} \max_{C_i} U_i^{EA} = P(C_i, C_j) U_i^{EP}(I = 1) + (1 - P(C_i, C_j)) U_i^{EP}(I = 0) - C_i \\ \text{st : } U_i^{EP} = \left(\frac{1}{2}V^A - L_i^A(C_i)\right) I + \left(\frac{1}{1+\theta}V^B - L_i^B\right) (1 - I) \end{cases}$$

where  $L_i^A(C_i)$  and  $L_i^B$  behave as described in Proposition 1. The problem of the rival IG is analogous to this, but for the fact that the lobbying contribution to the candidate  $B$  is the one that depends on the own campaign contribution.

Taking first partial derivative with respect to the own campaign contribution, the interior solution for  $C_i$  is characterized by:

$$\frac{\partial P}{\partial C_i} [U_i^{EP}(I = 1) - U_i^{EP}(I = 0)] + P \frac{\partial U_i^{EP}(I = 1)}{\partial L_i^A} \frac{\partial L_i^A}{\partial C_i} = 1 \quad (5)$$

The LHS states  $i$ 's marginal gains from increasing its campaign contribution due to: (i) the possibility of biasing the likelihood that the candidate  $A$  (its favorite) takes office, and (ii) lower future lobby requirements. The first effect implies a net gain of utility of  $U_i^{EP}(I = 1) - U_i^{EP}(I = 0)$  for each additional point of  $P$ . The second one captures the substitution relationship between  $C_i$  and  $L_i$  observed in Proposition 1. Finally, the RHS of equation (5) states the marginal cost of  $C_i$ .

At this point in the analysis, it is very useful to set further details on the distribution function for the joint probability  $P(C_i, C_j)$ . To this end, for the rest of the paper there are assumed the general features summarized in the Table 1.

Given this joint distribution function, the Table 2 exposes the resulting ex-ante payoff matrix of the game. In the matrix, each element indicates the ex-ante payoff of each IG under the alternative strategies regarding the own and the rival's campaign contributions.

---

<sup>27</sup>In favor of simplifying the exposition of the topic, in the main text it is only referenced in detail the problem under the interior solution for  $L_i^k$ ,  $k = A, B$  and  $i = 1, 2$ . However, the statements in Propositions, Corollaries and Lemmas in this Section also cover corner solutions. The reader can find a detailed analysis of these in the Appendix 1.



Table 1: Joint probability distribution  $P(C_i, C_j)$

	$C_i = 0$	$C_i > 0$
$C_j = 0$	1/2	$P_H$
$C_j > 0$	$P_L$	$P_M$ *
		1/2 **
		$P_m$ ***

**Note:** Where  $P_L < P_m < 1/2 < P_M < P_H$ . Given  $C_i, C_j > 0$ , there are three possible cases: (\*)  $C_j < C_i$ , (\*\*)  $C_i < C_j$ , and (\*\*\*)  $C_i = C_j$ .

Table 2: Ex-ante payoff matrix under opposite preferences

		$\tilde{U}_i^{EA}$			
		$C_i = 0$		$C_i > 0$	
$\tilde{U}_j^{EA}$	$C_j = 0$	1/2 $H_j$	1/2 $H_i$	$P_H H_j$	$P_H H_i - (1 - P_H) C_i$
	$C_j > 0$	$P_L H_j - P_L C_j$	$P_L H_i$	$P_M H_j - P_M C_j$	$P_M H_i - (1 - P_M) C_i$ *
				$P_m H_j - P_m C_j$	$P_m H_i - (1 - P_m) C_i$ **
				1/2 $H_j - 1/2 C_j$	1/2 $H_i - 1/2 C_i$ ***

For expository reasons, the notation has been simplified in two ways. First:  $U_i^{EA} = \tilde{U}_i^{EA} + \frac{1}{(1+\theta)^2} V^B$  and  $U_j^{EA} = \tilde{U}_j^{EA} + \frac{\theta^3}{(1+\theta)^2} V^B$ . Second:  $H_i = \frac{1}{4} V^A - \frac{1}{(1+\theta)^2} V^B$  and  $H_j = \frac{1}{4} V^A - \frac{\theta^3}{(1+\theta)^2} V^B$ . (\*) case in which  $0 < C_j < C_i$ . (\*\*) case in which  $0 < C_i < C_j$ . (\*\*\*) case in which  $0 < C_i = C_j$ .

**Note:** Interest Groups  $i$  and  $j$ 's ex-ante payoffs under alternative strategies for the own and the rival's campaign contributions.

Following the standard analysis for strategic games, contributing ex-ante constitutes a dominant strategy for both  $IGs$ . This result arises directly from the ex-ante competition in which the  $IGs$  get into by attempting to skew the result of the election in favor of each one's favorite candidate. However, a priori it can not be assured who contributes the most. Indeed, without further specifications on the functional form of the joint distribution  $P(C_i, C_j)$ , any combination  $(C_i, C_j)$  such that  $C_i, C_j > 0$  and that follows the behavior rule described in the Proposition 1 is an equilibrium.

**Lemma 1** *Under opposite preferences, there exists a Nash Equilibria in pure strategies with both  $IGs$  contributing ex-ante to rival candidates and:*

- (i) *for the  $IG$  whose favorite candidate takes office: such a contribution offset ex-post lobbying, even completely,*
- (ii) *for the  $IG$  whose favorite candidate loses the election: lobbying is mandatory.*

**Corollary 2** *Under opposite preferences, the campaign contributions are a useful instrument to bias the likelihood of winning an election in favor of a candidate as long*

as they differ in magnitude. Otherwise, it remains fixed at 1/2.

## 5 Data

In this paper, we compile a unique and novel dataset of political influence for Argentina at the individual-level of observation. Our main data is based on three separate datasets. Firstly, data on purchases of the National government including tenders (public and private) published in the *Official Bulletin*<sup>28</sup>. Secondly, data on hearings of interest held by the National government<sup>29</sup>. These hearings are meetings of public officials of the National Executive Power of Argentina with both private interests and other public officials<sup>30</sup>. Thirdly, data on campaign contributions, which entail money given to political parties during the campaign period by individuals and legal entities (mostly, firms).

All these data are available from public sources. However, as these datasets originate from different government agencies and were available in different formats, we spent a significant amount of time dealing with data collection and tidying issues. Throughout this process, we detected many weaknesses and inconsistencies that severely jeopardize the quality and availability of data which is required by law to be made publicly available. In this section, we outline some of the problems and shortcomings associated with the data in their raw form and how this undermines transparency in official institutions.

We also used additional databases to complete and complement information contained in our three main datasets. We call them “dictionary databases” since we used them mainly for consultation and reference. These databases are: the *Administración Federal de Ingresos Públicos (AFIP)* full administrative registry for both individuals and legal persons; the *Inspección General de Justicia (IGJ)* full administrative records of registered legal entities and associations; and AFIP legal persons administrative

---

<sup>28</sup>*Boletín Oficial* in spanish. The *Boletín Oficial* is the official gazette of the Argentine National government. It represents the single most important official media outlet of the National government where all the legal norms –laws, decrees, and regulations- and other public administrative acts from the executive, legislative and judiciary are published. It is published daily and is divided into four sections. The first section publishes new laws, decrees and resolutions. The second section publishes information on business affairs, such as registrations, liquidations, closures, auctions and other commercial matters. The third section announces calls for bids and for public tender offers and also communicated the awards of bids and contracts. Finally, the fourth section publishes communications concerning Internet domain registration.

<sup>29</sup>These are known as *audiencias de interés* in spanish, and entail meetings between private and public actors with public officials.

<sup>30</sup>A Minister calling her subordinate for a hearing is also recorded in this registry.

records by sector of activity<sup>31</sup>. Finally, for several cases, we completed missing data in the original databases resorting to web-based search services<sup>32</sup>.

We describe the alternative procedures of collection, completion, cleaning and homogeneization used to arrive at the final dataset which will be used in the empirical section. We also document the key shortcomings and problems we faced along the process.

## 5.1 Public tender contracts

This dataset compiles all the public tenders carried out by the National Government between May 2003 and December 2015. As there is currently no single database that compiles these public tenders, there are two ways of acquiring these data. The first is to request copies of all the tenders filed in each government agency for a given period. Although this is ideal since accessing the file gives full information on all aspects involved in contracting, it is virtually impossible to do for a large number of public tenders. The second way is to lookup for these tenders in the *Boletín Oficial*, the official gazette of the Argentine Republic. As noted above, the third section lists all contracts where the National government intervenes. The following bids and contracts are included in this section: 1) Purchases, supplies, services, rentals, consultancy, leases with purchase options, swaps, concessions for the use of public and private property of the National Government, entered into by the jurisdictions and entities within its scope of application and all those contracts not expressly excluded; 2) Public works, public works concessions, public service concessions and licenses.

Concerning the types of contracts collected, we included public selection procedures (public tender, public tender, public auction) and non-public or private selection procedures (short tender or abbreviated tender). We excluded direct contracting/purchases from the analysis<sup>33</sup>. Although there are no official statistics, purchases

---

<sup>31</sup>The Administración Federal de Ingresos Públicos (AFIP) holds a registry of current taxpayers and non-taxpayers who have a registered CUIT number. This registry is updated monthly. It is available at: <http://www.afip.gob.ar/genericos/cInscripcion/archivoCompleto.asp>. The records include basic personal information, an ID number and the activity status on several national taxes. The sector of activity was obtained from queries to the AFIP web server database. Finally, the Ministry of Justice and Human Rights through the Inspección General de Justicia has started to publish an updated registry of entities formally registered in that dependency with records showing directores, associates and other members. The data can be accessed at: <https://datos.gob.ar/dataset/justicia-entidades-constituidas-inspeccion-general-justicia>

<sup>32</sup>In particular, we use CUIT Online for their coverage and reliability, which we double-checked with those cases with full data on both the AFIP records and in CUIT Online web.

<sup>33</sup>The different forms of government purchases are regulated by laws and decrees which are updated by every new administration. The main difference between government purchases by selection procedures and by direct contracting is due to the expenditure amount. There are money limits beyond

made through selection procedures were around 20% of total government purchases in the year 2015. Earlier anecdotal data suggests that public contracting through selection procedures was around 25% in the year 2008.<sup>34</sup>

Since summary information about each contract is included in the daily gazzete, it is possible to build a database of public contracts. We decided to collect all the information readily available. It was separated in three sections: 1) Evaluation reports; 2) Pre-adjudication; 3) Adjudication. Each of these sections gives an account of the process followed in the public purchase.

In the evaluation report section, the gazette lists accepted and rejected bidders for each public tender. In the pre-adjudication section, the bidders whose offers were pre-selected are published. In the adjudication section, the public contract is officially awarded to one or more firms or individuals. It is important to note that these procedures are legally established by National Law 25414 and regulated through National Decree 1023/01

We collected the information from the official gazzete archives using a mix of automatic and manual procedures. We ran a script that downloaded every single issue of the *Boletín Oficial* for the period under study as a PDF file<sup>35</sup>. We then manually copy-pasted all the relevant information to a tabular format<sup>36</sup>. We were able to obtain rich information for each public tender: date, official bulletin number, type of purchase or contract, identifier of each act, name of the bidder (individual or legal person), CUIT<sup>37</sup>, amount of the bid and result of the bidding process<sup>38</sup>. This procedure yielded a database with over 130000 observations. It also highlighted data deficiencies and limitations that are worth mentioning.

First and foremost, individual records do not generally include an unequivocal bidder (contractor) ID. We were able to learn that only around 17% of observations contained a non-ambiguous identifier, the CUIT number. This reveals a startling fact: for more than 80% of all the public tenders contracts, we do not unequivocally know

---

which the government has to organize a public tender. Below that limit, the government can make the purchase directly to the vendor.

<sup>34</sup>Source: <https://www.lanacion.com.ar/2116773-solo-el-13-de-las-compras-del-estado-son-por-licitacion-publica>, <https://www.lanacion.com.ar/983907-gastar-mas-contratacion-directa> and <https://www.lanacion.com.ar/2116470-solo-un-13-de-las-compras-que-hace-el-estado-son-por-licitacion-publica>

<sup>35</sup>This meant we have one file for each working day resulting in over 2400 files. The *Boletín Oficial* can also be accessed and queried online but the HTML code is difficult to scrape since it is modified with certain regularity.

<sup>36</sup>We were unable to auto-scrape the PDF file due to several changes that were made in the HTML script code and in the PDF arrangement.

<sup>37</sup>CUIT stands for *Clave Única de Identificación Tributaria* and is a unique tax identifier for both individuals and legal persons.

<sup>38</sup>That is, whether it was awarded or not, and to whom.

who the winner is! In other words, the non-reporting of the CUIT number –be it by design, by practice or by deficient recording– leaves much uncertainty as to the identity of the winner. This may not be a huge problem when a firm is readily identifiable by a uncommon name but there are many cases where firms have similar names and many more where individual bidders and contractors even have the same name.

A related problem was that of misspelling of names and other typos. The correct spelling of names become important given the proportion of non-registered CUIT numbers. A similar practice was to identify a firm/individual with a “fantasy” name<sup>39</sup>. Geographical information was also missing in the large majority of the records adding to the difficulties for identifying firms and individual contractors.

In addition to these deficiencies, other shortcomings were evident. There is no centralized way to name and code the different government agencies. In the large majority of the tenders, only list information about the contract winner but no information is given on the remaining bidders or on the motives they were left out for. Finally, there are several flaws in the registration of tenders with multiple lines. Tenders may be granted in full to one bidder, or split into multiple contracts to several bidders according to different lines (items). In these cases, the filing of information on bidders by lines is not homogeneous and we find it to be not systematic. The same problem of non-reporting of losers holds here when the tender is split into multiple lines. According to our own records, we were able to recover around 25600 out of 34160 public tenders. In other words, we lost around 25% of public tenders due to data in bad shape. We return to these issues in section 6.

## 5.2 Hearing of interests (lobbying)

As we mentioned earlier in our discussion, lobbying activity in Argentina is currently not regulated. There are no formally established lobbying markets, lobbying firms and professional lobbyists. Firms, interest groups and business associations are not required to disclose how much they spend on political influence activities. In fact, they are not even required to acknowledge their lobbying activity. In the last decade, however, the regulation of lobbying activity has been present in almost any debate towards improving public sector accountability and transparency.

One early step taken in this direction was the creation of a Registry of Hearings of Interest (*Registro Único de Audiencias de Intereses*, in spanish) following the enactment of Decree 1172 in 2003 which specifies procedures for transparency of government audiences and hearings. A hearing of interest is defined as “all activity carried out

---

<sup>39</sup>There were many of such cases. For instance, one bidder who got awarded a public contract was listed as “Ingebro” while its legal name in the AFIP database was “Alejandro Lauriente”

-in an audience mode- by natural or legal persons, public or private, by itself or on behalf of third parties -with or without profit- whose purpose is to influence the exercise of any of the functions and/or decisions of the organisms, entities, companies, societies, dependencies and of any other entity that functions under the jurisdiction of the National Executive Power”. It is the closest equivalent to regulated lobbying as it occurs in many developed countries<sup>40</sup>. This decree requires members of the executive power, ranging from the President himself to any official with the sub-secretarial rank, to register all the audiences held. This database contains over 69000 records at the individual hearing level with 31 variables recording details of date, personal and institutional characteristics of attendees and, when declared, motive of the hearing<sup>41</sup>

Although available in tabular format, we found several deficiencies in the coverage, quality and consistency of the recorded information. Although, unlike public purchases, this database is available for downloading, it also presented major deficiencies in terms of homogeneity, systematicity and reliability in the registration of information. Among the main problems were many mistakes in recorded names and surnames of attendees; missing unique ID number<sup>42</sup>; apocryphal and non-existing CUIT numbers and non-registration of hearing motives. It is very likely that several records in our regressions do not contain hearings but this may be a mistake in identifying the hearing due to the problems aforementioned. Still, when we exclude all the hearings held between two public officials, we were able to identify around 59% of the audiences.

### 5.3 Campaign contributions

Data on campaign contributions were collected from the *National Electoral Chamber*, which is that chief electoral body in charge of electoral management. These data comprise over 40000 observations recording individual and corporate donors to the campaign of political parties<sup>43</sup> for all the national elections between 2003 and 2015, both executive and legislative. The data are not homogeneous or easy to access and we had to homogenize data for different elections which were in non-compatible formats.

Since we are using only declared (legal) campaign contributions, it is important

---

<sup>40</sup>It is important to note that hearings of interest may not be lobbying-motivated at all. Many individual persons request hearings for non-profit reasons and so do many firms that often request hearings not to influence an official directly but rather to acquire information or to learn about technical issues. In any case, we assume that whenever an individual party asks for a hearing with some public official, there is some specific issue at hand that may be of interest to at least the requesting party.

<sup>41</sup>The raw database is publicly available at <https://audiencias.mininterior.gob.ar/>.

<sup>42</sup>There are two identifiers in this database: name and national ID number.

<sup>43</sup>Campaign contributions to individual candidates are not allowed under Argentine political finance law.

to make a few considerations about the validity and representativeness of these data. According to several observers, political parties in Argentina spend much more in their electoral campaigns than is declared. Although there are no reliable estimates, most observers and analysts agree that legal money amounts to only a small fraction of the actual campaign costs [Page and Mignoge (2017)]. In any case, even if legal campaign contributions are only the tip of the iceberg, we believe they provide useful information as to identity and nature of the interest groups donating money to political parties<sup>44</sup>

It is also important to note that the legal regime on political finance suffered several changes during the period under study. The regulation was changed in 2003, 2006 and 2009. In the first two cases, changes were aimed at improving registration and accountability standards. The last amendment introduced a major change when campaign contributions from legal persons (firms, business associations, unions and other institutional actors) were prohibited. This affects our data in two important ways. Firstly, there are very few corporate campaign contributions in the whole dataset (around 4-5% of total number of contributions). Secondly, firms that were contributors in the 2005, 2007 and 2009 election periods, were no longer *formally* declaring contributions but anecdotal evidence suggest they used other means -both legal and illegal- to channel funds to parties<sup>45</sup>

## 5.4 Merging and cleaning

To compile the working dataset, we ran a very meticulous and painstaking data-wrangling process. Firstly, we decided to join all datasets on a common ID, the CUIT number. As all the datasets are available at the individual level of observation –individuals and firms contributing money to campaigns, requesting hearings with public officials and bidding for public contracts-, this was the sensible way to proceed. As noted above, two of the three datasets –*public contracts*, and *hearings*-, contain many records without a CUIT number. Since matching data on strings (that may not be unique) is significantly more cumbersome than matching data on unique IDs, we improved the raw data with the following procedures:

---

<sup>44</sup>There are several potential issues that may be difficult to treat. If the proportion of legal/illegal contributions differ across interest groups and/or political parties, then one should be able to control in some way for these differences. Additionally, to some extent, legal and illegal campaign contributions may be viewed as imperfect substitutes particularly if controls are weak and lacking, as anecdotal evidence seems to suggest is the case in Argentina. These problems are likely to be significant so we are cautious when interpreting our results in the next section.

<sup>45</sup>Some observers suggest the two most important channels were contributing through individual persons associated with the firm (CEOs, managers, associates, directors) and contributing outside the campaign period. In the latter case, political parties can also receive money to fund institutional activities and other regular party activities other than electoral campaigning

1. Reviewing and amending names of both natural and legal persons.
2. Looking up missing CUIT number in the AFIP administrative database using person name and surname as a common field. We also checked the names and surnames in popular online databases<sup>46</sup>
3. Conducting exact- and -fuzzy string matching between each of our main databases and the dictionary AFIP database. Exact matching of strings yielded very few matches due to misspelled names and other problems. On the other hand, we used a fuzzy-matching algorithm that yielded matches ordered according to *optimal string alignment* distances between two texts<sup>47</sup>.

Through this data-wrangling process, we completed around 90% of the CUIT numbers of each databases. In sum, we were able to tidy up and improve upon the official statistics by recovering key information on many missing observations<sup>48</sup>. This allows us to merge the databases using the CUIT number as common and unique identifier without losing a large number of observations. The next section describes the working dataset and the empirical strategy and results

## 6 Empirical strategy

In this section, we first provide some descriptive analysis of the data we introduced and described in the previous section. Second, we test for the existence of a positive correlation between influence activities –campaign contributions and lobbying efforts– and the amount obtained through public tender contracts, as well as the probability of winning such contracts. Due to the nature of our data, we are only able to test for correlations not causality. The results reported in this section, however, shed light on a part of the political process that can influence the allocation of a very important share of public spending at the national level.

---

<sup>46</sup>The AFIP administrative database contains around 4.6 million records and is updated every month. While it only includes natural and legal persons that are in the formal economy, we believe that it is a good proxy for the population of firms and persons who are able to sign a contract with the public sector. As for online searches, we used the most popular website, <http://www.cuitonline.com>.

<sup>47</sup>The algorithm used the restricted Damerau-Levenshtein distance. For additional details, see appendix 7

<sup>48</sup>Due to time constraints, we were unable to run individual contributors to political parties against the database of registered legal entities and associations and their authorities and members. If the suggestion that firms were channeling their formerly firms contributions through their authorities and members, we should be able to find matches of this kind. Unfortunately, the process is not easy due to the fact that all the matches against that dictionary database should be made on the base of string matching (i.e. no CUIT numbers).



Our data covers records of physical and legal persons that participated in public tender contracts. For each participant, the records give information on whether she made campaign contributions in the electoral cycle to which the contract corresponds, as well as whether they held one or more hearings of interest with the government agency<sup>49</sup>. In the latter case, since the tenders and hearings data originate from different sources, we are unable to identify whether hearing of interest had a direct relationship with the public tender process under analysis<sup>50</sup>. Not every public tender contract include complete information on key aspects, particularly the number and identity of all the bidders, winners and losers<sup>51</sup>. For this reason, we identify all possible combinations of data availability considering our variables of interest –outcome of public tender process, campaign contributions, and hearings of interests. These are described in Table 3. Cases 1 and 2 contain information only on the winners of public tenders. These represent the large majority of our cases, around 93%. In cases 3 to 5, we have additional information on who the winners and losers were.

The data covers the period between november 2004 and october 2015. This periods is divided into 5 electoral cycles, each one corresponding to 2005, 2007, 2009, 2011 and 2013 national elections. There were legislative elections in each year and national Presidential election in 2007 and 2011<sup>52</sup>. We define the electoral cycles using election dates as reported in Table 4:

Table 4 also includes the total amount of public tender contracts assigned in each electoral cycle (in constant pesos of 2015) and fraction of total value of public tender contracts that each electoral cycle represent in total public tender contracts during the period. It can be observed that there are no significant assymetries between the different electoral cycles that we have defined.

Table 5 shows some basic information as to the distribution of public contracts per person. It can be seen that there is significant heterogeneity in the number of contracts won by different persons. It also shows the average value of contracts.

Table 6 shows the distribution of the values of public tenders between the different

---

<sup>49</sup>Although we have precise and detailed information about the agency putting up the tender disaggregated to the lowest level, we use the higher level of aggregation for computing hearings of interest since otherwise, it would lead to a great loss of observations. This is due mainly to different spellings and the fact that government dependencies are subject to change between different administrations.

<sup>50</sup>A plausible assumption, however, would be to consider that holding a hearing with a government official is at least *partly* related with the motive of exerting some form of influence.

<sup>51</sup>The raw data include all the published records concerning public tenders in the Third Section of the Official Gazette of the Argentine Republic. Obtaining complete information on every public tender would require to obtain the administrative files and records of each and every tender, a likely impossible task.

<sup>52</sup>In each election year, the Chamber of Deputies (lower house) is renewed by halves and the Chamber of Senators (upper house) is renewed by thirds.

Table 3: Information available for each procurement call

Case 1	Case 2	Case 3	Case 4	Case 5
1.A	2.A	3.A	4.A	
1 winner	2 or more winners	1 winner	2 or more winners	
- amount awarded	- amount awarded	- amount awarded	- amount awarded	
- winner held or did not hold hearings	- winners held or did not hold hearings	- winners held or did not hold hearings	- winners held or did not hold hearings	
- winner contributed to incumbent and/or non-incumbent, or not contributed at all	- winner contributed to incumbent and/or non-incumbent, or not contributed at all	- winner contributed to incumbent and/or non-incumbent, or not contributed at all	- winner contributed to incumbent and/or non-incumbent, or not contributed at all	
		3.B	4.B	5.B
		1 or more losers	1 or more losers	1 or more losers
		- loser/s held or did not hold hearings	- loser/s held or did not hold hearings	- loser/s held or did not hold hearings
		- loser/s contributed to incumbent and/or non-incumbent, or not contributed at all	- loser/s contributed to incumbent and/or non-incumbent, or not contributed at all	- loser/s contributed to incumbent and/or non-incumbent, or not contributed at all
<b>Number of public tenders</b>				
16606	7418	537	537	505
<b>Number of persons involved in public tenders</b>				
3983	3374	980	1300	667
Source: Own elaboration				

Table 4: Electoral cycles

Cycle	Election date	From	To	Pesos (dic 2015)	Perc.
2005	10/23/2005	11/2004	10/2007	20.374.547.947	10.12
2007	10/28/2007	11/2006	6/2009	57.742.759.356	28.69
2009	06/28/2009	9/2008	10/2011	50.194.570.735	24.94
2011	10/23/2011	10/2010	10/2013	46.246.301.600	22.98
2013	10/27/2013	11/2012	10/2015	26.727.154.641	13.28

government agencies for the whole period. It is interesting to see that a few agencies, make up for almost 50% of the total value of public tender contracts.

Table 5: Tenders per person

No. of contracts	Frequency	Average value
1	2252	15877543
1-5	2256	8190500
6-10	740	3265996
11-15	241	7288022
16-20	133	2159503
21-25	106	5444348
26-50	291	3018707
more than 50	192	2608840

Table 6: Public tenders (amounts), by government agency

Dependencia	Pesos (dic 2015)	Perc.
MINISTERIO DE PLANIFICACION FEDERAL DE INVERSIONES	70.559.206.726	35.05
MINISTERIO DE DEFENSA	25.335.074.536	12.59
MINISTERIO DE SALUD Y AMBIENTE	22.032.380.472	10.95
MINISTERIO DE DESARROLLO SOCIAL	21.073.960.336	10.47
MINISTERIO DE TRABAJO EMPLEO Y SEGURIDAD	19.845.812.392	9.86
MINISTERIO DE ECONOMIA Y FINANZAS PUBLICAS	17.206.991.615	8.55
MINISTERIO DE SEGURIDAD	7.302.323.503	3.63
MINISTERIO DEL INTERIOR Y TRANSPORTE	5.545.078.788	2.75
MINISTERIO DE JUSTICIA Y DERECHOS HUMANOS	4.502.632.042	2.24
MINISTERIO DE EDUCACION	2.826.683.440	1.40
MINISTERIO DE RELACIONES EXTERIORES Y CULTO	1.675.101.723	0.83
MINISTERIO DE AGROINDUSTRIA	1.609.924.483	0.80
MINISTERIO DE TURISMO	953.929.945	0.47
MINISTERIO DE INDUSTRIA	674.537.500	0.34
MINISTERIO DE CIENCIA TECNOLOGIA E INNOVACION	120.685.468	0.06
MINISTERIO DE CULTURA	21.011.308	0.01

Table 7 shows the distribution of private campaign contributions between incumbents and non-incumbents (money going to all the remaining competing parties combined). The picture that emerges is that private contributions follow a pattern consistent with non-aligned preferences<sup>53</sup>

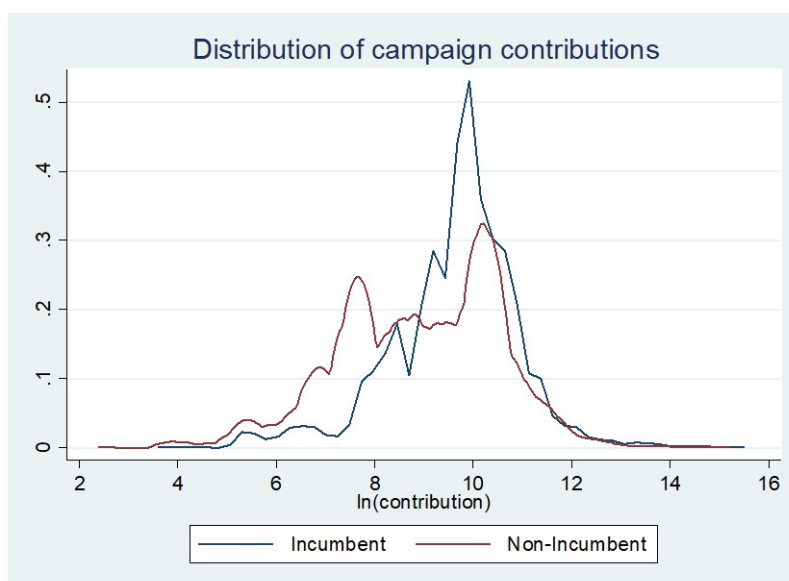
<sup>53</sup>This may be due to the low amount of non-corporate contributions included in the campaign contributions dataset. In general, this type of contributions follow a more ideological, partisan-based motive. Another possible reason for this is that firms indeed have non-aligned preferences and actually care about the winner of the election. This requires further investigation, both at the quantitative and qualitative level.

Table 7: Distribution of campaign contributions

Election	Incumbent	Non-Incumbent
2005	44.0	56.0
2007	53.8	46.2
2009	46.6	53.4
2011	30.0	70.0
2013	45.3	54.7

Figure 3 shows the kernel density of campaign contributions for incumbents and challengers. Incumbents on average receive larger average contributions than challengers. Since contributions by natural persons comprise around 95% of the total number of contributions, this is reflected in the graph. However, when splitting the contributions between natural and legal persons, the opposite rings true: on average, legal persons average contributions for challengers are larger than for incumbents for all elections –2005, 2007 and 2009- where contributions from legal persons were allowed.

Figure 3: Kernel density of the political influence activities



Since public tenders and influence activities occur on a time basis<sup>54</sup>, we need to specify how we assign influence activities to public tender contracts decisions. In the case of campaign contributions, this poses no problem since they are limited to be made during a specific time *before* the election date<sup>55</sup>. The assignment of hearings of interest and public tenders to election cycles is more difficult. Public tenders are

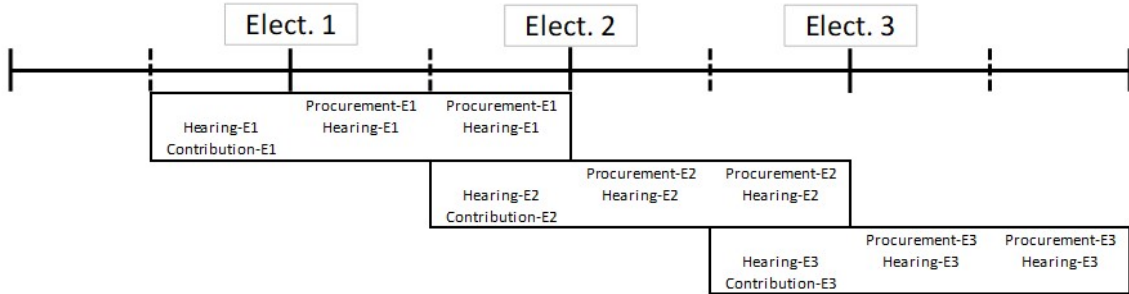
<sup>54</sup>This is literally the case for hearings of influence although not quite the case for campaign contributions which are legally restricted to a certain period.

<sup>55</sup>Although this is legally established in the Electoral Code, the campaign period is often regulated

assigned to an election cycle if they are granted within the period that goes right after the election date up to one month from the next election. Hearings of interest are assigned to election cycles according to the following criterion: hearings are assigned to an election cycle if they fall within 12 months prior to the election and within the whole post-election period up to one month before the next election.

It is important to note that we are relaxing the assumption that lobbying activities take place *after* the election only as explained in section 4. There are two reasons for this. Firstly, in practice, due to the nature of the administrative process and other delays, public tenders awarded within a given election cycle may have been started in a previous cycle. We include hearings of interest within a reasonable one-year period before the election to control for this possibility. Secondly, it is possible that hearings of interest are part of a relationship-building process between officials and interest groups. If this is the case, then including hearings held during a certain period before the election helps capturing this effect. Figure 4 shows the timing of the influence-election-tender process and how the assignments to election cycles are made. Notably, there is a sub-set of audiences that can potentially be assigned to two different public tenders contract.

Figure 4: Timing of the political influence activities



We estimate two empirical specifications, depending on how the dependent variable is defined. The first model is:

$$\ln(Y_{i,p,e}) = \beta_1 HI_{i,p,e} + \beta_2 CC_{i,e,inc} + \beta_3 CC_{i,e,non-inc} + \epsilon_{i,p,e} \quad (6)$$

where  $Y_{i,p,e}$  is the log of the amount granted to person  $i$ , in public tender contract  $p$  corresponding to the electoral cycle  $e$ ;  $HI_{i,p,e}$  is a dummy variable equal to 1 if person  $i$  held a hearing of interest previous to the public tender contract  $p$  during the electoral cycle  $e$ , and 0 otherwise. It is important to remember that we cannot specifically attach

---

for each election. The current legislation states that legal campaign contributions are allowed within 30 days prior to the election.

a hearing of interest to a particular contract<sup>56</sup>, so  $HI_{i,p,e}$  is in fact defined at the level of person  $i$ , and not necessarily to the pair  $(p, i)$ . Alternatively,  $HI_{i,p,e}$  is measured as the total number of hearings held previous to the tender contract  $p$  during the electoral cycle  $e$ ;  $CC_{i,e,inc}$  is a dummy variable equal to 1 if person  $i$  made a contribution to the incumbent party in the electoral cycle  $e$ , and 0 otherwise;  $CC_{i,e,non-inc}$  is a dummy variable equal to 1 if person  $i$  made a contribution to a non-incumbent party in the electoral cycle  $e$ <sup>57</sup>; and  $\epsilon_{i,p,e}$  is an error term.

Because of the way in which the dependent variable is defined in 6, it only includes those cases in which the individual or legal person obtained a positive amount<sup>58</sup>. The reason we include campaign contributions as dummies is that only a minority of those who obtained contracts contributed positive amounts. Using logs, instead, would amount to losing a large number of observations.

As an alternative to equation 6, we propose another specification where the dependent variable is a dichotomous variable, taking the value 1 if the person was benefited with a positive amount in the case of a given contract, and 0 if she was not granted a positive amount provided she had participated in the bidding process<sup>59</sup>. This sample includes both winners and non-winners of the tender contract and the respective coefficients can be interpreted in terms of the probability of winning a public tender contract:

$$P_{i,p,e} = \beta_1 HI_{i,p,e} + \beta_2 CC_{i,e,inc} + \beta_3 CC_{i,e,non-inc} + \epsilon_{i,p,e} \quad (7)$$

where  $P_{i,p,e}$  is equal to 1 if in tender contract  $p$  corresponding to the electoral cycle  $e$ , person  $i$  was granted a positive amount, and 0 otherwise.

Both equations 6 and 7, are estimated using a pooled sample, as well as using a random effect estimator. In the case of equation 7, we assume a Probit model<sup>60</sup>. In both equations we include also two sets of individual effects: one for the electoral cycles and the other for the agencies (Ministries) organizing the tender contracts.

---

<sup>56</sup>There is simply no systematic way of doing so since otherwise it would imply making arbitrary contract-hearing one-to-one or many-to-one matching.

<sup>57</sup>By including both variables,  $CC_{i,e,inc}$  and  $CC_{i,e,non-inc}$ , in addition to controlling for the effect of making a campaign contribution to the winner party on securing a tender contract, we are able to control also for any potential impact that making contributions to the non-incumbent may have in securing contracts.

<sup>58</sup>Subcases 1.A, 2.A, 3.A and 4.A of Table 5.

<sup>59</sup>In addition to those subcases included in equation (1), in equation (2) we also include subcases 3.B, 4.B and 5.B.

<sup>60</sup>We also run the models using a logistic model and a lineal probability models. There were not many differences in terms of the rates of successful predictions. The results and tables are available from the authors upon request.

Table 8 presents group means of our variables of interest. We can observe that the average amount of public tenders obtained by those who held hearings is substantially higher than for those who did not. The same holds for campaign contributions –i.e. higher average amount of tenders for those who made contributions. However, the differences are much smaller in this case, especially when campaign contributions were directed to non-incumbent parties.

Table 8: Hearings, campaign contributions and mean value of public tender contracts

		Contract value (*)	
<b>Hearings of Interest</b>	<b>Group</b>	<b>Average</b>	<b>Std. Dev.</b>
No	(1)	3.842.863	110.094.139
Yes		20.371.264	95.468.558
No	(2)	4.114.960	113.920.301
Yes		20.675.962	96.148.574
<b>CC to Incumbent</b>		<b>Average</b>	<b>Std. Dev.</b>
No	(1)	3.993.948	110.037.174
Yes		8.234.491	20.423.152
No	(2)	4.274.597	113.832.424
Yes		8.683.645	20.887.918
<b>CC to Non-Incumbent</b>		<b>Average</b>	<b>Std. Dev.</b>
No	(1)	3.989.382	110.235.456
Yes		5.955.453	16.286.173
No	(2)	4.269.808	114.038.891
Yes		6.321.138	16.711.556

\* Pesos of december 2015. (1) Including observations in which either the person was or not awarded a positive amount (cases 1 to 5 of Table 3), the number of observations (tender contracts) is 50,336 (25,603). (2) Including only those awarded a positive amount (cases 1.A, 2.A, 3.A and 4.A of Table 3), the number of observations (tender contracts) is 47,032 (25,098).

As Table 9 shows, when we restrict the attention to only those public tender contracts for which we have complete information on winners and losers (cases 3, 4 and 5 of Table 3), the difference in terms of holding/not holding a hearing becomes much more important. The opposite happens in terms of making campaign contributions to the incumbent party, with the average value of the contracts being now a 8% lower than the average for the contracts obtained by those who did not contributed to the incumbent party. Although somewhat surprising, this suggests there appears to be an important penalty when the person contributed to the non-incumbent parties: indeed, the average value of the tender contracts being almost 70% lower than the average for those who did not contribute. If we consider the share of wins, holding hearings of interest and making campaign contributions to the incumbent party appears to be

beneficial, while contributing to the non-incumbent party implies a penalty of about 9% (3.8 p.p.).

Table 9: Hearings, campaign contributions, and results of public tender contracts

<b>Hearing</b>	<b>Contract value (**)</b>	<b>share of wins</b>
No	4.028.136	0.428
Yes	77.033.533	0.667
<b>CC to Incumbent</b>	<b>Contract value (**)</b>	<b>share of wins</b>
No	4.293.637	0.429
Yes	3.951.583	0.667
<b>CC to Non-Incumbent</b>	<b>Contract value (**)</b>	<b>share of wins</b>
No	4.304.997	0.429
Yes	1.313.464	0.391

Considering only tenders in which there is information on both winner and losers (cases 3 to 5 of Table 3), the number of observations (tender contracts) is 5,786 (1,579). \*\* Pesos of December 2015. Source: own elaboration.

In Table 10 we report the results from equations 6 and 7 using a pooled sample. The amount of public tender contracts is positively related to both lobbying activities and campaign contributions. The variable measuring lobbying activities –hearings of interests– has a positive and significant coefficient regardless whether we use the number of hearings or a dummy variable for holding at least one hearing. As for campaign contributions, we obtain positive and significant estimates to either having contributed to the incumbent or the non-incumbent parties. The coefficient is about 50% larger when contributions are directed to the incumbent party. Columns 3 and 4 in 10 report the probit model regressions. In this model, campaign contributions are no longer significantly correlated with the probability of obtaining public tenders. Hearings of interests, in its two alternative measures, exhibit positive and significant coefficients.

A potential problem with the results from using a pooled sample is that of unobserved heterogeneity. Table 11 reports the results using a random-effect model. There are some differences with those in Table 10. First, now only the variable hearings of interest is statistically significant. Second, the estimated coefficients are smaller for the case when the dependent variable is the amount of the contract. This is expected since specific characteristics of the participants in the tender procedures are likely to be related to the amount they can bid for; for instance large firms are more likely to participate in larger contracts. On the other hand, when the dependent variable is the probability of winning a contract, firm size should have little role in the outcome since it is more likely that large firms compete with other larger firms, and small ones compete with each other. Thus, after controlling for idiosyncratic characteristics through the



Table 10: Pooled sample results

Explanatory variables	Dependent variable			
	ln(Value of tender contract)*		Tender awarded (1)/not awarded (0)**	
Hearing (1=yes/0=no)	1.6719*** (0.095)		0.7538*** (0.153)	
Number of hearings		0.5112*** (0.034)		0.4075*** (0.100)
CC to incumbent (1=yes/0=no)	0.6625** (0.266)	0.7953*** (0.266)	0.4300 (0.305)	0.4361 (0.304)
CC to non-inc (1=yes/0=no)	0.4675*** (0.131)	0.4730*** (0.131)	0.1535 (0.143)	0.1530 (0.143)
Number observations	47,032	47,032	50,172	50,172
R-squared	0.977	0.977		
Ministry effects	yes	yes	yes	yes
Electoral cycle effects	yes	yes	yes	yes
<b>Correct predictions (%)</b>				
Contract awarded			93.93	93.93
Contract not awarded			15.07	15.10
Number public tenders	25.098	25.098	25.486	25.486
Mean of dep variable	12.67	12.67	0.934	0.934

Using observations belonging to procurement contracts that fall into cases 1.A, 2.A, 3.A and 4.A. (\*\*) Using observations belonging to procurement contracts that fall into cases 1 to 5. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

individual effects, in which the amount of the contract a firm obtain is in part explained by its size, the magnitude of the effect of hearing of interest is reduced. An odd result for when the value of the procurement contract is the variable to be explained is the negative and significant coefficient associated to having contributed to the incumbent party. A possible explanation for this finding can be explained in light of the recent scandal about an illegal and underground system in which the party in office financed itself with a share of the money granted through the procurements contracts, such that legal and above the table contributions played a marginal role.

Table 11: Random effects results

Explanatory variables	Dependent variable			
	ln(Value of tender contract)*	Tender awarded (1)/not awarded (0)**		
Hearing (1=yes/0=no)	0.4817*** (0.102)	0.7867*** (0.208)		
Number of hearings		0.2196*** (0.036)		0.3771*** (0.125)
CC to incumbent (1=yes/0=no)	-0.7298*** (0.256)	-0.7079*** (0.256)	0.2803 (0.378)	0.2910 (0.376)
CC to non-inc (1=yes/0=no)	-0.1704 (0.118)	-0.1717 (0.118)	0.1336 (0.185)	0.1279 (0.185)
Number of observations	47,032	47,032	50,172	50,172
Number of cross section units	5,711	5,711	6,143	6,143
Ministry effects	yes	yes	yes	yes
Electoral cycle effects	yes	yes	yes	yes
<b>Correct predictions (%)</b>				
Contract awarded			91.74	91.17
Contract not awarded			17.01	16.98
Number of public tenders	25.098	25.098	25.486	25.486
Mean of dependent variable	12.67	12.67	0.934	0.934

(\*) Using observations belonging to procurement contracts that fall into cases 1.A, 2.A, 3.A and 4.A.  
(\*\*) Using observations belonging to procurement contracts that fall into cases 1 to 5. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

As pointed out before in section 5, there are many cases in which the *Boletín Oficial* only include the identities of the winners of public tenders and there is no information on the losers. We now restrict the sample to the cases for which we have the identities of all who participated of the process. The sample is significantly reduced as we go from 25,000 to 1,579 public tender contracts. In Table 11, we estimate once again equation (2) but now considering those procurement contracts for which we have complete information on the winner and losers. The results do not change much, with the coefficient for hearings of interest being still positive and significant, while contributing to the incumbent party pays more than doing for the opposition, however

in both cases the estimates are not statistically significant.

Table 12: Random effects results - Tender contracts with complete information only

Explanatory variables	Dependent variable	
	Tender awarded (1)/not awarded (0)*	
Hearing (1=yes/0=no)	0.7490** (0.359)	
Number of hearings		0.3305* (0.196)
CC to incumbent (1=yes/0=no)	0.6643 (0.525)	0.6639 (0.525)
CC to non-inc (1=yes/0=no)	0.0530 (0.335)	0.0458 (0.335)
Number observations	5,786	5,786
Number cross section units	2,116	2,116
Ministry effects	yes	yes
Electoral cycle effects	yes	yes
<b>Correct predictions (%)</b>		
Contract awarded	63.01	63.04
Contract not awarded	40.41	40.41
Number of public tenders	1.579	1.579
Mean of dependent variable	0.429	0.429

(\*) Using observations belonging to procurement contracts that fall into cases 3 to 5. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Finally, in Table 13 we reports the results for equation 6, but now our observations are at the person level (physical or legal). The dependent variable is the total value of public tender contracts obtained by a given person. We work with two levels of aggregation. First, we aggregate all contracts obtained by a given person that were channeled through a particular Ministry; in the second case we add up all contracts with independence of the agency that channeled the contracting process. One reason for carrying out these aggregations is that the first allows a given person to have different unobserved or idiosyncratic characteristics depending on the Ministry in which the procurement process takes place, which could be explained by differences in terms of the informal network or contacts that each person has in each Ministry. The main result, maintained from previous tables, is the positive correlation between the value of the contracts a person was awarded and the efforts in lobbying activities represented by the hearings of interests. Our results are less robust although the coefficients are positive. When we aggregate at the level of person/ministry the coefficient for the contribution to the incumbent party is smaller; the opposite is true when the aggregation is at the level of a person regardless of Ministry. Once again, in light of recent events that are in the public domain, it is very likely that legal contributions are just a marginal part of what the incumbent party often uses as campaign financing compared to other sources

of funding (illegal payments). These payments, as it has emerged, are often associated and linked with the allocation of public contracts.

Table 13: Random effects results - Aggregate value of tender contracts

Explanatory variables	Dependent variable	
	ln(Value of procurements contracts)*	
	Person-Ministry	Person
Hearing (1=yes/0=no)	1.3509*** (0.184)	1.4594*** (0.178)
CC to incumbent (1=yes/0=no)	0.5334 (0.395)	0.1118 (0.508)
CC to non-inc (1=yes/0=no)	0.4213** (0.209)	0.4611* (0.276)
Number observations	15,548	11,132
Number of cross section units	9,332	5,711
Ministry effects	yes	no
Electoral cycle effects	yes	yes
Mean of dependent variable	13.63	14.03

(\*) Using observations belonging to procurement contracts that fall into cases 1 to 5. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## 7 Discussion and policy implications

During the present year in Argentina, two large scandals shocked Argentine party politics and business relations between the public and private sector. The first scandal emerged after an investigation showed compelling evidence that the ruling party had channeled formal campaign contributions through citizens who unknowingly were registered as individual donors in campaign reports –the “aportes truchos” scandal. The governor of the province of Buenos Aires fired the head of the General Accounting department. The government suffered a media backlash over this scandal and there is an ongoing judicial process. The second scandal emerged after copies of several notebooks emerged to the public light showing a myriad of handwritten notes detailing bribes paid to public officials by renowned businessmen and public contractor during the Kirchner administrations –the “cuadernos K” scandal. Several businessmen whose names were on the *cuadernos K* voluntarily confessed to paying bribes to various judges since they hoped to get a reduced conviction by whistleblowing. Public contracting was on the spotlight and still is.

It goes without saying that we had no knowledge (or way of knowing) about these scandals when we started this paper. It also goes without saying that this practices may have been going for quite a long time. Regardless of the motives behind their

uncovering, there is now a very heated public debate on what laws and regulations should be sanctioned to prevent these scandals. The academic and policy debate is still at a primitive stage. There is a startling lack of transparency and data surrounding these issues. And when there are data, they are often incomplete and in very bad shape. We believe this is an important topic because it has political and policy implications which ultimately affects citizen welfare. Our work in this paper has attempted to shed some light on how the political influence process is organized in Argentina and what are their implications in terms of policy outcomes. Despite scarcity and reliability of data, we built a rich and valuable dataset to give some answers on the question asked in the first section.

In short, this paper analyzes the relationship between two specific channels of political influence –monetary contributions during the campaign period and lobbying meetings both before and after the election- and the event of obtaining public contracts in Argentina for the 2003-2015 period.

We propose a way of modeling these relationships using a two-party model of electoral competition with two interest groups whose preferences for political options are not aligned. In this setting, campaign contributions are a useful instrument to bias the likelihood of winning an election in favor of the favorite candidate. However, an aggressive campaign fight leads the interest groups not to commit too much money for this purpose; rather it encourages them to wait for the outcome of the election to play a post-election strategy based on lobbying. Furthermore, any campaign contribution to an elected candidate constitutes a positive externality in the after-election period that relaxes the IGs lobbying activities after the election. On the contrary, lobbying becomes crucial for those IGs who did not contribute to the elected candidate. Finally, the possibility to contribute to the political cycle of a candidate before and/or after an election leads to a fair distribution-rule for the allocation of public contracts, in the sense that all the IGs that value a contract in the same way, a priori, have the same possibility of obtaining it.

The empirical results are somewhat consistent with the implications from the theory. Campaign contributions and lobbying hearings are positively correlated with larger amounts of public contracts and lobbying hearings –measured both by having attended to a hearing or by the number of hearings- are also correlated positively with the likelihood of winning a public contract. Controlling for unobserved heterogeneity, lobbying activities are still significantly correlated with both outcome variables –public contract amount and probability of obtaining a contract. The size of the coefficients are smaller, especially in the case where the outcome variable is public contract amount<sup>61</sup>.

---

<sup>61</sup>This is actually expected since it is likely the public contract amount a firm receives is at least partly related to firm size. The individual effects are likely to be captured partly by this effect.

In this case, the coefficients on campaign contributions are not significant in either case.

We find our paper is relevant for several reasons. First, to the best of our knowledge it is the first empirical paper using fine-grained individual level data to explore the relationship between political influence activities and political outcomes for Argentina. Second, both anecdotal and empirical evidence suggest that political influence in Argentina targets the executive and members of the cabinet, not Congress. This is important since most of the literature on US politics, focus on political influence –through both campaign contributions and lobbying expenditures- over legislators and the passing (or not passing) of laws. We study a different case: lobbying on the executive in exchange for public contracts. In a way, this is a more specific type of *quid-pro-quo* since the value of public contracts to firms and interest groups is more precise; in contrast, the value of legislation for firms and interest groups may be more difficult to estimate.

On a different level, we now address a few considerations about policies aimed at improving transparency standards and fighting corruption that are derived from both from the data collection process and from the theoretical and empirical work. The current standards of disclosure of information on political influence activities are deficient. We have documented the several shortcomings existent in the filing and release of campaign contributions, hearings of interest and public tenders. We believe there are improvements to be made in at least to domains. Firstly, filing and registration standards. Every person participating in any stage of the political influence process should be identified through an ID number which is unique and non-changeable. Everybody should be able to identify persons participating in political influence activities just by inputting this ID number. The optimal standard should be a centralized database listing all the influence activity and benefits by a natural and/or legal person. Secondly, regulation and legal standards. Restrictions, limits and prohibitions do not always have the intended effect and sometimes create perverse incentives. Our intuition that corporate campaign contributions did not disappear but rather found a way through informal and/or illegal channel should shed some light on the type of regulation needed. There is plenty of anecdotal evidence on this and growing empirical evidence in several countries. Regulation should also ensure that transparency of public procurement should include in its information release, at a minimum, all the bidders participating in the process and the reasons for rejecting them.

## References

- Abramowitz, A. I. (1988). Explaining senate election outcomes. *American Political Science Review*, 82(2):385–403.
- Acemoglu, D., Johnson, S., Kermani, A., Kwak, J., and Mitton, T. (2016). The value of connections in turbulent times: Evidence from the united states. *Journal of Financial Economics*, 121(2):368–391.
- Ansolabehere, S., De Figueiredo, J., and Snyder, J. (2003). Why is there so little money in politics? Technical report, National Bureau of Economic Research.
- Astié-Burgos, W. (2011). Lobby y democracia: Lo positivo y lo negativo del cabildeo. *México, DF: Siglo XXI Editores*.
- Austen-Smith, D. (1993). Information and influence: Lobbying for agendas and votes. *American Journal of Political Science*, pages 799–833.
- Ball, R. (1991). Political lobbying as welfare-improving signaling. *University of California, Berkeley. Mimeograph*.
- Baron, D. P. (1994). Electoral competition with informed and uninformed voters. *American Political Science Review*, 88(1):33–47.
- Baumgartner, F. R., Berry, J. M., Hojnacki, M., Leech, B. L., and Kimball, D. C. (2009). *Lobbying and policy change: Who wins, who loses, and why*. University of Chicago Press.
- Becker, G. S. (1983). A theory of competition among pressure groups for political influence. *The quarterly journal of economics*, 98(3):371–400.
- Berry, J. M. (2015). *Lobbying for the people: The political behavior of public interest groups*. Princeton University Press.
- Birnbaum, J. H. (1992). The lobbyists: How influence peddlers get their way in washington.
- Bouwen, P. (2002). Corporate lobbying in the european union: the logic of access. *Journal of European public policy*, 9(3):365–390.
- Chappell, H. (1982). Campaign contributions and congressional voting: A simultaneous probit-tobit model. *The Review of Economics and Statistics*, 64(1):77–83.
- Claessens, S., Feijen, E., and Laeven, L. (2008). Political connections and preferential access to finance: The role of campaign contributions. *Journal of Financial Economics*, 88(3):554–580.

- De Figueiredo, J. M. and Richter, B. K. (2014). Advancing the empirical research on lobbying. *Annual Review of Political Science*, 17:163–185.
- Estefan, D. D. and Sosa, L. C. (2005). *El sistema de comisiones, el cabildeo legislativo y la participación ciudadana en el Congreso mexicano*. Fundar Centro de Análisis.
- Feldman, P. and Jondrow, J. (1984). Congressional elections and local federal. *American Journal of Political Science*, pages 147–164.
- Ferreira Rubio, D. (1997). *Financiamiento de Partidos Políticos*. Konrad-Adenauer-Stiftung A.C. CIEDLA.
- Gerber, A. (1998). Estimating the effect of campaign spending on senate election outcomes using instrumental variables. *American Political Science Review*, pages 401–411.
- Gómez Valle, J. d. J. (2008). El cabildeo al poder legislativo en México: origen y evolución. *Espiral (Guadalajara)*, 14(42):97–124.
- Green, D. and Krasno, J. (1988). Salvation for the spendthrift incumbent: Reestimating the effects of campaign spending in house elections. *American Journal of Political Science*, pages 884–907.
- Grossman, G. M. and Helpman, E. (1996). Electoral competition and special interest politics. *The Review of Economic Studies*, 63(2):265–286.
- Grossman, G. M. and Helpman, E. (1999). Competing for endorsements. *American Economic Review*, pages 501–524.
- Grossman, G. M. and Helpman, E. (2001). *Special interest politics*. MIT press.
- Hedrick, S. (1988). *The power game: How Washington works*.
- Heinz, J. P. (1993). *The hollow core: Private interests in national policy making*. Harvard University Press.
- Hersch, P., Netter, J. M., and Pope, C. (2008). Do campaign contributions and lobbying expenditures by firms create “political” capital? *Atlantic Economic Journal*, 36(4):395–405.
- Holyoke, T. (2014). *Interest groups and lobbying: pursuing political interests in America*. Westview Press.
- Jacobson, G. (1978). The effects of campaign spending in congressional elections. *The American Political Science Review*, pages 469–491.



- Jacobson, G. (1985). Money and votes reconsidered: Congressional elections, 1972–1982. *Public Choice*, 47(1):7–62.
- Jones, M. (2001). Political institutions and public policy in argentina. *Presidents, parliaments, and policy*.
- Krueger, A. O. (1974). The political economy of the rent-seeking society. *The American economic review*, 64(3):291–303.
- Levitt, S. (1994). Using repeat challengers to estimate the effect of campaign spending on election outcomes in the us house. *Journal of Political Economy*, pages 777–798.
- Lohmann, S. (1995). Information, access, and contributions: A signaling model of lobbying. *Public Choice*, 85(3-4):267–284.
- Malamud, A. (2001). Presidentialism in the southern cone. a framework for analysis.
- McKay, A. (2010). The effects of interest groups’ ideology on their pac and lobbying expenditures. *Business and Politics*, 12(2):1–21.
- Molinelli, G. (1996). Lobbying en argentina hacia los ’90. (24):225–245.
- Moon, W. (2002). The paradox of less efficient incumbent spending: Theory and tests. In *Annual Meeting of the Midwest Political Science Association, Chicago, IL*.
- Nownes, A. J. and Freeman, P. (1998). Interest group activity in the states. *The Journal of Politics*, 60(1):86–112.
- Page, M. and Mignoge, J. (2017). Dinero, partidos y campañas. hoja de ruta para avanzar hacia un sistema de financiamiento más eficiente y transparente. Technical report, Documento de Políticas Públicas/Recomendación N 185-Buenos Aires:CIPPEC.
- Palda, F. and Palda, K. (1998). The impact of campaign expenditures on political competition in the french legislative elections of 1993. *Public choice*, 94(1):157–174.
- Potters, J. and Van Winden, F. (1992). Lobbying and asymmetric information. *Public choice*, 74(3):269–292.
- Ragsdale, L. and Cook, T. (1987). Representatives’ actions and challengers’ reactions: Limits to candidate connections in the house. *American Journal of Political Science*, pages 45–81.
- Rasmusen, E. (1993). Lobbying when the decisionmaker can acquire independent information. *Public Choice*, 77(4):899–913.
- Rubio, D. M. F. (2004). Financiamiento político: rendición de cuentas y divulgación. *De las normas a las buenas prácticas:....*

- Samuels, D. (2001). Does money matter? credible commitments and campaign finance in new democracies: theory and evidence from brazil. *Comparative Politics*, pages 23–42.
- Schneider, B. R. (2010). Business politics and policy making in contemporary latin america. *How Democracy Works: Political Institutions, Actors and Arenas in Latin American Policymaking*. Washington, DC, United States: Inter-American Development Bank and David Rockefeller Center for Latin American Studies, Harvard University, pages 217–246.
- Schneider, B. R. and Wolfson, L. (2005). La organización de los intereses económicos y las coaliciones políticas en el proceso de las reformas de mercado en américa latina. *Desarrollo Económico*, pages 349–372.
- Snyder Jr, J. (1990). Campaign contributions as investments: The us house of representatives, 1980-1986. *Journal of Political Economy*, pages 1195–1227.
- Snyder Jr, J. M. (1991). On buying legislatures. *Economics & Politics*, 3(2):93–109.
- Stein, E. (2006). *La política de las políticas públicas: progreso económico y social en América Latina: Informe 2006*. IDB.
- Teichman, J. A. (2001). *The politics of freeing markets in Latin America: Chile, Argentina, and Mexico*. Univ of North Carolina Press.
- Tripathi, M., Ansolabehere, S., and Snyder, J. M. (2002). Are pac contributions and lobbying linked? new evidence from the 1995 lobby disclosure act. *Business and politics*, 4(2):131–155.
- Wu, W., Wu, C., and Rui, O. M. (2012). Ownership and the value of political connections: Evidence from china. *European Financial Management*, 18(4):695–729.
- You, H. Y. (2017). Ex post lobbying. *The Journal of Politics*, 79(4):1162–1176.

## Appendix A: Propositions and proofs

◆ **Proposition 1:** In main text.

◆ **Corollary 1:** Follows immediately from substituting the optimal values for  $L_i^K$ ,  $K = A, B$  and  $i = 1, 2$ , obtained in Proposition 1 into the share-rule defined for  $\alpha^K$ . ■

◆ **Lemma 1:** The proof demands for two steps. Assume first that  $C_j = 0$ . In this context, player  $i$ 's best response is to make some positive but low, campaign contribution, since:  $U_i^{EA}(C_i = 0|C_j = 0) = 1/2 H_i < P_H K_i - (1 - P_H)C_i = U_i^{EA}(C_i > 0|C_j = 0)$  for  $C_i \in \left(0, \frac{(P_H - 1/2)H_i}{(1 - P_H)}\right)$ . Otherwise, for  $C_i > \frac{(P_H - 1/2)H_i}{(1 - P_H)}$ , the inequality above states that  $U_i^{EA}(C_i = 0|C_j = 0) > U_i^{EA}(C_i > 0|C_j = 0)$ , which is a contradiction.

Now, assume that  $C_j > 0$ . In this context, player  $i$ 's best response is also to make some positive, but low, campaign contribution, since:

(i) if  $C_i > C_j > 0$ :  $U_i^{EA}(C_i = 0|C_j > 0) = P_L H_i < P_M H_i - (1 - P_M)C_i = U_i^{EA}(C_i > 0|C_j > 0)$  for  $C_i \in \left(0, \frac{(P_M - P_L)H_i}{(1 - P_M)}\right)$ .

(ii) if  $C_j > C_i > 0$ :  $U_i^{EA}(C_i = 0|C_j > 0) = P_L H_i < P_m H_i - (1 - P_m)C_i = U_i^{EA}(C_i > 0|C_j > 0)$  for  $C_i \in \left(0, \frac{(P_m - P_L)H_i}{(1 - P_m)}\right)$ .

(iii) if  $C_j = C_i = C > 0$ :  $U_i^{EA}(C_i = 0|C_j > 0) = P_L H_i < 1/2 H_i - 1/2 C_i = U_i^{EA}(C_i > 0|C_j > 0)$  for  $C_i \in \left(0, \frac{(1/2 - P_L)H_i}{1/2}\right)$ .

The analogous conclusion is reached by repeating this analysis for the rival  $IG$ .

Then: making some positive, but low campaign contribution is a dominant strategy for both  $IGs$ . Therefore, it constitutes a Nash Equilibria. ■

## Appendix B: The case of aligned-preferences

The *IGs'* preferences are aligned in favor of some candidate when their campaign contributions, if any, go to the same candidate, either *A* or *B*. Within the basic set-up described in the main text, a simple way to model this is by setting  $\theta = 1$ . Therefore, given  $V^A > V^B$ , any contribution  $C_i$  goes to *A*'s campaign and  $\frac{\partial P(\cdot)}{\partial C_i} > 0$ ,  $\frac{\partial^2 P(\cdot)}{\partial C_i^2} < 0$ , for  $i = 1, 2$ .

### The two-stages competitive game

In terms of the ex-post problem described in the main text for the case of *opposite preferences*, to consider *aligned-preferences* does not modify the dynamic of the game; neither the associated results. Indeed, it only states that the contributions  $C_i$  and  $C_j$  serve to the same candidate. This said, the optimal lobbying dynamics exposed in the following Result 1 for the case of *aligned-preferences* is analogous to that described in the Proposition 1 for *opposite preferences*; but simpler since the alignment of preferences implies that the *IGs* share their preferences for the payoffs  $V^k$ . Under aligned-preferences for candidate *A*, ex-post lobbying is non-decreasing in the total expenditure  $V^k$ , and if the ex-ante supported candidate:

- (i) takes office: ex-ante and ex-post contributions are perfect substitutes according to:  $L_i^A + C_i^A = \frac{1}{4}V^A$ , for:  $i = 1, 2$ .
- (ii) does not take office:  $L_i^B = \frac{1}{4}V^B$ , for:  $i = 1, 2$ .

In both cases, competition for  $V$  leads to equal shares,  $\alpha^A = \alpha^B = \frac{1}{2}$ .

Notice that the result of equal shares  $\alpha^A = \alpha^B = 1/2$  arises from *IGs* with equal preferences for the payoffs  $V^k$ . Otherwise, if, for example,  $i$ 's preferences were closer to the preferences of the winning candidate than those of  $j$ ,  $i$  would have higher incentives to contribute to the elected candidate than  $j$ . In this context  $\alpha > 1/2$  for this candidate<sup>62</sup>.

The ex-ante problem is also analogous to that under *opposite preferences*, but for the fact that the campaign contributions  $C_i$  and  $C_j$  have an aligned effect in the joint probability  $P(C_i, C_j)$ . To illustrate this in detail, assume  $P(C_i, C_j) = 1 - \frac{1}{2}e^{-2(C_i+C_j)}$ . This probability function not only fulfills the basic requirements for *aligned-preferences* - particularly in favor of candidate *A* -, but also states that the rival's contributions  $C_i$  and  $C_j$  are substitutes, i.e., increasing the own campaign contribution discourages the rival from contributing more.

---

<sup>62</sup>Assuming  $I = 1$ , a simple way to see this is by considering  $U_i^{EP} = \alpha^A \theta V^A - L_i^A$ , with  $\theta > 1$ , in the above described problem. In this context:  $\alpha^A = \frac{\theta}{1+\theta} > 1/2$ .

Considering this probability distribution, the Result 2 describes the optimal behavior with respect to the campaign contributions and Figure 3 illustrates it. Under aligned preferences for candidate A, the campaign contributions exhibit an inverted U-shaped form with respect to the campaign payoff  $V^A$ :

$$C_i^* = \begin{cases} C(V^A) & , \text{ if } : V^A < \check{V}^A \\ \frac{1}{2} - \frac{1}{4} (V^A - V^B) & , \text{ if } : V^A \in (\check{V}^A, \hat{V}^A) \quad , \text{ for } : i = 1, 2 \wedge i \neq j \\ 0 & , \text{ if } : V^A > \hat{V}^A \end{cases}$$

with  $\frac{\partial C(V^A)}{\partial V^A} > 0$ . **Proof: Interior solution:** with a little bit of algebra, the interior solution described by (5) can be reduced to:

$$\frac{\partial P}{\partial C_i} \left[ \frac{1}{4} (V^A - V^B) + C_i \right] = 1 - P$$

Since  $P$  is defined:  $P = 1 - \frac{1}{2} e^{-2(C_i + C_j)}$ , then:  $1 - P = 2 \frac{\partial P}{\partial C_i}$ ; and the above equation yields:  $\frac{1}{4} (V^A - V^B) + C_i = \frac{1}{2}$ . Solving for  $C_i$ :  $C_i = \frac{1}{2} - \frac{1}{4} (V^A - V^B) \in (0, \frac{1}{4} V^A)$  for  $V^A \in (\check{V}^A, \hat{V}^A) = (1 + \frac{1}{2} V^B, 2 + V^B)$ . Notice that:  $\frac{\partial C_i}{\partial V^A} < 0$ .

**Corner solutions:** For  $V^A > \hat{V}^A$ ,  $C_i = 0$ ; hence all political contributions are manifested through lobbying. For  $V^A < \check{V}^A$ , the opposite holds, and  $L_i = 0$ . In this context the *IG*  $i$ 's problem is given by:

$$\begin{cases} \max_{C_i} U_i^{EA} = P \alpha^A V^A + (1 - P) \frac{1}{4} V^B - C_i \\ \text{st} : P = 1 - \frac{1}{2} e^{-2(C_i + C_j)} \\ \alpha^A = \frac{C_i}{(C_i + C_j)} \end{cases}$$

From the first partial derivative of  $U_i^{EA}$  with respect to  $C_i$ ,  $i = 1, 2$ , the equilibrium is characterized by the following system of FOCs:

$$\begin{cases} \frac{\partial P}{\partial C_i} \alpha^A V^A + P \frac{c_j}{(c_i + c_j)^2} V^A = \frac{\partial P}{\partial C_i} \frac{1}{4} V^B + 1 \\ \frac{\partial P}{\partial C_j} (1 - \alpha^A) V^A + P \frac{c_i}{(c_i + c_j)^2} V^A = \frac{\partial P}{\partial C_j} \frac{1}{4} V^B + 1 \end{cases}$$

Given  $\frac{\partial P}{\partial C_i} = \frac{\partial P}{\partial C_j}$  and defining  $P' = \frac{\partial P}{\partial C_i}$  and  $C = C_i + C_j$ , the above system yields:

$$\begin{cases} P' \alpha^A V^A + P \frac{(1 - \alpha^A)}{C} V^A = P' \frac{1}{4} V^B + 1 \\ P' (1 - \alpha^A) V^A + P \frac{\alpha^A}{C} V^A = P' \frac{1}{4} V^B + 1 \end{cases}$$

Since the RHS of both equations are equal, the LHS must also be equal:

$$P' \alpha^A V^A + P \frac{(1 - \alpha^A)}{C} V^A = P' (1 - \alpha^A) V^A + P \frac{\alpha^A}{C} V^A$$

Equivalently:  $\alpha^A (P' - \frac{P}{C}) = (1 - \alpha^A) (P' - \frac{P}{C})$ ; which implies that:  $\alpha^A = 1 - \alpha^A = \frac{1}{2}$  and, consequently, that  $C_i^* = C_j^*$ .

Substituting these results in any FOC and remembering that  $2(1 - P) = P'$ :

$$2(1 - P^*)\frac{1}{2}V^A + P^*\frac{1}{4C_i^*}V^A = 2(1 - P^*)\frac{1}{4}V^B + 1$$

Equivalently:  $C_i^* = \frac{1/4 P^* V^A}{1 - (1 - P^*)(V^A - 1/2 V^B)}$  ,  $P^* = 1 - \frac{1}{2}e^{-4C_i^*}$ .

Applying the standard chain rule for partial derivatives - and after a little bit of algebra-, the reader can prove that:

$$\frac{\partial C_i^*}{\partial V^A} = \frac{P^* [1 + (1 - P^*) 1/2 V^B]}{4D^2 + 2(1 - P^*)(V^A - 1/2 V^B)(P^*V^A + 1 - P^*) - 2(1 - P^*)} \quad (8)$$

where:  $D = 1 - (1 - P^*)(V^A - 1/2 V^B)$ .

The numerator in (8) is trivially positive. The denominator is also positive given: (i)  $V^A > V^B$ , since candidate  $A$  is defined as the "favorite", and (ii)  $2D^2 > 1 - P^*$ , since  $2D^2 \in (1/2, 2)$  and  $1 - P^* \in (0, 1/2)$ .

Finally, the continuity of  $C_i^*$  at the critical value  $\hat{V}^A$  is assured by:

$$C_i^-(\hat{V}^A) = C_i^+(\hat{V}^A) \Leftrightarrow \frac{1}{2} - \frac{1}{4}(2 + V^B) + \frac{1}{4}V^B = 0$$

and regarding the continuity at  $\check{V}^A$ , it is enough to notice that:

(i)  $C_i^+(\check{V}^A) = \frac{1}{2} - \frac{1}{4}(1 + \frac{1}{2}V^B) + \frac{1}{4}V^B = \frac{1}{4}(1 + \frac{1}{2}V^B) = \frac{1}{4}\check{V}^A$ , and

(ii) the FOC:  $P'\alpha^A V^A + P\frac{(1-\alpha^A)}{C^*}V^A = P'\frac{1}{4}V^B + 1$  holds at  $(V^A, C_i) = (\check{V}^A, 1/4\check{V}^A)$ .

To demonstrate this last condition it is enough to recall that  $\alpha^A = 1/2$ ,  $C^* = 2C_i^* = 2(1/4V^A)$  and  $2(1 - P) = P'$ . Hence:

$$P'\frac{1}{2}V^A + P\frac{1/2}{1/2V^A}V^A = P'\frac{1}{4}V^B + 1 \Leftrightarrow P'\frac{1}{2}\left(V^A - \frac{1}{2}V^B\right) = 1 - P$$

True for  $V^A = 1 + \frac{1}{2}V^B = \check{V}^A$ . ■

For low values of  $V^A$  ( $V^A < \check{V}^A$ ), candidate  $A$  is barely preferred over  $B$ . In this context, the *IGs* find it optimal to devote all their contributory money to  $A$ 's campaign, since in this way they can increase  $A$ 's probability of taking office without compromising so much money to it. However, as  $V^A$  goes up, the favoritism for candidate  $A$  is strengthened, and this will eventually induce the *IGs* to get into an ex-post fight for the highest share of  $V^A$ . This lobbying competition implies an increasing demand for resources in  $V^A$  that are partially removed from the campaign contributions. In the extreme case of  $V^A > \hat{V}^A$ , all contributory money is devoted to lobbying.

Given the Results 1-2, the main conclusion of the optimal contributive behavior when the *IGs* have *aligned-preferences* can be summarized as follows: In the aligned-preferences game for some candidate  $A$ :

## Optimal contributive behavior

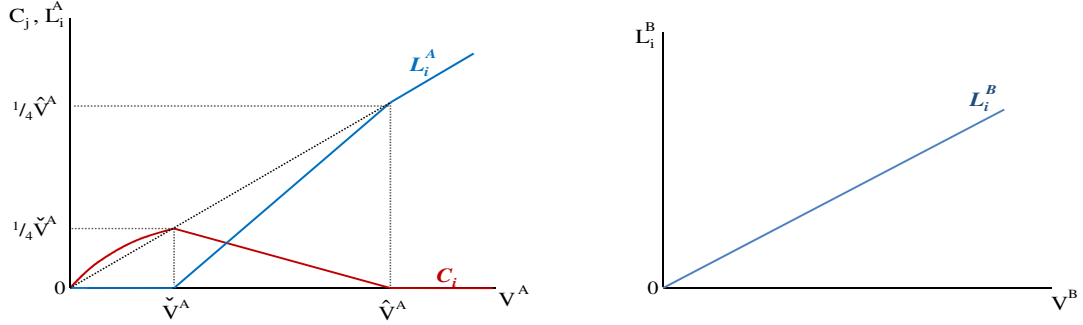


Figure 5: Optimal distribution of campaign and lobby contributions to the favorite candidate  $A$  in terms of the announced payoff  $V^A$  (LEFT), and optimal lobby contribution for the opposite candidate in terms of the announced payoff  $V^B$  (RIGHT).

- (i) political contributions to both candidates are increasing in their respective announced expenditures  $V^k$ ,  $k = A, B$ , and
- (ii) for the favorite candidate  $A$  there exist  $\check{V}^A < \hat{V}^A$  such that: for  $V^A < \check{V}^A$  or  $V^A > \hat{V}^A$  all money is devoted to a single objective:  $A$ 's campaign or lobbying, respectively. However, for  $V^A \in (\check{V}^A, \hat{V}^A)$ , the money is distributed between campaign and lobbying: the higher the expenditure  $V^A$ , the more biased is the distribution towards lobbying.

In the aligned-preferences game, campaign contributions are a useful instrument to bias the likelihood of winning an election in favor of some candidate. However, lobbying activities are (almost) a total waste of resources. The first statement in the above result trivially follows from a positive allocation of campaign contributions at the optimum,  $C_i^* > 0$ . The second statement follows from the IGs' impossibility to bias the optimal shares  $\alpha^k$  in the own favor, regardless of the total lobby executed. Hence, since lobbying is costly, to lobby above a minimal value is a total waste of resources for the IGs<sup>63</sup>.

This result leads to consider the possibility that the IGs find it optimal to coordinate their contributory strategies. For instance, they can achieve better results by committing themselves to reduce their lobbying to some minimum  $L^k = \epsilon > 0$ , with  $\epsilon \rightarrow 0$ , rather than competing.

<sup>63</sup>Actually, for the favorite candidate  $A$ , it is possible to observe  $\alpha^A = 1/2$  with  $L_i^A = 0$ ,  $i = 1, 2$ , as long as campaign contributions are positive.

## Appendix C: Matching and merging

As we mentioned in the text, our data come from three different sources. We refer to the three databases as “public contracts”, “contributions” and “hearings”. Each source has an independent procedure to produce and record the information at the individual level. Essentially, this means having three unrelated databases with detailed individual-level data but with entirely independent naming and coding system. There are two ID variables in each dataset: **name** (string) and **cuit** (integer). Name is a string variable and records the name of an individual and/or firm. CUIT stands for “Clave Única de Identificación Tributaria” and is an 11-digit unique tax number representing individuals (person/legal person) unequivocally. The CUIT number is typically written as:

Table 14: CUIT structure and correspondence

cuit	2-digit	1-digit	Type	name
30-69325649-2	30	2	Legal Person	Drogueria Kendis SA
20-25756259-0	20	0	Person	Sebastian Freille

If the CUIT number is available for every observation in each database, then joining the three databases is easy by simply performing an exact-matching operation on **cuit**. Unfortunately, this is not possible in our case due to a large proportion of observations with missing CUIT numbers. Due to deficient and arbitrary registration procedures, the CUIT information is missing for many observations in each of the databases. This is particularly a problem for both “public contracts” and “hearings”. In the first case, the raw data contained complete CUIT information for only about 17% of the observations. In the second case, the CUIT information is not only missing in many cases but it is also unreliable when it is given.

Given the circumstances, we decided to manually retrieve as many CUIT numbers as possible to complete the missing rows in each of the databases. Thanks to research assistance by several students, we were able to recover the CUIT number for a significant number of rows. Even then, with these improvements, the databases, particularly “public contracts” and “hearings” had between 20 and 55% complete CUI data.

We then decided to follow a mixed procedure consisting of performing both exact- and fuzzy- string matching on all the rows with missing CUIT number string columns. Exact string matching is highly precise but yields very little matches if there are misspelled names in the databases, and/or differences between two strings that corresponded to the same company.

First, we paired each database against a “dictionary” database, namely the Administración Federal de Ingresos Públicos (AFIP) administrative records database. This is a file containing over 4.6 million entries, each row containing both **name** and **cuit** variables and additional variables recording tax conditions for several taxes. For each database, we performed three different merges: 1) merge on both **cuit** and **name**; 2) merge on **cuit** only; and 3) merge **name** only.

We basically followed a rolling case-matching process depending on the quality and



consistency of the matching databases. This yielded out the following sub-products:

1. Matching all records with both complete **cuit** and **name** in each of the three databases against our dictionary database of names and cuit. This is merely for confirmation purposes (NOTE: CUIT numbers are unique identifiers).
2. Matching all records with **cuit** in each of the three databases against our dictionary database dictionary of names and cuit. This allows us to confirm an exact **cuit** match and to retrieve the original (string) **name** from the dictionary database.
3. Matching all records without **cuit** but with **name** data against the dictionary database. Matching on strings is complicated due to misspellings, different conventions, errors, spaces, and several similar problems. With the ultimate goal of keeping as many cases as possible in the final dataset, we decided to implement two types of string matching.
  - (a) Exact string matching: Matching all records with **name** information in all three database against the **name** column in the dictionary. This process yield around 10-15% exact matches of the total rows with **name** but without **cuit** in both “hearings” and “public contracts” (NOTE: For two strings to match, they have to be exactly equal in terms of spelling, casing, abbreviations, etc. But this has an additional problem: even if there is exact string match, there are both persons and legal persons with identical names in the AFIP dictionary. An illustrative example: “Miguel Angel Alvarez” is matched perfectly from the licitaciones data but matches to 295 identical **name** in AFIP! In these cases, there is simply no way for us to know which of the 295 **cuit** from the dictionary database we should match “Miguel Angel Alvarez” to. Unless we find additional background information on the each of these individuals, we will be forced to drop them from the analysis.
  - (b) Fuzzy (approximate) string matching: Matching all records with **name** information in all three databases against the **name** column in the dictionary. Fuzzy string matching consists of comparing each string from a “client” database to every word of a “server” database and calculated a measure of association (similarity). We adapted an algorithm for performing this operation so that it selects the best possible match (in the “server” database) for every observation in “client” database and records the measure of distance –a distance of “0” is an exact match. Most of these algorithms use what is called “optimal string alignment” through the implementation of the restricted Damerau-Levenshtein distance. We have been able to fuzzy match these databases by chunks –trying to fuzzy match a database of around 10000 observations (“public contracts”) against a dictionary database of 4.6 millions is out of the question due to computing and memory issues.