Indirect Political Budget Cycles:
Evidence from Chilean Municipalities

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Abstract

Political budget cycles have been studied at the national and local level, separately. However, when local governments depend on national resources, the central government may have incentives to manipulate intergovernmental transfers in order to influence the reelection prospects local incumbents, with an eye on their own future reelection. This generates an indirect Political Budget Cycle (iPBC). This paper documents the presence of an iPBC in Chile. We show that during municipal election years the government increases the overall amount of transfers to municipalities (local governments), and that these additional resources are allocated to the politically aligned mayors. We also report that transfers to aligned mayors are higher when the local races are tighter, suggesting that the government prefers to deviate resources to swing municipalities.
(JEL: H72, D72, D78, C23, C25).

Keywords. Political budget cycles, Intergovernmental Transfers, Local governments, Elections, Chile.

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1 Introduction

Political cycles have broadly been studied at the national (Brender and Drazen (2005), Shi and Svensson (2006)) and local level (Khemani (2004), Veiga and Veiga (2007), Labonne (2016)), separately. However, a political cycle combining both national and local governments may emerge quite naturally in certain institutional environments. As national politicians have limited information on how targeted resources are allocated at the local level, they typically use political brokers that intermediate between the government and grassroots constituencies (Szwarcberg (2012), Stokes et al. (2013)). Local officials are natural candidates for intermediation, since they may both channel national resources towards their local communities and at the same time use those resources to foster the reelection of the incumbent central government to whom she is politically aligned. As a matter of fact, recent literature has documented both that intergovernmental transfers are politically motivated (Johansson (2003), Arulampalam et al. (2009), Banful (2011), Brollo and Nannicini (2012)) and that appointed local officials do influence voters in national elections (Martinez-Bravo (2014)).

This paper claims that when local governments depend on the central government's fiscal policy, national officials have incentives to manipulate the allocation of intergovernmental resources during local elections years, because aligned mayors may intermediate between the government and local constituencies in future elections. The increase of transfers from national to local governments during municipal election years generates a political budget cycle (PBC), but crucially the mechanism discussed here is *indirect* when compared to the traditional PBC. In our case the government does not manipulate fiscal policy for its own sake directly, but to influence the appointment of another political official in an electoral contest other than its own. By doing so, she would be indirectly influencing her own reelection prospects. Hence, we refer to this particular cycle as an indirect political budget cycle (iPBC).

We provide evidence of the existence of an iPBC in Chile. Our case study presents several

advantages for the study of this type of cycle. Chile has the particularity of having municipal elections held right a year before presidential ones, which makes incentives for this mechanism to take place starker. As is also the case in most countries, there is far more public scrutiny and attention from public opinion and institutions, to fiscal variables set at the central government, than at the local one; and far more legal constraints over their management. Indeed, transfers to municipalities represent a small fraction (about 1%) of total public spending, while amounting to a meaningful share of what local incumbents usually spend during election campaigns. From the point of view of incumbents of national governments, therefore, iPBC is less costly than the manipulation of other fiscal variables, and thus more likely to take place. Finally, it should be noticed that Chilean municipalities have limited fiscal autonomy, and thus mayors cannot easily manipulate other funding sources.

Our paper empirically tests the hypothesis that intergovernmental transfers, from the central government to local municipalities, are systematically distorted for electoral purposes. First we show that transfers increase during local election years in about 10% compared to the long-run transfers' trend. On the contrary, we do not observe an increase on transfers during Presidential and Legislative election years, a year later. These results are robust to a variety of specifications.

Secondly, we provide some tests in order to further elucidate the iPBC's underlying mechanisms. Our interpretation of the cycle is that the government influences local elections in favor of mayors belonging to its same coalition, because local officials can then influence the national election the following year. This interpretation has several testable implications. First and most importantly, we expect to see a positive cycle only in municipalities where mayors are politically aligned with the government. We show that, in fact, the iPBC is only noticeable for politically aligned mayors. During electoral years transfers increase more than 25% in aligned municipalities. In addition, we report that transfers towards aligned mayors are larger the tighter is the local race. That is, we show evidence that the government is targeting swing municipalities. Finally, we study the relation between local and subsequent

national elections. In particular, we show that the ruling coalition vote share in national elections is higher in aligned municipalities with respect to unaligned ones. Overall, even though we are not providing a causal identification of all the channels involved in the cycle, we argue that the mechanism we are proposing is extremely plausible and coherent with our data.

This paper is related to several topics discussed in the literature. First, it is related to studies on political budget cycles (PBC). When considering PBCs at the national level, which are typically pervasive in developing economies and new democracies (Brender and Drazen (2005), Shi and Svensson (2006)), our paper illustrates that a more intricate cyclical behavior can emerge even in richer economies as the Chilean one.[1] As for the local PBC, there is much evidence of it in European local governments, such as in Germany (Seitz, 2000, Galli and Rossi (2002), Foremny and Riedel (2014)), Sweden (Pettersson-Lidbom (2010)), France (Foucault et al. (2008) and Portugal (Veiga and Veiga (2007).), and in less developed countries as India (Khemani (2004)), Brazil (Sakurai and Menezes-Filho (2008)) and the Philippines (Labonne (2016)). In most of this literature fiscal autonomy, in the sense that local officials have control over their own budget. As opposed to this case, we draw attention to an indirect cycle in which the local budget is decided to a large extent at the central level. Strictly speaking therefore, even though taking place during municipal elections years, the budget cycle in this paper is not a local PBC.

Secondly, our work is related to several works documenting the political motivation behind the allocation of intergovernmental transfers from national to local governments. The fact that intergovernmental grants are used in order to win votes has been reported, among others, for Albania (Case (2001)), Sweden (Johansson (2003)), Spain (Sole-Olle and Sorribas-Navarro (2008)), India (Arulampalam et al. (2009)), Ghana (Banful (2011)) and Brazil (Brollo and Nannicini (2012)). In particular, this latter work shows that aligned mayors receive larger transfers from the government during the two last years before local elections

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[1] In 2010 Chile was the first country in South America to become a member of the OECD.

are held, which implies the existence of an iPBC in Brazil. Yet, they focus on the politically motivated allocation of transfers towards swing districts, while the core of our paper is the measurement and description of the indirect cycle itself.

Thirdly, our work is related to the incentives and practice of local officials. Several articles discuss the differences between elected and appointed officials. Due to career concerns, appointed officials have more incentives to influence voters in national elections (Martinez-Bravo (2014)), and fewer incentives to increase the provision of public goods (Martinez-Bravo et al. (2014)). However, elected leaders may also deviate resources towards their electoral basis (Dahlberg and Johansson (2007)) or use targeted redistribution in order to achieve their own goals (Aidt and Mooney (2014)). In this paper, we consider the role of local officials under limited fiscal autonomy. We claim that under fiscal centralization, the government does not require appointments to discipline local mayors, but merely the use of its fiscal capacity.

Finally, our work is related to the literature on political cycles and political brokers in Chile. As for the cycles, Larrain and Assael (1997) find evidence of the use of policy variables, including monetary and fiscal instruments, for electoral purposes during the second half of the past century, while at the local level Letelier (2011) concludes that state borrowing of Chilean municipalities increased during electoral years. Regarding its consequences, Cerda and Vergara (2007) showed that the increase of government subsidies during electoral years in the 90s had a significant effect on the voting share of the government coalition. Regarding the role of mayors as political brokers, the seminal work by (Valenzuela (1977)) argued how in Chile local political leaders extracted resources from the central government through their contacts at the national level, in exchange for higher turnout of the local vote in favor of national representatives. While his study focuses on the 60s, several authors show that clientelistic practices of Chilean mayors has persisted until today (Barozet (2008), Arriagada (2013), and Toro (2016)).

The article is structured as follows. In the following section we discuss the conditions and

the incentives that under which local mayors can serve as political brokers, with a particular description of the Chilean case. In section 3 we describe the institutional framework that shapes the economic and political context in which our study is carried out. Section 4 describes data. Sections 5 and 6 discuss our baseline estimations, and results for alignment and margin, respectively. The last section concludes.

2 Mayors as political brokers

Politicians seek to influence the outcome of an election by distributing resources and favors (Dixit and Londregan (1996)). However, most of the clientelistic spending takes place at the local level, and national politicians cannot easily identify target voters at the community level. In practice, they enlist the assistance of local brokers, middlemen or intermediaries, who have private information about grassroots constituencies (Szwarcberg (2012), Stokes et al. (2013)). Local political brokers are broadly used by national parties, even when incentives faced by the former ones are not directly aligned with those of the parties (Larreguy et al. (2016)).

Local officials are good candidates for local brokers on behalf of national politicians. They have better knowledge about the preferences of grassroots constituencies and many of them are politically aligned with the government or the incumbent party. It is optimal therefore to delegate local voter mobilization strategies to them. When local officials are directly appointed by the central government, their incentive compatibility constraints are straightforwardly achieved. A recent literature has pointed out to the fact that appointed officials have stronger incentives to signal their alignment with upper hierarchies because their careers depend on them (Martinez-Bravo (2014), Aidt and Mooney (2014), Mu and Zhang (2014)). This literature emphasizes that elected officials have weaker incentives to influence voters during national elections because their careers do not depend on the government but on their own future electoral success.

However, appointment is not the only mechanism by which local mayors can be disciplined. Elected officials can also be influenced by the government through the provision of economic resources, because these resources can influence their reelection chances. That is, fiscally centralized institutions generate an indirect mechanism of control for local politicians. We notice that career concerns may also be playing a role upon elected mayors, since their loyalty to national parties eases their transit from the local to the national political arena. However, transfers are the most important channel though which the central government induces the electoral alignment of mayors in national elections.

Chile is a good case study of the role of mayors as political brokers. In the seminal work by Valenzuela (1977), the author provides the first systematic research on the intermediation role that local officials played in Chile during the late 60s. His work argued how Chilean mayors extracted resources from the central government through their contacts at the national level, in exchange for higher turnout of the local vote in favor of national representatives. Valenzuela argued that the clientelistic role of local officials was twofold. First, they generate a complex network of relationships in order to generate an electoral base and in return satisfy their economic and legal demands. Secondly, they created strong ties with national legislative and government officials in order to collect resources in return for their local electoral support.[2] That is, mayors served as local-level brokers for the government and members of the congress, in their electoral campaigns; while congress members served as national-level brokers that supported mayors and allocated resources to their municipalities.

The Chilean dictatorship (1973-1989) tried to finish these clientelistic practices in order to reduce the influence of political parties in local politics, and thus created a new legislation in which the local administration was integrated with the national government. Municipalities gained more administrative autonomy, and more attributions in the provision of public services – as health and education – at the local level. Financial resources, however, remained

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[2]The mayors' comments compiled by Valenzuela are illustrative of their intermediation roles: "we are the work tools of *Parlamentarios*", "the political parties depend on the mayor I tell my people how they have to vote", "The *parlamentarios* are the people who open the doors" (Valenzuela (1977): 123).

in the hands of the government. These regulations triggered a change in the role of local officials, but scholars coincide in the fact that parties were able to adapt themselves to the new scenario and mayors continued to be electoral machines (Rehren (1996)). In a context of more administrative autonomy, fiscal employment and local bureaucracy became additional tools at the mayors' disposal. These tools were used to generate a voter mobilization network within municipalities (Toro (2016), forthcoming).

Several authors report that current local officials in Chile keep on exhibiting clientelistic patterns. For instance, when analyzing two different contests to win the mayorship— in Santiago and Iquique —[3], Barozet (2008) shows that support for candidates relies on the operation of social linkages through the delivery of goods and services as housing or employment by the municipal administration. In the same vein, it is shown that the role of mayors is to generate, through the provision of municipal goods, strong clientelistic relationships with different social organizations in exchange for mobilization of the electorate in Santiago (Arriagada (2013)) and Caldera, and La Florida and Talcahuano Espinoza (2006).[4] Durston (2005), finally, shows that in most rural municipalities we also find brokers who intermediate the provision of goods and services to communities in order to encourage mobilization of the electorate.

3   Institutional Background

Democracy was reestablished in Chile in 1990 after 17 years of dictatorship. Since then, two coalitions have ruled the country. The center-left "Concertación" governed during four consecutive terms, from 1990 to 2009. In 2009, the right-wing coalition "Alianza" won the presidency, but in 2013 the Concertación won office back again. Since 2005, the presidential term is 4 years long, without reelection. The last three presidential elections, which are the

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[3]Santiago is the main municipality within the Chilean Capital, and Iquique is one of the largest cities in the Northern region of Chile.

[4]Caldera is a small city in the North of Chile, La Florida is one of the largest municipalities in Capital Santiago, and Talcahuano is a large port in the South of Chile.

relevant ones for our analysis, took place in 2005, 2009 and 2013.

The municipalities are the smallest administrative units in Chile.[5] Currently the number of municipalities is 345. In Chile, local decentralization is political and administrative, but not fiscal. Municipalities elect their own authorities and, to some extent, administer their own resources.[6] However, municipalities cannot levy taxes nor fully decide the size of their overall budget (Eaton (2004), Mardones (2007)).

Chilean municipalities are ruled by the Municipal Council, at the head of which is a Mayor who detains executive power. Mayors are elected, since 2004, by a majoritarian voting system, and the Council is elected by a proportional system following a DHondt rule. The first municipal election during the post-authoritarian period took place in 1992, and since then elections have been held every 4 years. Until 2000, all local elections were indirect; a Municipal Council was voted by citizens and the council appointed one of its members as Mayor. A reform for direct elections was passed in 2004. Data is available for all the period with direct elections, from 2001 to 2013, and thus our sample comprises the three municipal elections during this period, which were held at 2004, 2008 and 2012 . The first two were held while the center-left Concertacin detained the country's executive power; in the 2012 election, the right wing Alianza was in power. It also includes the presidential elections, which were held a year after each municipal election, in 2005, 2009 and 2013.

Municipal finance has three main funding sources: own permanent revenues, the Common Municipal Fund (CMF) and transfers from the central government. The first two sources are generated by the municipalities themselves, mainly through the recollection of property and vehicle taxes receipts; these resources are divided into a mandatory contribution to the CMF and the residual is left as own permanent revenue. The purpose of the CMF is to homogenize the available resources across municipalities, in an attempt to narrow the large socioeconomic disparities across municipalities. The criteria defining the rules by which

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[5]A municipality resembles the role of a county in the United States. The largest cities, such as Santiago, are divided in several municipalities.

[6]Notwithstanding, several spending categories managed at the local level, such as health, housing and security, are decided by the national government.

this redistributive instrument is implemented, are tightly regulated by Law,[7] which sets the contribution of each municipality to the CMF's pool and the amount that each one receives back from this pool, according to predetermined parameters such as their population size, poverty rate, and several other indicators.

In this work we focus on the third municipal funding source: transfers from the central government. These are decided and allocated by the Office of Regional Development (Subdere) mainly, which depends on the Minister of Interior or Home Affairs, and is in charge of coordinating the management of regional public funds. These funds are given to municipalities to enhance their local management, for infrastructure and improvement of specific neighborhoods, to foster local employment, prepare the national census, and also as aid in case of natural disasters.

As mentioned in the introduction, to make the case for an iPBC to be operational, and incentives for manipulation of transfers for electoral purposes to have enough scope, there are at least two conditions that must be fulfilled. Firstly, however big transfers as a whole may be as compared to the central government's overall budget (plausibly small and maybe for this reason not drawing much attention from public opinion), it should represent a large share of the budget or campaigning expenditures at the local level. Secondly, the rules defining both the overall amount of transfers and how these transfers are distributed across local governments, should be to some extent discretionary. As we argue next, these two conditions are met in the Chilean case.

Table 1 shows the total amount of transfers to municipalities per year in our sample.[8] In order to gauge their significance, we compare transfers as a fraction of both the national and local budget respectively.

*** TABLE 1 HERE ****

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[7]Ley de Rentas Municipales 3063, enacted in 1996.
[8]Details and discussion of the sources used in this table in the next section.

We notice that Municipal Transfers are about 1% of the central government's total budget. In practice, this means that it is arguably relatively easier for the government to increase transfers in electoral years as opposed to other larger budgetary items. At the same time, although transfers represent only about 7% of total municipal funding, the communal mean of this share is as large as 20%. The reason is that the transfers share of the total local budget varies significantly across municipalities depending on their socioeconomic characteristics. Transfers are not important in the extremely rich municipalities, which administer a large fraction of the total municipal budget, but quite relevant in practically all the remaining ones. For instance, while transfers represent less than 2% of the budget in Vitacura, the richest municipality in Chile, they represent 68% of the relatively poor municipality of Tocopilla. In conclusion, central government transfers are sizable for a significant number of municipalities.

During the period of our study, there was a legislation change. In 2005, a new "Ley de Rentas Municipales" (Law of Municipal Rents) was enacted in order to be implemented the following year, that is, in 2006.[9] However, as can be seen from the table, the Law did not imply a sharp increase of resources in 2006. In fact transfers turned out to be just a little more than 1% of the total budget in 2008, that is, in the following local election year after the reform. [10]

Secondly, a key aspect of our study is the discretionary nature of the allocation of transfers to municipalities. As we do not have direct measures for the central governments degree of arbitrariness when setting these transfers, we must rely on indirect arguments. First, the laws that regulate these transfers are particularly ambiguous regarding the instruments scope and with respect to the transfers' overall amount. This is particularly notorious when compared to the Law which defines with great detail the allocation of the CMF.[11] Second, the academic literature on the topic recognizes municipal funding policies have been typxically motivated

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[9]Ley 20,033.

[10]While the annual change in transfers in 2005-2006 was 17%, in 2007-2008 it reached 38%. In any case, the existence of the iPBC is robust to the inclusion of a post-reform dummy.

[11]Decreto N 3063.

by partisan motives (Eaton (2004), Mardones (2007)). For instance, the Public Reform Commission in 2009 indicated that municipal transfers "were typically very bureaucratic, discretionary and not always focused on the local realities" (Commission for Public Reform, 2009, pp169). Thirdly, the Subdere has been accused several times of using its funds for political intervention.[12]

Finally, two additional points are worth noting ahead of our discussion. The first one relates to the timing both local and national elections, and decisions on the municipal budget. Local elections are held in October, while national elections are held in December. Intergovernmental transfers are part of the annual national budget, which is decided a year before its execution. Accordingly, the previous year the budget is executed, the government discusses the budget. This discussion starts every April, and the budget must be approved before December of that year.[13] Accordingly, the government decides municipal transfers the year previous to local election years, and the budget can effectively be used for electoral purposes during its execution.

The second concern is that Chile does not have particular restrictions over the overall amount of transfers during an electoral year.[14] That means that the government is not particularly bounded in the allocation of funds in either local or national electoral years.

4 Data

Our dataset includes information of the 345 municipalities in Chile over period 2001-2013. We obtain information from the National System of Municipal Information (SINIM). The SINIM includes data on income transfers from the central government, that we refer to hereafter simply as 'transfers'. Transfers are reported on a yearly basis and in constant

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[12]Parties of the right wing coalition Alianza denounced the Subdere of political intervention in 2009, under the Concertacin government (see La Tercera, January 14, 2009), and even in 2013, when their own coalition was in power (see La Tercera, January 20, 2014).

[13]Law 1263.

[14]The "Ley de Rentas Municipales" (Law of Municipal Rents) does not establish any type of restriction for the total budget or its allocation during electoral years.

2013 prices. In order to account for wide differences of population size across municipalities, we normalize transfers by population, obtaining transfers per capita. Population size of the municipalities is also obtained from the SINIM, which uses demographic forecasts by the Chilean Statistical Office (INE). We use population size also as a control to allow for other indirect effects that this variable may have on transfers. The dependent variable is thus the log of the per capita transfer.

Figure 1 describes total transfers per capita for period 2000-2013, in millions of real Chilean pesos as for 2013. The dashed line represents the long-run trend, which corresponds to the predicted value of a fourth-degree polynomial estimation.

*** FIGURE 1 HERE ****

We observe that transfers increase systematically throughout. There is a sharp increase during the second half of the period.

The main explanatory variables are dummies for electoral years. We define a dummy for local - municipal - election year, LOC, that equals one if year is either 2004, 2008 or 2012, and zero otherwise. We define a dummy for national - presidential and legislative - election year, NAT, that equals one if year is either 2005, 2009 or 2013, and zero otherwise.

For other controls we consider several variables typically used in the literature on local governments' PBC. Aside population size itself, the demographic composition of population may have an impact on transfers. Accordingly, we consider the fraction of young population, defined as the percentage of individuals aged 15 and below, and the fraction of old population, defined as the percentage of individuals aged 65 and above. This information is based on demographic forecasts by the INE. As for the other socioeconomic characteristics, we control for the poverty rate, which represents one of the main targets of transfers. This variable is obtained from the National Socioeconomic Survey (CASEN), which is conducted by the Chilean government every two or three years. For each year, we use the data from the latest

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CASEN survey.[15] Finally, we use a measure on whether a municipality is rural or not, which we obtain from the INE.

We also build a "disaster" dummy variable that equals one if a municipality suffered a natural disaster at a particular time, and zero otherwise. Natural disasters are important determinants of transfers, and this is particularly relevant in a country such as Chile, where earthquakes abound.[16] Information on disasters is collected from press records. [17]

Finally, we also collect electoral data from the Chilean Electoral Office (SERVEL) to build political variables. In order to study the interaction between transfers and the candidates' political affiliation, we include information about the mayor's political party and coalition every year. We create a dummy variable, $ALIGN$, that indicates whether the mayor is a member of any party belonging to the governments coalition, or not. We also consider the vote share of the local candidates, in order to build the difference between the winner and the runner up competitor. This variable, which we call $MARGIN$, indicates whether races were tight or not, and allows us to test if the government is allocating resources towards swing voter municipalities. Finally, we collect data on national elections as well. In particular, we consider data on the ruling coalition vote share, V, in order to test whether this number is correlated with the alignment of the incumbent mayor, or not. Given that in some specifications we use $ALIGN$ and $MARGIN$ from the previous election (that is the lag of election years), we consider electoral data from the municipal election in 2000 onwards.

5   Evidence of an iPBC

Before discussing our estimation results, we provide some graphical evidence of the iPBC. We consider the difference between effective transfers and its long run trend - a fourth-degree polynomial - shown in Figure 1, which is the short run trend. We compute the percentage deviations defined as the ratio between the short and long run trends, and we plot it over

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[15]CASEN was conducted in 2000, 2003, 2006, 2009 and 2011.

[16]The most damaging earthquake on record took place in 2010.

[17]We use a word search in "El Mercurio", the main newspaper in the country.

time in Figure 2.

*** FIGURE 2 HERE ****

Figure 2 shows that deviations of the per capita transfers with respect to the long run trend are systematic and significantly larger during local election years (which are marked by the dashed vertical lines). The percentage change is on average 15% higher during years 2004, 2008, and 2012. We also note that transfers do not increase during national election years, each of which was held the following year after a municipal election.

5.1 Specification

In order to provide formal evidence on the existence of an iPBC, we consider the following empirical specification:

$$y_{it} = \beta_\ell LOC_t + \beta_n NAT_t + \gamma x_{it} + f(t) + \delta_i + \varepsilon_{it} \tag{1}$$

where y_{it} is the log of the per capita transfer for municipality i at time t, LOC_t and NAT_t are dummies for municipal and presidential election years respectively, x_{it} is a set of controls, $f(t)$ is a fourth-degree polynomial time trend,[18] and δ_i is a municipality specific term. In our baseline estimation, we assume that the error term ε_{it} is clustered by municipality.

We first estimate equation (2) using ordinary least squares (OLS) with no fixed effects. Our preferred estimation, however, uses fixed effects (WITHIN) in order to control for municipal non observables that do not change over time. In addition, if transfers exhibit some degree of serial correlation we need to include lags of the dependent variable on the right hand side of equation (2). As a robustness check, our main table of resuts also reports the WITHIN estimation of a dynamic panel with the lag of transfers as a explanatory variable.

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[18]We build a trend from our time variable because funds delivered by the central government increase over time, as we can note from Table 1. We notice that the presence of time dummies precludes the identification of our dependent variables LOC and NAT. We provide several robustness checks for this polynomial trend.

We are aware that if the true model is one with lags of the dependent variable, the WITHIN and OLS estimators are biased. This bias may be significant if the panel is a short one as ours (Nickell (1981)), in which N=345 but T=10. The usual strategy in order to correct the bias is to use GMM estimators, which are built with further lags of the dependent variables as instruments (Anderson and Hsiao (1981), Arellano and Bond (1991)). In Appendix A, we provide a discussion and results for General Method of Moments (GMM) estimation.

5.2   Baseline Results

Table 2 shows our baseline results. In the first two columns we report OLS estimation, and the second two columns show WITHIN estimation results. All regressions control for transfers' time trend.

*** TABLE 2 HERE ****

Table 2 shows that during local election years transfers increase. This is a robust result. Coefficient β_ℓ is positive and statistically significant at a 1% level, for all estimators and specifications.

The effect is as large as 6% (see last column), which is meaningful. To gauge its magnitude we compare this increase with the amount that mayors spend during electoral campaigns. Indeed, the implied additional amount on transfers during local election years is twice as large as the amount that mayors spent on average in the electoral campaign in 2008 (Edwards et al. (2012), Rivera (2012)).[19]

Contrary to the local election case, transfers do not increase during national election years. This is clear in the estimation of the static specifications reported in the second and third columns. In the case of column (4), the coefficient for NAT has a significant

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[19]On average transfers are increased during a municipal election year by about 30 million Chilean pesos while the elected mayors spent about 10 million Chilean pesos on average in their electoral campaign during the 2008 election year.

negative effect. However, its sign only indicates that mean reversion - after the increase in local election years - is automatic the following year after the local election takes place. In Appendix A, where we discuss the dynamic specification, we explain this result in detail.

For control variables most coefficients are not statistically significant and therefore should not be taken conclusively.

5.3 Robustness

Now we provide several robustness checks for the results exhibited in Table 2. First, we discuss our time trend polynomial choice. We estimate the effect of LOC_t using two, three and four-degree polynomial time trends, and we report the Akaike informational criterion (AIC) for each one of them. Secondly, we consider multidimensional clustering. As we use a time trend instead of a year fixed effect, a year shock may result in a within-year clustering of the error (Cameron et al. (2011)). Accordingly, we extend our analysis to municipality-year cluster robust variance. Thirdly, we allow the time trend to vary across provinces and regions.[20]

In addition, we extend our analysis to other dependent variables. As transfers increase municipal budgets in local election years, we also expect expenditures to be higher those years. Notice that municipalities do not have fiscal autonomy, so an increase in the local budget is likely to reflect the central government's fiscal policy. In particular, we focus on the log of per capita spending at the local level. In Table 3 we report estimations for both transfers and municipal expenditures.

*** TABLE 3 HERE ****

The first three columns in 3 test different polynomial trends. We notice that the effect of LOC_t on transfers is elusive for the quadratic polynomial trend, while it is positive and sig-

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[20]The 345 Chilean municipalities are partitioned into 54 provinces and 15 regions. We use specific time trends at a higher level of aggregation (provincial instead of municipal) because the use of municipality-specific time trends reduces our sample in one third.

nificant for three and four-degree polynomial trends.[21] The informational criterion indicates that the fourth-degree polynomial is the specification that minimizes the information loss. In the fourth column, we use a municipality-year cluster. The effect is no longer significant because its robust standard error is twice as large than in the case of single state clustering. Finally, in the last two columns we show that the results are robust to the inclusion of province or region-specific time trends, respectively. Overall, we interpret the results in Table 3 as evidence that the existence of an iPBC is robust to several checks, even tough we do not obtain significance in a couple of specifications.

As for spending, the results are quite strong, with the coefficient for the effect of local election year on municipal spending being positive and statistically significant at a 1% level, for all estimators and specifications.

We did not have disaggregated data on municipal spending, but a recent report by the Chilean Accountability Office[22] shed some light on the use of municipal budget on electoral years. According to the report, the "advertising and diffusion" show a systematically increase during election years. The Office reports that in the last local election only one third of the municipalities increased advertising spending in less than 5%; another third increased this item between 5% and 50%, and the last third increased spending above 50%.

6 The Mechanism of the iPBC: Alignment, Margin and Presidential Elections

In the previous section we provide evidence on the existence of an iPBC in Chile. Our interpretation of the cycle is that the government influences local elections in favor of mayors belonging to its same coalition, because local officials can then influence the national election the following year. This interpretation has several testable implications.

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[21] The effect is also positive and significant for higher order trends, not reported here.

[22] "Estudios sobre Gastos en Publicidad Difusión en el Sector Municipal" (2016).

First and most obviously, we expect to see a positive cycle only on aligned mayors. It is reasonable to expect a higher increase in local transfers during electoral years, in municipalities where incumbent mayors belong to the government's political coalition. On the contrary, in non aligned municipalities we do not expect an increase on transfer but rather a decrease in the allocation of funds if any.

Secondly, we also expect transfers allocated to aligned mayors to increase the tighter is the local race, or in swing municipalities. Finally, we conjecture that local results have an effect on national election results the following year. In particular, we expect the ruling coalition vote share in national elections to be higher in aligned municipalities vis--vis non-aligned ones. We discuss these two implications in what follows.

As before, our empirical strategy takes advantage of our panel's within-municipality and within-time variance. An alternative method to provide causal identification for this result is to use close races in order to implement a Regression Discontinuity Design (RDD). [23] However, the use of close elections mightily reduces the sample size. When we impose the difference between the winner and the runner up to be less than 5% of their votes, the number of close elections is about 25 contests each year, with our sample summing up to 75 observations under this restriction.[24] A larger window size, with the margin defined as less than 10%, renders only 140 observations. In any case, the sample size is not large enough to provide reliable inference on a causal effect.

6.1 Political Alignment

In the first place, we provide some graphical evidence on the impact of political alignment. We compute the short run percentage deviations, as the ones depicted in Figure 2, but now we separate between politically aligned and non-aligned municipalities. Figure 3 shows the

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[23]Brollo and Nannicini (2012) use this approach with data from Brazil to deal with a similar problem. We observe that Brazil has about 5,500 municipalities while Chile has about 350 only.

[24]We notice that each tight contest is only used once, in the next municipal election. Accordingly, close elections in 2000, 2004 and 2008, which are 21, 27 and 27, respectively, provide 75 observations in which we can observe changes to transfers during the 2004, 2008 and 2012 municipal elections.

results.

In Figure 3 the dark line shows percentage deviations of transfers for municipalities where mayors were aligned with the government, while the light line displays the same for non-aligned mayors. We observe that the political cycle is only noticeable for the aligned ones, while quite irregular for municipalities not belonging to the incumbent coalition. At the same time, the size of the cycle for aligned municipalities is higher than the one reported in Figure 2, with a percentage increase of 25% in that subgroup.

In order to study the alignment hypothesis we define $ALIGN_{it}$ as a dummy variable that indicates whether the mayor in municipality i is aligned with the government coalition at time t, or not. We include this variable $ALIGN$ in (equation 2) and an interaction term between LOC and $ALIGN$ to see its effect throughout the political cycle. Estimation results are shown in Table 4 below.

The baseline results for alignment are shown in the first three columns of Table 4. We note that $ALIGN$ is positive and statistically significant for all specifications. When we introduce LOC, in the second column, we verify that transfers increase during election years, irrespective of the political coalition to which mayors belong. However, when the interactive term is introduced LOC this no longer significant, while the interactive term is significant. This means that the cycle is only noticeable for politically aligned incumbents.

The last two columns are robustness checks. As now the relevant variable in our equation is an interaction term, we can use year fixed effects which remove all year shocks from the estimation. In the fourth column we consider year dummies, and in the last one we consider

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province-specific time dummies.[25] We verify that the cycle is meaningful for politically aligned mayors.

6.2 Margin and Swing Voters' Municipalities

In addition to targeted transfers to aligned municipalities, we conjecture that the government use these transfers to increase their reelection probabilities, in order to have them as incumbent mayors in the next national election. If so, we expect transfers to increase in swing municipalities where elections have been historically tight.[26] The alternative hypothesis, namely that the government allocates resources to their core supporters (Cox and McCubbins (1986)), is less appealing in our particular context, because the government can favor core supporters along non-electoral years while concentrating its efforts towards swing municipalities during local election years.

We define $MARGIN$, our measure of electoral competitiveness, as the difference between the winner and the runner up candidate during the lastest election [27] To test the effect of $MARGIN$, we notice that the effect is mediated by alignment. Among aligned municipalities, the government has incentives to allocate resources in places were the incumbent won with a narrow margin, because revenues can make a difference on tighter races. Conversely, unaligned municipalities whose incumbent won with a narrow margin received less transfers for the very same reason.

Table 5 show the results.

*** TABLE 5 HERE ****

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[25]This implies the introduction of $54 \times 13 = 702$ dummies.

[26]As mentioned, there exists evidence on the targeting of intergovernmental transfers to swing voter districts in several countries.

[27]This measure can be misleading when there exists a third important candidate. As Chilean electoral races were for most if not all electoral contests between the two main coalitions, this is not problematic here. However, all the results are robust under the normalized version of $MARGIN$.

In the first two columns, we show that $MARGIN$ itself is not significant, and with a positive and significant sign when we control for local election years. This means that the government, during non-electoral years, favors core supporters belonging to the two coalitions. However, we already explained that the results must be conditioned on alignment. Accordingly, in columns (3) and (4) we consider the separate sample on aligned and unaligned municipalities, respectively. For aligned municipalities, we observe that the government increases significantly the amount of transfers in narrow-margin municipalities. The effect, on the contrary, is not observed on unaligned municipalities. In the last column, we introduce a triple interaction term. We would like to see the effect of $MARGIN$ in aligned municipalities in local election years. The effect is also significant although at the 10% level.

6.3 Correlation with Presidential Elections

Finally, we claim that aligned mayors may influence the national electoral outcomes In recent contributions Martinez-Bravo (2014) and Brollo and Nannicini (2012) show that local mayors do influence voters in national elections in Indonesia and Brazil, respectively. For the Chilean case, there exists qualitative evidence that mayors mobilize voters at the local level in legislative and presidential elections, [28] and Izquierdo et al. (2009) report a positive correlation between the parties' local and legislative election results.

In order to provide additional evidence on this relation, we consider whether the votes for the ruling coalition in presidential elections are related to the mayor's political coalition, or not. In particular, we consider the following empirical specification:

$$V_{it} = \beta ALIGN_{it} + \gamma x_{it} + \delta_t + \delta_i + \varepsilon_{it} \tag{2}$$

where V_{it} is the vote share of the ruling coalition in municipality i in presidential election t, $ALIGN_{it}$ indicates whether the mayor is aligned to the incumbent coalition at the time of the presidential contest, x_{it} is a set of controls, and δ_t and δ_i are year and municipality

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[28]As we discuss in detail in Section 2.

dummies respectively. Notice that the exercise uses a four-year panel which includes only national election years.[29] The error term ε_{it} is clustered by municipality. The results of our estimations are described in Table 6.

*** TABLE 6 HERE ****

Columns (1), (2) and (4) report a positive correlation between mayor alignment and the vote share of the ruling coalition in presidential elections. The government's candidate obtains between 3 to 4 additional points in aligned municipalities as compared to non-aligned ones.

We also test this vote share against $\Delta ALIGN$, that is, the change in the political alignment during the latest election. We define $\Delta ALIGN = 1$ for municipalities in which an unaligned mayor became aligned. Naturally, this can be due to a change in the mayor party or in the government party, but in both cases we expect a positive effect on the ruling coalition vote share. Similarly, we define $\Delta ALIGN = -1$ for a municipality in which an aligned mayor became unaligned, and $\Delta ALIGN = 0$ otherwise. The effect of this variable is significant, although its magnitude and significance are lower than the ones reported further above.

To sum up, we find a positive correlation between local and national results. We don't want to overemphasizes the point. Fixed effects are controlling for non observables fixed over time, but any other determinant which is changing over time is not controlled for. However, these results are consistent with the proposed mechanism of the iPBC.

7   Conclusions

In this paper we show evidence of a political budget cycle during local elections in Chile. The budgetary item that is manipulated by the central government consists of transfers

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[29]That is, $t =$ 2005, 2009 and 2013. For the construction of lagged variables, as we discuss below, we also include 2001.

to local governments. Crucially, transfers are set following soft budgetary constraints and discretionary allocation rules. Using a panel consisting of 345 municipalities and 13 years, throughout which 3 municipal and 3 presidential elections took place, we show robust evidence that transfers to municipalities increase during municipal elections, and that this increase is larger and significant when incumbent local governments are politically aligned with the national government. Among aligned mayors, transfers are larger the tighter is the election contest.

This work's main contribution is to point out to, measure, and describe, an indirect PBC in which national and local governmental levels interact. In contrast to traditional political budget cycles, in which the politician alters policy instruments to have an impact on her own reelection prospects, in ours the incumbent manipulates fiscal policy in order to influence the election of another public official, in an election other than her own.

The article is also shedding light on the negative effects of fiscal centralization. Much of the literature focuses on the fact that appointed local officials have strong incentives to serve as political brokers of national politicians due to career concerns. We claim in this work that those detrimental practices may also be caused in contexts where elected official face limited fiscal autonomy.

Appendix A: GMM Estimations

In this section we address the case in which transfers exhibit some degree of serial correlation. If so, we need to include a lag of the dependent variable on the right hand side of equation (2). In the last column of Table 2, we provide a WITHIN estimation of this specification. The within estimator is biased, however, as can be directly noted from the first difference estimator. In fact, $y_{i,t-1}$ in $\Delta y_{i,t-1} = y_{i,t-1} - y_{i,t-2}$ is correlated with $\varepsilon_{i,t-1}$ in $\Delta\varepsilon_{it} = \varepsilon_{it} - \varepsilon_{i,t-1}$. The bias can be problematic in a short panel as ours (Nickell (1981)), in which $N = 345$ but $T = 10$ (which is not large enough). To correct this problem, Anderson and Hsiao (1981) recommend using $y_{i,t-2}$ as an instrument variable for $\Delta y_{i,t-1}$. Several estimators improve the efficiency of the Anderson-Hsiao strategy using additional lags of the dependent variable as additional instruments, and the use of the 'General Method of Moments' (GMM) to deal with overidentification (Arellano and Bond (1991)).

Yet, the inclusion of additional instruments may create problems as well. A key assumption of the GMM estimator is that the instrument matrix is exogenous. As is the case in specifications with too many instruments, we can test the validity of the moment conditions jointly. The Sargan test, which has the null hypothesis that overidentification restrictions are valid, need to not be rejected in order to increase the number of instruments. In our case, however, the use of the complete set of instruments as proposed by Arellano and Bond (1991) creates an overidentification problem.[30] To deal with this problem, we reduce the numbers of lags and collapse the instrument matrix (Roodman (2006)). The reported results are the better ones in terms of the Sargan test and autocorrelation statistics. As usual, the reported Sargan test corresponds to the one obtained in the second step estimation, while the explanatory variables' coefficient estimation is obtained from the one-step estimation.

Table 7 show our results for GMM estimations. The first two columns are related to the baseline results, in Table 2. The last three columns are related to estimations for aligned municipalities, as in Table 4.

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[30]This is also the case with the Blundell and Bond (1998) estimators.

*** TABLE 7 HERE ****

Table 7 shows that our results are robust to a dynamic specification. For the baseline specification, the coefficient β_ℓ is positive and statistically significant at a 1% level, for all GMM estimations. As indicated by the Sargan test, the GMM estimation models are well specified. The estimated GMM coefficient for the lagged dependent variable lies within the bounds defined by the dynamic versions estimated with the OLS and WITHIN estimators (not reported here), which satisfies the 'rule of thumb' specification test. The second auto-correlation test also is passed in favor of the GMM specification.

The coefficients for NAT, which are negative and significant in all the regressions, require further discussion. Recall that presidential and legislative elections take place, in all cases in our sample, the following year a municipal election is held. Accordingly in a dynamic setup there are two effects in a national election year. First there is a direct effect captured by β_n (reported in table 2). Secondly, as the specification is dynamic and includes a lagged term, a positive value of β_ℓ implies that transfers should also increase in the following years because mean reversion is not automatic. This effect is captured by $\alpha\beta_\ell$, and thus the overall effect is $\beta_n + \alpha\beta_\ell$. Accordingly, we report whether we can reject the null hypothesis that $\beta_n + \alpha\beta_\ell = 0$, or not ($Prob > F$). In all cases, we cannot reject the null hypothesis that the overall effect is zero in national election years. Overall, the fact that transfers do not increase in national election years is also robust to the dynamic specification.

Table 7 also shows the cycle for aligned versus non aligned municipalities. Columns (3) to (5) replicate the results of columns (1) to (3) in Table 4. The main result , in column (5), is that $ALIGN \times LOC$ is significant while LOC it is not, which reassures that the cycle is only meaningful for aligned municipalities. The GMM estimation satisfies the Sargan and second autocorrelation statistical tests.

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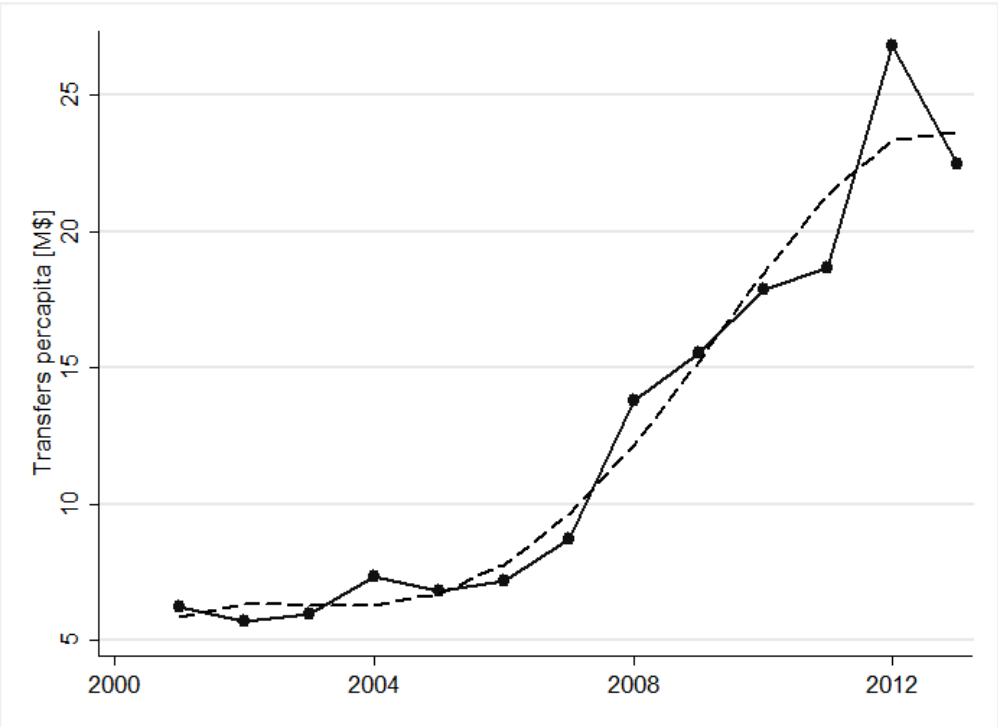
Figure 1: Per capita transfers (millions of Chilean Pesos as of 2013)

Note: Total transfers per capita for period 2000-2013, in millions of real Chilean pesos as for 2013. The dashed line represents the long-run trend, which is the predicted value of a fourth-degree polynomial estimation.
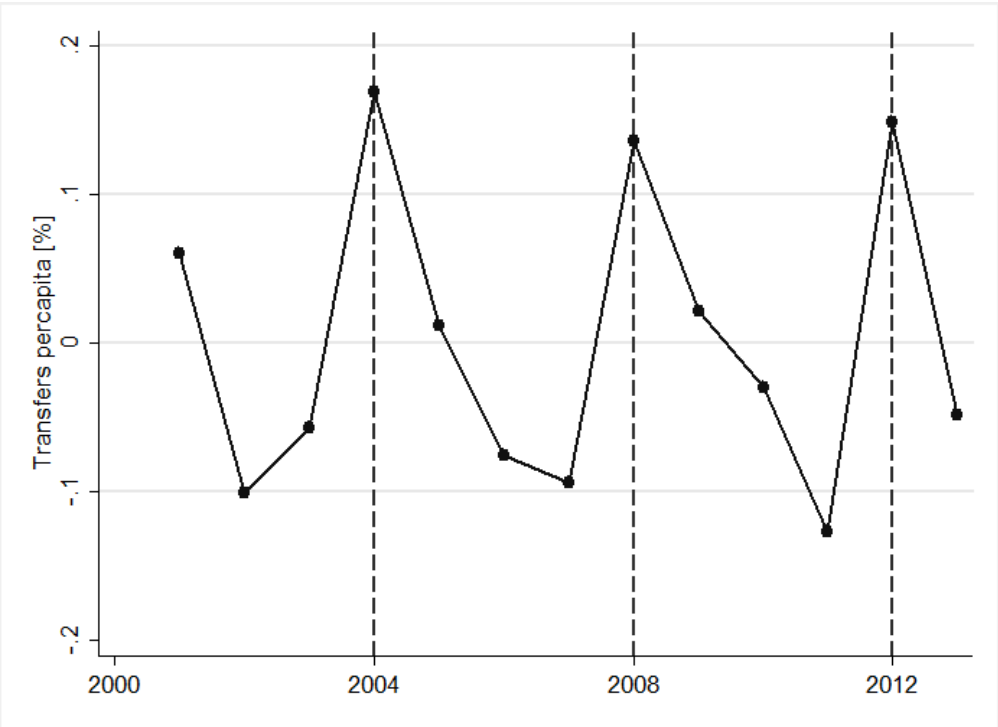
Figure 2: Per capita transfers (percentage)

Note: The figure is the percentage deviation between effective transfers and its long run trend - a fourth-degree polynomial - plotted over time. The dashed lines are municipal election years.
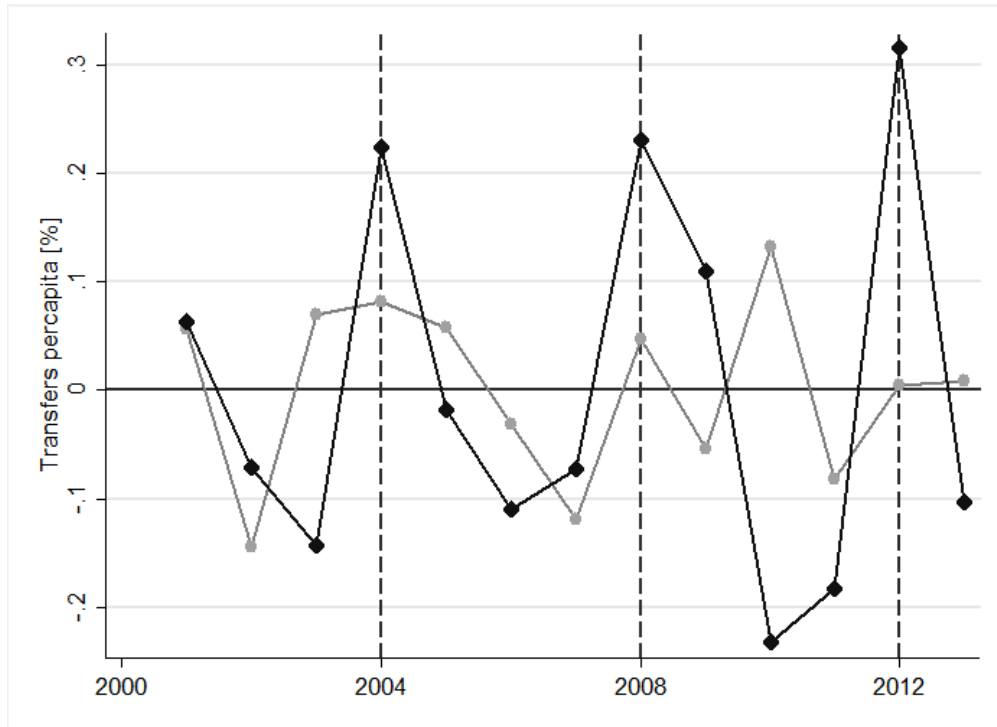
Figure 3: Per capita transfers (percentage)

Note: The figure is the percentage deviation between effective transfers and its long run trend - a fourth-degree polynomial - plotted over time for aligned (black) and unaligned (gray) mayors. The dashed lines are municipal election years.

Table 1: Transfers, and Central and Local Budget

| Year	T[mM$]	CGB[mM$]	T/CGB[%]	LB[mM$]	T/LB [%]	Av.[%]	Min[%]	Max[%]
2001	114	10939	1.0	1498	7.6	11.0	0.0	56.5
2002	115	12226	0.9	1563	7.4	10.6	0.0	52.6
2003	98	12849	0.8	1690	5.8	9.0	0.0	48.2
2004	112	12989	0.9	1794	6.2	9.8	0.0	71.2
2005	98	13599	0.7	1786	5.5	9.1	0.0	70.9
2006	115	15298	0.8	1935	6.0	9.6	0.0	76.9
2007	146	17883	0.8	2023	7.2	11.8	0.0	62.5
2008	201	20651	1.0	1955	10.3	16.6	0.1	63.5
2009	249	23407	1.1	2220	11.2	17.5	0.1	63.6
2010	294	25652	1.2	2314	12.7	19.1	0.1	69.0
2011	286	28984	1.0	2485	11.5	17.0	0.4	71.4
2012	394	30890	1.3	2744	14.4	20.1	1.4	71.2
2013	402	33247	1.2	2807	14.4	18.8	1.4	67.8

Sources: Transfers (T) and Local Budget (LB) from the System of Municipal Information, SINIM (http://www.sinim.gob.cl). Central Government Budget (CGB) from the National Budget Office, DIPRES (http://www.dipres.gob.cl).
Note: Av., Min and Max, correspond to the average, minimum and maximum of T/LB.

Table 2: Transfers in Local and National Election Years

| | Log per capita Transfers | | | |
| | OLS | | WITHIN | |
	(1)	(2)	(3)	(4)
LOC	0.099***	0.040***	0.033**	0.061***
	(0.016)	(0.014)	(0.013)	(0.014)
NAT		-0.001	-0.006	-0.038**
		(0.017)	(0.017)	(0.017)
Log Population		-0.677***	-0.746	-0.282
		(0.045)	(0.522)	(0.414)
Rural Dummy		-0.001	-0.004	-0.001
		(0.001)	(0.003)	(0.003)
Population below 15 [%]		-0.811	-3.367	-2.301
		(0.689)	(2.501)	(2.139)
Population above 65 [%]		-2.763***	-1.256	-0.917
		(0.851)	(3.148)	(2.233)
Disaster Dummy		0.02	0.047***	-0.014
		(0.018)	(0.015)	(0.016)
Poor [%]		-0.105	0.139	-0.013
		(0.191)	(0.220)	(0.187)
Log per capita Transfers (-1)				0.340***
				(0.029)
Observations	4,366	4,079	4,079	3,753
Municipalities	345	345	345	345
R-squared	0.003	0.463	0.366	0.47

All regressions include a fourth-degree polynomial time trend. Errors are clustered at the municipality level in all estimations. *,**, ***, significance at the 10%, 5% and 1% levels, respectively.

Table 3: Robustness Checks

	TR=2	TR=3	TR=4	2DC	PROVTR	REGTR
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable is Log per capita Transfers (N=4,079)						
LOC	-0.02	0.033**	0.033**	0.033	0.030**	0.035**
	(0.014)	(0.013)	(0.013)	(0.025)	(0.014)	(0.014)
NAC	-0.070***	0.006	-0.006	-0.006	-0.01	-0.002
	(0.014)	(0.015)	(0.017)	(0.068)	(0.017)	(0.017)
AIC	3965.66	3805.02	3802.67			
Dependent Variable is Log per capita Spending (N=4,140)						
LOC	0.015***	0.022***	0.022***	0.022***	0.021***	0.021***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
NAC	-0.001	0.008***	0.008***	0.008	0.007**	0.007**
	(0.003)	(0.003)	(0.003)	(0.008)	(0.003)	(0.003)
AIC	-9503.84	-9573.52	-9571.75			

Estimations reported in columns (1) and (2) include a quadratic and third-degree polynomial time trend, respectively. All other regressions include a fourth-degree polynomial time trend. Errors are clustered at the municipality level in all estimations, except in column (4) in which errors are clustered at municipality-year level. Time trends are province and region-specific in columns (5) and (6). All estimations include the set of controls reported in Table **??**. *,**, ***, significance at the 10%, 5% and 1% levels, respectively.

Table 4: The iPBC and Political Alignment

	Log per capita Transfers				
	(1)	(2)	(3)	(4)	(5)
ALIGN	0.101***	0.100***	0.080***	0.085***	0.091***
	(0.019)	(0.019)	(0.021)	(0.021)	(0.022)
LOC		0.032**	(0.014)		
		(0.013)	(0.019)		
NAT		-0.002	-0.003		
		(0.017)	(0.017)		
LOC x ALIGN			0.090***	0.086***	0.090***
			(0.026)	(0.026)	(0.030)
Log Population	-0.825	-0.825	-0.824	-0.900*	-0.616
	(0.518)	(0.519)	(0.518)	(0.518)	(0.570)
Rural Dummy	-0.004	-0.004	-0.004	-0.004	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Population below 15 [%]	-3.175	-3.32	-3.288	-3.86	-3.853
	(2.434)	(2.445)	(2.448)	(2.485)	(3.014)
Population above 65 [%]	-1.337	-1.41	-1.397	-1.739	-2.25
	(3.153)	(3.154)	(3.149)	(3.132)	(3.918)
Disaster Dummy	0.053***	0.046***	0.043***	0.003	0.106
	(0.014)	(0.015)	(0.015)	(0.022)	(0.086)
Poor [%]	0.120	0.125	0.124	0.257	-0.037
	(0.211)	(0.216)	(0.216)	(0.220)	(0.272)
Time Trend	YES	YES	YES	NO	NO
Year FE	NO	NO	NO	YES	NO
Year-Province FE	NO	NO	NO	NO	YES
Observations	4,079	4,079	4,079	4,079	4,079
Municipalities	345	345	345	345	345
R-squared	0.373	0.374	0.375	0.387	0.514

The first three columns include a fourth-degree polynomial time trend. Column (4) and (5) include a full set of year and year-province dummies, respectively. Errors are clustered at the municipality level in all estimations. *,**, ***, significance at the 10%, 5% and 1% levels, respectively.

Table 5: The iPBC and Past Margin of Victory

	Log per capita Transfers				
	(1)	(2)	(3)	(4)	(5)
Margin (-1)	0.144	0.166*	0.183	0.097	0.135
	(0.095)	(0.098)	(0.129)	(0.144)	(0.117)
LOC		0.049**	-0.036	0.128***	-0.024
		(0.021)	(0.030)	(0.031)	(0.029)
LOC x Margin (-1)		-0.094	0.082	-0.261**	0.058
		(0.090)	(0.127)	(0.127)	(0.128)
ALIGN					0.073**
					(0.031)
ALIGN x Margin (-1)					0.028
					(0.132)
LOC x ALIGN					0.147***
					(0.043)
LOC x ALIGN x Margin (-1)					-0.324*
					(0.179)
Sample	ALL	ALL	ALIGN=0	ALIGN=1	ALL
Observations	4,074	4,074	2,033	2,041	4,074
Municipalities	345	345	342	333	345
R-squared	0.366	0.367	0.386	0.288	0.377

All regressions include a fourth-degree polynomial time trend and the controls reported in Table (2). In column (3) and (4), the sample is only aligned and non-aligned municipalities, respectively. Errors are clustered at the municipality level in all estimations. *,**, ***, significance at the 10%, 5% and 1% levels, respectively.

Table 6: Presidential Elections and Local Alignment

| | Ruling Coalition Vote Share in Presidential Elections | | | | |
| | First Round | | | Second Round | |
	(1)	(2)	(3)	(4)	(5)
ALIGN	8.017***	3.427***		4.034***	
	(0.974)	(0.809)		(0.939)	
ΔALIGN			0.933**		1.258**
			(0.458)		(0.537)
Log Population		23.638	24.847	45.554**	46.896**
		(16.226)	(16.677)	(18.242)	(18.787)
Rural Dummy		-0.146	-0.145	-0.082	-0.082
		(0.133)	(0.142)	(0.148)	(0.158)
Disaster Dummy		-6.625	-6.58	-10.780**	-10.701**
		(4.528)	(4.638)	(4.734)	(4.816)
Poor [%]		-0.391	0.23	5.846	6.536
		(7.259)	(7.451)	(8.464)	(8.622)
Observations	1,035	981	981	981	981
Municipalities	345	345	345	345	345
R-squared	0.086	0.638	0.625	0.521	0.504

All estimations include year and municipalities fixed effects. Errors are clustered at the municipality level. *,**, ***, significance at the 10%, 5% and 1% levels, respectively.

Table 7: GMM Estimations

	Log per capita Transfers				
	(1)	(2)	(3)	(4)	(5)
Log per capita Transfers (-1)	0.731***	1.523***	0.702***	0.726***	0.716***
	(0.090)	(0.458)	(0.088)	(0.089)	(0.090)
Log per capita Transfers (-2)		-0.292			
		(0.186)			
ALIGN			0.039*	0.035*	0.017
			(0.021)	(0.021)	(0.022)
LOC	0.073***	0.100***		0.072***	0.039
	(0.019)	(0.025)		(0.019)	(0.025)
NAT	-0.062**	-0.090**		-0.061**	-0.061**
	(0.025)	(0.040)		(0.025)	(0.025)
ALIGN x LOC					0.065*
					(0.034)
Observations	3,366	3,054	3,366	3,366	3,366
Municipalities	345	344	345	345	345
Prob ¿ F	0.337	0.657		0.326	0.895
Number of Instruments	15	16	14	16	17
Sargan Test	0.117	0.887	0.110	0.119	0.136
AR(2)	0.936	0.169	0.919	0.948	0.954

All regressions include a fourth-degree polynomial time trend and the set of controls reported in Table (2). GMM specifications include 2nd, 3rd and 4th lags as instruments; all instruments are collapsed. Prob¿F is the probability of the type-I error of the null of the mean reversion hypothesis. Errors are clustered at the municipality level in all estimations. *,**, ***, significance at the 10%, 5% and 1% levels, respectively.