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PARTY ALIGNMENT, POLITICAL BUDGET CYCLES AND VOTE WITHIN A FEDERAL COUNTRY

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Party alignment, political budget cycles and vote within a federal country

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To understand how intergovernmental relations affect political budget cycles (PBCs) within federal countries, we model the credibility problems of discretionary fiscal policy in combination with a national incumbent that favors aligned districts. Analyzing Argentina's provinces during the 1985–2001 period, unsurprisingly, provincial budget balances worsen in electoral years, and aligned provinces (where the governor belongs to the president's party) receive larger federal transfers and have larger public expenditures during the governor's entire term. The main interaction effect in electoral years is that provincial budget balances only deteriorate in unaligned provinces, which receive less federal transfers. Furthermore, average federal transfers boost the vote for aligned governors. Two broad implications are that studies of subnational PBCs are biased by an omitted factor (discretional federal transfers), and that governors unaffiliated with the president suffer a "Cinderella" effect at the polls which helps the president dominate national politics.

JEL classification codes: D72, E62
Key words: federal countries, discretional transfers, party alignment, distributive politics, subnational political budget cycles

I. Introduction

The literature on distributive politics is especially relevant for fiscal federalism because of its debates on whether a national incumbent will target loyal or swing districts, and on how this interacts with political affiliation (aligned and unaligned districts). In turn, the literature on political budgets cycles (hereafter, PBCs), which

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studies how office-motivated incumbents manipulate fiscal policy in electoral years, has uncovered electoral cycles in distributive politics. We first draw the implications for the literature on PBCs within federal countries, developing a stylized model where PBCs in subnational districts are affected by the discretional allocation of funds by the national government. We also analyze the implications for the literature on voting. We then apply the model to interpret the evidence from Argentina's provinces.

In the pioneering model by Nordhaus (1975) on electoral cycles in economic policy, voters can be systematically deceived by governments because they have adaptive expectations. However, electoral cycles are still present with forward-looking voters if there is asymmetric information on economic policy and the competence of politicians is heterogeneous. With rational voters, electoral cycles can be modeled as a signal (Rogoff and Sibert 1988; Rogoff 1990; Persson and Tabellini 1990) or, as we do here, as an electoral bias due to lack of credibility (Lohmann 1998; Shi and Svensson 2006).

The models on distributive politics have typically been framed in terms of campaign proposals in order to analyze whether an incumbent will target loyal or swing voters (Cox and McCubbins 1986; Lindbeck and Weibull 1987; Dixit and Londregan 1996). Since commitment is required for campaign proposals to be relevant, this sidesteps the credibility problems of electoral promises. While Arulampalam et al. (2009) consider an incumbent with discretionary power to assign transfers, voters are not forward-looking. Instead, we consider both discretionary federal transfers and forward-looking voters, with loyal and swing districts which may be aligned or not with the national incumbent.[1]

[1] Golden and Min (2013) distinguish between the literature at the voter and district level.

Building on both theoretical literatures, we develop a stylized model where PBCs within subnational districts of federal countries are affected by the discretional allocation of federal funds. Consistent with distributive politics, in non-electoral periods the national incumbent only makes discretional cash transfers to aligned districts. These transfers are used to expand expenditure at the district level. In electoral periods distributive politics interacts with subnational PBCs since the national incumbent distributes extra transfers among aligned districts, an effect exacerbated in swing districts with more competitive elections. The model predicts that this discrimination helps governors affiliated with the president, and hurts those that are not, in the polls.

The empirical literature on distributive politics shows that party identity matters in the distribution of national spending. For instance, Larcinese et al. (2006), in their study of federal outlays for the forty-eight U.S. continental states from 1982 to 2000, find that states whose governor, or whose majority delegation in the House, belong to the same party of the president are rewarded with more federal budget allocations. Larcinese et al. (2006) do not control for the interaction of alignment with being a swing state, but they find that loyal states (i.e., states that heavily supported the incumbent president in past presidential elections) are rewarded, but swing states (i.e., states with narrow vote margins) are not. [2] Berry et al. (2010), in their study of U.S. federal spending from 1984 to 2007 at the district and county levels, find that districts and counties whose legislators belong to the president's party, as well as those that are swing, receive more federal outlays, while the interaction term of being both swing and aligned is not significant. Arulampalam et al. (2009), in their study of specific-purpose central government transfers in India to fourteen states from 1974 to 1996,

[2] The same holds when loyal and swing districts are identified by the number of times voters swung their support from one party to another.

find that states that are aligned and swing receive more transfers than either unaligned or non-swing states.[3]

Distributive politics can be affected by PBCs. Though Veiga and Pinho (2007) and Veiga (2012) find more transfers to swing and (in the second paper) loyal municipalities in Portugal, as well as significant PBCs, the interaction effects are not significant. And while Khemani (2007) finds that states governed by a party affiliated with the national government receive more discretionary general-purpose transfers, and that this effect is larger if the state is also swing, there are no electoral or interaction effects.[4] On the other hand, Brollo and Nannicini (2012) do find interaction effects when they look at highly discretionary transfers (spending on infrastructure) in swing municipalities in Brazil, since the national government strongly favors aligned municipalities when they are close to elections.

The two papers on electoral cycles in distributive politics most closely related to our approach are Rumi (2014) and Kang (2015). Rumi (2014) empirically studies discretional transfers by the national government to Argentine provinces over the 1984–2003 period. She distinguishes between in-kind and cash transfers: the first are easily traceable to the national government, the second are not. In non-electoral periods, political affiliation does not affect total discretional transfers, though affiliated provinces receive more cash and less in-kind transfers. In presidential election years, however, the national government allocates more total transfers to politically affiliated provinces in the form of cash transfers.

Kang (2015) analyzes PBCs in the composition of national government spending in a setup with forward-looking voters and asymmetric information on budget

[3] Given that India is a parliamentary country with coalition governments, Arulampalam et al. (2009) consider state governments that have one party in common with the central government as aligned states.

[4] Khemani (2007) shows that constitutional general-purpose transfers administered by an independent agency counter this effect, so total general-purpose transfers are not affected by political affiliation.

decisions, which gives rise to credibility problems in electoral years. While in non-electoral years transfers go to loyal districts, in electoral years the national incumbent allocates all transfers to swing districts. Our formal model builds on the insight that distributive politics becomes intertwined with PBCs because of the credibility problems of fiscal policy in electoral years. Since our model considers cash transfers, only aligned districts are favored (within these, swing districts are favored even more).

There is an ample empirical literature on PBCs within federal countries, for instance Petry et al. (1999), Galli and Rossi (2002) and Rose (2006) for established democracies, and Gámez and Amarillas (2014) and Meloni (2016) for emerging democracies. However, with the exception of Lema (2006) and Ferreira and Bugarin (2008), who look at how subnational PBCs and intergovernmental relations interact, the literature on subnational PBCs has not considered the effect of distributive politics.

Lema (2006) empirically studies PBCs in Argentine provinces during the 1985–2001 period, finding that the national incumbent favors aligned districts with transfers in electoral years. However, he fails to control for what happens in non-electoral years, as we do in the econometric estimates here. Ferreira and Bugarin (2008), motivated by the pattern of national and state transfers to municipalities in Brazil between 1999 and 2004, develop a signaling model where PBCs in municipal governments are affected by transfers from the state government that are partisan-motivated. Our model focuses instead on the credibility problems caused by discretional federal transfers to the partisan coalition.

Empirically, we estimate the predictions of the model using econometric methods for panel data on fiscal balance, expenditures, own revenues, and federal transfers in

twenty-two Argentine provinces during the 1985–2001 period. The national constitution of Argentina guarantees the fiscal autonomy of provinces from the national government, which is a necessary condition for the existence and the identification of PBCs at the provincial level. At the same time, the interest of the president in a supportive congress creates the incentive to help partisans by benefiting aligned districts. Consistent with the model, we find that federal transfers to aligned provinces are around 3% (6%) larger during non-electoral (electoral) periods. Furthermore, for each 1 percentage point more of average federal transfers, the vote share of the incumbent increases by 1 percentage point as well.

The paper is structured as follows. Section II develops a simple model to capture the interplay between distributive politics and political budget cycles within federal countries. Section III describes the data set, the empirical specification, and the econometric techniques employed. Section IV reports the empirical results. Section V concludes.

II. Model

Discretional economic policy can lead to credibility problems, such as the inflationary bias in Barro and Gordon (1983). Lohmann (1998) extends this insight to electoral cycles in monetary policy driven by office-motivated incumbents; Shi and Svensson (2006) do the same for electoral cycles in fiscal policy. Building on the Shi and Svensson (2006) model, our contribution is to embed elections in each district in a national setting where the national government can make discretional transfers. This links subnational PBCs to the political allocation of federal funds.

A. Agents

Voters

In each district i, where $i = 1,2, \dots, I$, personal consumption c_i equals personal income y_i minus tax payments p_i in every period t. Personal income is constant over time ($y_{it} = y_i$):

$$c_{it} = y_i - p_{it}. \quad (1)$$

The per-period utility u_i in each district i is quasi-linear in the consumption of the public good g_i and logarithmic in the consumption of the private good c_i. Time is indicated by subindex t. Each individual h in province i differs in an idiosyncratic political shock σ_{ih} that is identically and independently distributed over time:

$$u_{iht} = g_{it} + \alpha \ln(c_{it}) + \sigma_{iht}. \quad (2)$$

The additive shock captures the relative preferences for the opposition party in relation to the incumbent party, and is assumed to be uniformly distributed around zero. Hence, the median voter m in province i is not affected by the political shock, since the individual h such that $\sigma_{iht} = 0$ in electoral period t is the median. A voter's expected utility is given by the discounted sum $U_{iht} = \mathbf{E}_t[\Sigma_{j=t}^{\infty} \beta^{j-t} u_{iht}]$.

District governments

In each district, the incumbent faces the following budget constraint in per-capita terms. Every period, government expenditures γ_i equal tax revenues π_i plus public debt d_i and federal transfers ϕ_i, net of the repayment of principal and interest $(1 + r(d_i))d_i$ on the debt of the previous period:

$$\gamma_{it} = \pi_{it} + d_{it} + \phi_{it} - (1 + r(d_{it-1}))d_{it-1}. \quad (3)$$

The interest rate $r(d_i)$ increases at an increasing rate with debt: $r' > 0, r'' > 0$, and debt is not socially optimal since the extra utility from current public goods is smaller than the required sacrifice of future public goods: $1 \leq \beta(1 + r(0))$.

As in Streb and Torrens (2013), we distinguish between the budget process and the public goods production function. Expenditure γ_i plus a competence shock θ_t determines the provision of public goods g_i. Hence, more competent governments can provide more public goods and services with a given budget:

$$g_{it} = \gamma_{it} + \theta_{it}. \quad (4)$$

As in Rogoff and Sibert (1988), competence is a moving average process of order 1 which depends on independent and identically distributed shocks ε. For simplicity, we assume these shocks ε are uniformly distributed around zero:

$$\theta_{it} = \theta + \varepsilon_{it} + \varepsilon_{it-1}. \quad (5)$$

Tax revenues π_i equal the tax payments p_i that citizens make, so they are not affected by the competence of the district incumbent:

$$\pi_{it} = p_{it}. \quad (6)$$

The per-period utility v_i of the district incumbent equal that of a regular citizen, plus an extra term which equals $k_i > 0$ if in office (the indicator function $\mathrm{I}_O = 1$), zero if not ($\mathrm{I}_O = 0$). This introduces an electoral bias in the model:

$$v_{it} = g_{it} + \alpha \ln(c_{it}) + \mathrm{I}_{Ot} k_{it}. \quad (7)$$

The expected utility of the district incumbent is given by $V_{it} = \mathbf{E}_t[\Sigma_{j=t}^{\infty} \beta^{j-t} v_{it}]$.

National government

We take the identity of the national incumbent as given, to abstract from presidential elections. Federal transfers ϕ_i to the I districts may be automatic or discretional.

If the transfers are fully discretional, the key issue is whether a district is aligned or not: if aligned, the indicator function $\mathrm{I}_{A_i} = 1$, else $\mathrm{I}_{A_i} = 0$. We assume that citizens vote along party lines in the elections for governor and district representatives to the national congress. This gives the national incumbent a stake in district elections. In the case of aligned districts, the per-period utility v of federal transfers is given by a constant factor $\omega_i > 0$, minus their square because these transfers have an opportunity cost in terms of other priorities.

$$v_t = \Sigma_{i=1}^{I} \omega_i \mathrm{I}_{A_{it}} \phi_{it} - \Sigma_{i=1}^{I} {\phi_{it}}^2. \quad (8)$$

The weights ω_i for aligned districts might vary according to factors such as a district's share of representatives in congress, but we use a common weight ω in the empirical section. Partisan coalitions stem from intraparty cohesion and interparty conflict (see references in Collie 1988: 865). Taking into account the concept of a minimum winning coalition in Riker (1962), the weights to partisans might taper off once the national incumbent has built a comfortable majority. The expected utility of the national incumbent is given by $V_t = \mathbf{E}_t[\Sigma_{j=t}^{\infty}\ \beta^{j-t} v_t]$.

B. Equilibrium with automatic federal transfers

The benchmark case is when federal transfers $\phi_i = f_i$ are exogenously given. In this case, each district election only depends on local issues, so the behavior is like the Shi and Svensson (2006) model of PBCs under credibility problems.

The timing each period is as follows. The incumbent makes policy decisions before observing its current competence shock, so policy is decided under uncertainty, making vote probabilistic from its point of view. After γ_i, π_i, and d_i are defined in the district budget, the competence shock ε_i occurs. Voters then observe district taxes p_i, federal transfers ϕ_i, and the production of public goods g_i, but not current government debt d_i nor current expenditure γ_i, and use that information to make inferences about the politician's capacity. There are elections every other period.

Non-electoral period

In a non-electoral period $t + 1$, the budget decisions do not affect electoral prospects next period, so it is not optimal to issue debt and the intertemporal problem reduces to

maximizing current per-period utility in (4). The Appendix shows that optimal fiscal policy is given by:

$$\pi_{it+1}^{*} = y_i - \alpha, \tag{9}$$

$$\gamma_{it+1}^{*} = y_i - \alpha + f_{it+1} - (1 + r(d_t))d_t. \tag{10}$$

By (4), the actual provision of public goods g_{it+1} will be increasing in competence θ_{it+1}, something that is determined once the competence shock materializes.

Electoral period

Fiscal policy decisions in period t affect citizen welfare in periods t and $t+1$, as well as the probability μ_i that the incumbent is reelected and thus continues in office in periods $t+1$ and $t+2$. The Appendix shows that the probability of reelection is given by

$$\mu_{it} = D_i \left[\frac{1}{2D_i} - \left(\hat{\gamma}_{it} - \gamma_{it}\right)\right] = \frac{1}{2} + D_i\left(\gamma_{it} - \hat{\gamma}_{it}\right) \tag{11}$$

when the distribution of the competence shock ε_{it} is uniform with density D_i over the interval $[-\frac{1}{2D_i}, \frac{1}{2D_i}]$.

The maximum problem is formulated in the Appendix. Optimal district policy is given by:

$$\pi_{it}^{*} = y_i - \alpha, \tag{12}$$

$$d_{it}^{*} = f^{-1}([1 + D_i(\beta + \beta^2)\, k_i]/\beta), \tag{13}$$

where $f(d_{it}) = 1 + r(d_{it}) + r'(d_{it})d_{it}$ and $f' > 0$, so $f^{-1'} > 0$.

The credibility problem in electoral periods pointed out by Lohmann (1998) for monetary policy and Shi and Svensson (2006) for fiscal policy reappears here in each district. In a setup with asymmetric information, the incentive to appear more competent in the eyes of voters leads incumbents to issue debt in order to increase expenditure and boost the provision of public goods. Since voters respond more to fiscal performance in more competitive districts where density D_i is larger, PBCs are larger in those districts. We characterize more competitive districts as swing districts, because in those districts the candidate's competence affects vote the most. This is summarized in Proposition 1 and its first corollary. Though electoral cycles introduce an electoral bias in the budget balance and in expenditure, this electoral bias does not increase, in equilibrium, reelection chances, as Lohmann (1998) demonstrates. The same holds here, as stated in the second corollary of Proposition 1.

Proposition 1 *In electoral years, debt finance rises in every district; incumbents in swing districts incur more public debt.*

Proof By the first-order condition (13), public debt is positive in electoral years, while in non-electoral periods the optimal policy is not to issue debt. In swing districts density D_i is larger. Unless there is a corner solution where debt does not affect the

probability of reelection (so equation 11 does not apply), by (13) optimal debt d_{it}^{*} is larger■

Corollary 1 *In electoral years, incumbents in every district spend more; this effect is exacerbated in swing districts.*

Proof Since taxes are constant in electoral years by first-order condition (12), the issuance of public debt leads to an increase in public expenditure from budget restriction (3)■

Corollary 2 *The use of debt finance in electoral years does not increase the probability of reelection in any district.*

Proof In equilibrium, $\hat{\gamma}_{it} = \gamma_{it}$, so by (11) debt finance does not affect the probability of reelection■

Empirically, Proposition 1 implies a reduction of the budget surplus in each district, which is the variable we look at in the econometric estimates. By the first corollary, debt is used to expand expenditure rather than to reduce local taxes, because utility is quasi-linear in the consumption of public goods. With a more general concave utility function, debt would be split between more expenditures and less local taxes, something we investigate in the econometric part.

C. Equilibrium with discretional federal transfers

We now consider the case of discretional transfers, which is the key innovation of our setup. In this, we build on the ideas in Kang (2015) of how distributive politics becomes intertwined with credibility problems in electoral years, and in Ferreira and

Bugarin (2008) of how partisan motives can trump selection motives in local elections.

Non-electoral period

The factor ω_i measures the political stakes at play in each district. Since only aligned districts support the national incumbent, only these are taken into consideration in non-electoral period $t+1$ when distributing discretional transfers. This leads to reward aligned districts.

Proposition 2 *In non-electoral periods, the national incumbent will only distribute discretional transfers among aligned districts.*

Proof In a non-electoral period $t+1$, the national incumbent will maximize objective function (8). The first-order condition for aligned districts is

$$\omega_i - 2\phi_{it} = 0, \tag{14}$$

and the second order condition is satisfied. This implies that ${\phi^A_{it+1}}^* = \omega_i/2$. As to unaligned districts, there is a corner solution with ${\phi^{\sim A}_{it+1}}^* = 0$ since there is no benefit of distributing transfers to those districts■

Corollary *In non-electoral periods, aligned districts spend more.*

Proof. The rest of the analysis of a non-electoral period is as in the previous subsection, with the amendment that aligned districts will be able to provide more public goods thanks to larger discretional federal transfers■

Electoral period

In an electoral period t the median voter m must decide whether to vote for the incumbent or opposition party at the district level. The median must take into account the expected transfers to a candidate of the incumbent district party ϕ_i^{inc} in comparison to those of the opposition district party ϕ_i^{opp}, since there will only be discretional transfers from the national government to aligned districts in periods $t+1$ and $t+2$. To abstract from the vote for president, we assume that the party identity of the national incumbent in periods $t+1$ and $t+2$ is the same as in current period t.[5]

Equation (A13) in the Appendix gives the probability of reelection when federal transfers have a partisan motivation. With a uniform distribution of ε_{it}, the probability of reelection of the incumbent becomes:

$$\mu_{it} = \frac{1}{2} + D_i\left(\gamma_{it} - \hat{\gamma}_{it} + \mathbf{E}_t\left[\mathrm{I}_{A_{it}}\left(\phi_{it+1}^{inc} + \beta\phi_{it+1}^{inc}\right) - \left(1 - \mathrm{I}_{A_{it}}\right)\left(\phi_{it+1}^{opp} + \beta\phi_{it+2}^{opp}\right)\right]\right). \tag{15}$$

Proposition 3 *In electoral periods, the national incumbent distributes extra discretional transfers among aligned districts, and aligned swing districts receive even more transfers.*

[5] As to the empirical implications, this assumption works best when election years for governor do not coincide with election years for president, as happens in our sample in 1987 and 1991. In 1995 and 1999, when both election years coincide, an additional assumption is needed: that a member of the incumbent presidential party will win the national elections. Since the Peronist party controlled the presidency in 1995 and 1999, and up to this day it is always expected to win national elections (it as a major upset when it doesn't), this additional assumption is not farfetched.

Proof Condition (A19) implies that $\phi_{it}^{A^*} > \frac{\omega_i}{2}$ if $D_i > 0$, so federal transfers to aligned districts are larger in electoral years. As long as $\phi_{it}^{A^*} \leq \omega_i$, condition (A20) implies that transfers to aligned districts rise monotonically as the degree of competiveness of elections (measured by density D_i) rises. A corner solution where the probability of reelection in (15) is 1 for an aligned incumbent would put a cap on transfers at that level. On the other hand, non-aligned districts get nothing because there is no electoral benefit for the national incumbent, so $\phi_{it}^{\sim A^*} = 0$■

Corollary *In electoral periods, aligned districts spend more than in non-electoral periods; this effect is exacerbated in aligned swing districts.*

Proof Since $\gamma_{it} = \pi_{it} + d_{it} + \phi_{it}$, an aligned incumbent will be able to spend more in electoral years, because district taxes are constant by (12) and, unless there is a corner solution, district debt is positive by (13). If swing districts aligned with the national incumbent receive the largest federal transfers, they can spend even more■

Whether larger federal transfers are indeed used to expand expenditure, as in the corollaries of Propositions 2 and 3, or to reduce local taxes, is something we investigate econometrically.

Finally, we turn to how PBCs and the political allocation of funds affect district elections.

Proposition 4 *Discretional transfers tilt the district elections in favor of the incumbents aligned with the national incumbent.*

Proof In equilibrium, $\hat{\gamma}_{it} = \gamma_{it}$, and discretional transfers from the national government are correctly anticipated. Even so, federal transfers affect election results. This is not because of current transfers due to PBCs, but rather because of future

transfers to aligned districts due to political allocation of federal funds. This leads to a larger probability that incumbents in aligned districts will be reelected: $\mu_{it} = \frac{1}{2} + D_i \mathbf{E}_t \left[\left(\phi_{it+1}^{A\ *} + \beta \phi_{it+2}^{A\ *} \right) \right] > \frac{1}{2}$. On the other hand, the probability of reelection will be less then $\frac{1}{2}$ in those districts not aligned with the national government■

Ferreira and Bugarin (2007) show how partisan transfers change the incentive of voters, so the selection motive based on choosing the most competent incumbent can be dwarfed by the partisan motive of picking somebody aligned with the national government. The same happens here. In electoral years, this may lessen the need of the president to make more transfers to aligned districts (Proposition 3) and of aligned governors to incur more debt (Proposition 1) if there is a corner solution where elections are no longer competitive. A similar effect holds with a more general distribution of voter preferences if partisan federal transfers lessen the impact of PBCs on vote.

III. Empirical approach

A. Data

We construct a panel data set to test the existence of provincial PBCs and to see their interaction with the political allocation of federal funds studied in the literature on distributive politics. Table 1 describes the variables and their sources.

< please see Table 1>

Our database has annual observations for 22 provinces for the period between 1985 and 2001, averaging four gubernatorial elections per province.[6] Two provinces were excluded from the original sample: the City of Buenos Aires, because elections for chief of government (equivalent to governor) were only held since 1996 (up to that moment, there was a city mayor who was directly appointed by the president); the Province of Corrientes, because it had to undergo two federal interventions during the '90s (one in 1991 due to disagreement between the provincial electors, the other in 1999 due to serious social disturbances).

B. Econometric model

The literature on PBCs suggests that the timing of elections influences fiscal outcomes in subnational districts. When the influence of intergovernmental relations is incorporated, the relationship in each province is transformed as follows:

$$y_{it} = \alpha + \sum_{k=1}^{K} \beta_j y_{it-k} + \sum_{j=1}^{J} \gamma_j x_{jit} + \delta_1 ele_{it} + \delta_2 align_{it} + \delta_3 ele_{it} \times align_{it} + \eta_i + \varepsilon_{it}. \quad (16)$$

This specification represents a standard dynamic panel where the dependent variable y for province *i=1,...,I* in year *t = 1,...,T* is a function of its own lagged levels, of a set of economic controls x_j, for *j= 1,....J*, of political determinants, and of a specific effect per province η. The term ε is a random error assumed to be

[6] The advantage of the 1985–2001 period is a more balanced representation of the two main political parties in the national executive (the UCR held office from 1983 to 1989, the PJ from 1990 to 1999, the UCR again in 2000 and 2001). After 2001 the UCR imploded so only the PJ was left at the national level. The alignment variable (whether the president and the governor belong to the same party) becomes more problematic because of the evidence that opposition governors cooperated with the ruling Presidents between 2002 and 2015.

independently and identically distributed. We control the specific effects using the panel data fixed effects (FE) estimator.

Two basic economic controls are included in the regressions, as in Shi and Svensson (2006): $income$, the per capita gross geographic product (GGP), and $growth$, the growth rate of the GGP. We expand the standard PBC model so the influence of political variables is not only modeled through the binary variable ele which indicates if an election took place, but also by the binary variable $align$ which indicates if the governor is aligned with the president, in order to capture the political allocation of federal funds studied in the literature of distributive politics and the interaction effects between both processes.

As dependent variable y, we analyze the following four fiscal variables as a share of potential GGP: (i) bal: the ratio of provincial budget balance to potential GGP; (ii) exp: the ratio of total public expenditure to potential GGP; (iii) own: the ratio of own revenue (including provincial taxes) to potential GGP; and (iv) fed: the ratio of provincial revenues from the national government (i.e., revenue sharing plus transfers from national government) to potential GGP.[7] Table 2 presents descriptive statistics of the dependent fiscal variables.

< please see Table 2>

[7] We use potential GGP instead of GGP in order to avoid short run GPP volatility affecting the dependent variable. Potential GGP was calculated by getting the fitted values from a regression between GGP and a fourth degree polynomial of a deterministic trend.

IV. Empirical results

This section presents the empirical analysis of the theoretical predictions described above. Together with provincial autonomy, the relations with the national government turn out to be crucial, introducing issues of political allocation of federal funds that have important implications both for PBCs and local vote.

A. Effect of political alignment on district PBCs

To shed light on the empirical patterns, we first investigate the provincial budget balance. Since PBCs can be due both to an increase in spending (as in our model) and a reduction in revenues during electoral years, it is customary in the literature to treat the budget balance as a more sensitive indicator of PBCs than either component.

In subnational PBCs, the interpretation of this indicator is complicated by the potential manipulation of federal transfers for partisan reasons, because $bal = own + fed - exp$. Since own revenues, federal transfers and public expenditure are likely to be simultaneously determined, the estimation of the budget balance allows controlling for the potential correlation between the variables that could lead to biased estimates when estimations are run separately.

Proposition 1 predicts that under asymmetric information incumbents use debt in electoral periods to boost their electoral chances. In Table 3, Column 1 we indeed find evidence that the budget balance decreases almost half a percentage point (p.p.) of GGP during elections (*ele* is negative and significant at 5%).

Proposition 1 also predicts that PBCs are more severe in swing districts, where elections are more competitive. We control for swing districts with the variable

close_lag, which is constructed using the previous gubernatorial election margin as a proxy of the degree of competitiveness during the current election.[8] Since the current governor won the past election, the variable *close_lag* takes value 1 if the electoral margin was between 0 and 5 points (e.g., the governor got 47% of the votes while the closest competitor got less than 47% but more than 42%), and 0 otherwise. As predicted by Proposition 1, Column 2 shows that the budget balance deteriorates more in electoral years in swing districts (-0.940 by linear combination 1) than in non-swing districts (-0.656). Both effects are statistically significant (however, linear combination 2 shows their difference is not statistically significant). In swing districts the budget balance is significantly smaller not only in electoral years, as predicted by the model, but also in non-electoral years (the effect of *close_lag* is -0.906), so provincial administrations seem to endure more fiscal stress during their entire term. We return to this below.

According to the model, there may be an effect of distributive politics on the budget balance if it affects the degree of competitiveness of elections. Column 3 shows that the direct effects of political alignment on the budget balance are not significant. As to the indirect effects, when we control for the interaction of political alignment with elections in Column 4, the budget balance deteriorates significantly in non-aligned districts (the coefficient of *ele*, -0.560, is significant at 5%), but not in aligned districts (the value of linear combination 3, -0.434, is not significant). A possible explanation is that incumbents in aligned districts are under less pressure in electoral years because of the reasons in Proposition 4: they count with the favor of the national incumbent in non-electoral years. Smaller PBCs in aligned provinces fits the analysis in Ferreira and Bugarin (2007), where the selection motive of picking the

[8] We decided to use the last election margin because the current margin is endogenous. However, the previous election results might not be highly correlated with the expectations about the current elections, so proxy variables based on the last election results can generate high standard errors.

most competent incumbent gives way to the partisan motive of picking an incumbent aligned with the national government.

Column 5 interacts elections, swing districts and political alignment. While aligned swing districts have a smaller budget balance than aligned non-swing districts in election years, the difference of 0.364 p.p. is not statistically significant.

<please see Table 3>

In the regressions that follow we use the natural logs of *exp*, *own* and *fed*. We begin by tracking the sources of changes in total revenues around elections, breaking them down into federal transfers from the national government (fed), which includes federal tax sharing together with other national transfers that are mostly discretional, and revenue from provincial sources (own).

To investigate the impact of intergovernmental relations on PBCs, federal transfers are the key channel. We expect the behavior of federal transfers to be influenced by PBCs as well as by political allocation factors. Table 4, Column 1 shows transfers increase during electoral years by about 5%. Column 2 shows federal transfers to provinces aligned with the President are 4% larger. Column 3 controls for alignment effects simultaneously with elections. Transfers to aligned provinces are significantly higher than those to non-aligned provinces in non-electoral years, as predicted by Proposition 2. Furthermore, transfers to aligned provinces increase significantly in electoral years (linear combination of estimators 1), as predicted by Proposition 3. Consequently, in electoral years the difference between aligned and unaligned provinces rises from 3.0 to 5.8% (compare *align* with linear combination of estimators 2; the difference-in-difference estimator *ele x align*, however, though positive is not

statistically significant). Column 4 shows that aligned swing districts receive larger transfers than aligned non-swing districts in election years, but the difference is not statistically significant (linear combination 4).

<please see Table 4>

Regarding revenues raised directly by the provinces, in Table 5, Column 1, we observe a tendency of own resources (*own*) to fall during elections by around 15%. After controlling for alignment effects, in Column 3 we observe that this decrease is driven by aligned provinces: the linear combination *ele + ele x align* implies that in electoral years aligned provinces decreases their own revenues by 30% compared to non-electoral years (see linear combination 1). Though these effects are not predicted by the corollary of Proposition 3, in a more general model the reduction of taxes is another manifestation of PBCs. Provinces that on average receive more federal funds might have less incentives to spend in the margin than the rest. In this regard, Végh and Vuletin (2014) explain the wall-paper effect, by which the propensity to spend out of unconditional federal transfers is much larger than the propensity to spend out of local income, through distortionary taxation, finding this effect is larger for spending categories that are pure public goods and non-existent for those that are private goods. Since aligned provinces receive on average more federal transfers, they can provide more public goods, so in the margin they should be more willing to reduce local taxes than the rest.

<please see Table 5>

We now turn to the evidence on spending. In Table 6, Column 1, local government spending does not increase significantly in electoral years. In Column 2 government spending in aligned provinces increases around 4% during the governor's entire term in office; this pattern seems to be driven by the increase in federal transfers shown in Table 4. Column 3 confirms these observations by studying simultaneously the effects of elections and alignment. Federal transfers to aligned provinces increase during the political term (the dummy *align* has an effect of 4%), as predicted by the corollary of Proposition 2. However, no significant electoral effect is found during elections either in unaligned or aligned provinces (see *ele* and linear combination of estimators 1).

<please see Table 6>

The results are summarized in the following table to help understand the contributions better. The more standard results on PBCs and distributive politics are separated from the interaction effects suggested by our theoretical framework.

<please see Table 7>

B. Effect of political alignment on vote

In this section we provide evidence that supports Proposition 4 of the theoretical model, where it is stated that federal transfers tilt the local election in favor of the governor aligned with the president. To do so we estimate the following equation,

$$vote_{it} = \alpha + \beta fed_{it} + \gamma AV(fedlag_{it}) + \theta SD(fedlag_{it}) + \rho x_{it} + \eta_i + \varepsilon_{it}, \qquad (17)$$

where $vote$ is the vote share of the current governor's party in province *i* during electoral year *t*, fed are federal transfers during the electoral year *t* in province *i* as a percentage of potential GGP, $AV(fedlag_{it})$ is the average federal transfer the last three years before the provincial election, and $SD(fedlag_{it})$ is the standard error, η is the provincial fixed effect and ε is the error term assumed to be independent and identically distributed.

In Table 8, Column 1, we show the effect of the lagged 3-year average federal transfer on the electoral margin. It increases by around 1 p.p. for each 1 p.p. increase in the lagged 3-year average federal transfer, which is consistent with Proposition 4. In Column 2 we estimate the effect of the increased lagged 3-year average federal transfer that is explained due to the political alignment. We follow an IV strategy using political alignment as the instrument for lagged 3-year average federal transfer. The idea is to test whether increased transfers that affect the electoral result shown in Column 1 are mainly driven by political alignment rather than by other unobserved factors. We observe that the estimator of $AV(fedlag_{it})$ in Column 2 is similar to the one found in Column 1, indicating that the increased transfers that affects the vote share are mainly driven by political alignment.

<please see Table 8>

In Column 3 we run the same regression as in Column 1 but adding current transfers fed. We observe that this has absolutely no effect on vote. From the point of view of the approach of electoral cycles as a credibility problem, this is not surprising at all. It is consistent with Proposition 4, according to which voters are only affected

by future national government policy, since they discount current policy as a transitory effect of PBCs. Our empirical results additionally suggest that voters use past information about federal transfers in non-electoral years as predictors for future transfers. This might help explain why non-aligned swing districts resort more to public debt in non-electoral years, to provide more public expenditure in Table 3.

In Column 4 we observe that the standard deviation of the lagged 3-year federal transfers affects negatively the vote share of an aligned governor's party. This may be because voters are risk averse. This might give an incumbent an incentive to use transitory federal transfers to reduce taxes rather than to increase spending in Table 4.

V. Conclusions

Our study has two broad contributions. First, the literature on subnational PBCs may contain biased estimates if intergovernmental relations are not taken into consideration because there is an omitted factor — federal transfers — which impacts on aligned and unaligned districts differentially. Second, this paper contributes to the literature on vote and incumbency advantage.

Regarding subnational PBCs, we develop a theoretical model of opportunistic rational behavior at the district level, combined with the partisan behavior of the national incumbent. This links the literature on subnational PBCs to the literature on distributive politics and the political allocation of federal funds. We then present empirical evidence of systematic effects in fiscal variables in Argentine provinces as a function of political alignment and elections. We find more total federal transfers every period when provincial and national executives are aligned, as well as significant increases in the provincial budget deficit in electoral years. Once we

control for interaction effects between distributive politics and subnational PBCs, the electoral increase in the budget deficit is only significant in non-aligned provinces. Increased federal transfers to aligned provinces allow them to spend on average about 4% more of their product than unaligned provinces, and collect less revenue during election years, without compromising their budget balance.

Regarding voter evaluations, for Gervasoni (2010) and Jones et al. (2012) getting extra funds from the national government is the central issue in Argentina because most provincial revenues come from federal transfers. Though we agree with that, our rationale has nothing to do with the common pool problem in Jones et al. (2012), which is inspired by U.S. legislative pork barrel politics where increased spending is mostly paid by other districts (Weingast 1978). Rather, the president internalizes the effects of extra transfers. As in Riker (1962), what is at issue is instead whether the governor is affiliated or not to the president's party: membership has its privileges, avoiding the "Cinderella" effect of discrimination against unaligned provinces. The empirical evidence from Argentina's provinces over the 1985–2001 period supports the prediction that this boosts the vote for governors aligned with the president.[9] Once elections become less competitive, this in turn lessens the need of the national incumbent to make more transfers to aligned districts in electoral years (and of aligned governors to engage in PBCs). This could also help explain why Khemani (2007) finds no evidence of PBCs in India in a period where the Congress Party dominated national politics.

[9] This pattern might change over time, since Collie (1988) for instance finds a significantly inverse relationship between partisan and universalistic votes in the U.S. House of Representatives. In the distributive legislative game in Weingast (1979), universalism (as well as pork-barrel policies) is better for each legislator under the assumption that every district has the same probability of being in the minimum winning coalition. But when the legislature is highly partisan, coalitions are stable, so legislators of the majority party have a high probability of winning (Collie 1988: 874–6); even when there is uncertainty about coalitions, this could instead lead to oversized coalitions and preference for universalism within the majority party (Collie 1988: 880).

When the root of PBCs is a credibility problem, Lohmann (1998) demonstrates that PBCs do not increase reelection chances. This theoretical prediction, which is also borne out in our specific dataset, is often misunderstood, or interpreted ambiguously when the ex-ante incentives are not distinguished from the ex-post equilibrium (e.g., de Haan and Klomp 2013: 388).

We assumed a single fiscal authority at the national and district levels. An extension would be to analyze how the fact that fiscal policy requires the agreement between the executive and legislative powers affects discretional transfers at the national level and PBCs at the provincial level. This may be especially relevant in democracies with rule of law when there is divided government (Streb et al. 2009, Streb and Torrens 2013).

Appendix

A. Equilibrium with automatic federal transfers: derivations

Optimal district policy in non-electoral periods (equations 9 and 10)

In a non-electoral period $t+1$, the district incumbent's problem is to maximize the per-period utility in (7),

$$\text{Max } \mathbf{E}_{t+1}[v_{it+1}] = \mathbf{E}_{t+1}[g_{it+1} + \alpha \ln(c_{it+1}) + k_i] \quad \text{(A1)}$$

with respect to γ_{it+1} and π_{it+1}, since optimal debt $d^*_{it+1}$is zero by the assumption that $1 \leq \beta(1 + r(0))$. Replacing restrictions (1), (3), (4), and (6) in (A1), the problem becomes a function of γ_{it+1}:

$$\text{Max } \mathbf{E}_{t+1}[(\gamma_{it+1} + \theta_{it+1}) + \alpha \ln(y_i - (\gamma_{it+1} - f_{it+1} + (1 + r(d_t))d_t) + k_i]. \quad \text{(A2)}$$

The first-order condition for a maximum is

$$\mathbf{E}_{t+1}[1 + \alpha \frac{1}{y_i - (\gamma_{it+1} - f_{it+1} + (1+r(d_t))d_t}(-1)] = 0, \quad \text{(A3)}$$

and the second-order condition is satisfied (the second-order derivative is negative).

The first-order condition (A3) is non-stochastic, so optimal fiscal policy is given by conditions (9) and (10) in the main text.

Probability of reelection (equation 11)

In an electoral period t, the median voter m in province i must decide whether to vote for the incumbent or the opposition party in that province. The median prefers the incumbent if the utility expected in the future, given the estimated current competence shock $\hat{\varepsilon}_{it}$ of the incumbent, is larger than the unconditional expected utility with the opposition party:

$$\mathbf{E}_t[g_{it+1} + \alpha \ln(c_{it+1}) \mid \hat{\varepsilon}_{it}] > \mathbf{E}_t[g_{it+1} + \alpha \ln(c_{it+1})] \quad \text{(A4)}$$

Using (9) and (10), the median voter prefers the incumbent if

$$\mathbf{E}_t[\theta_{it+1} \mid \hat{\varepsilon}_{it}] \geq \mathbf{E}_t[\theta_{it+1}] \Leftrightarrow \hat{\varepsilon}_{it} \geq 0. \quad \text{(A5)}$$

The probability of reelection is thus given by

$$\mu_{it} = \Pr(\hat{\varepsilon}_{it} \geq 0) = \Pr\big(g_{it} - \hat{\gamma}_{it} - \theta - \varepsilon_{it-1} \geq 0\big) = \Pr\big(\varepsilon_{it} \geq \hat{\gamma}_{it} - \gamma_{it}\big). \quad \text{(A6)}$$

The distribution of ε_{it} is uniform, with density D_i over the interval $[-\frac{1}{2D_i}, \frac{1}{2D_i}]$, so this expression takes the simple form in (11) in the main text.

Optimal district policy in electoral periods (equations 12 and 13)

In electoral periods, the district incumbent's problem of maximizing its expected utility can be reduced to maximizing expected utility in the current and next two periods by the argument in the main text:

$$\text{Max } \mathbf{E}_t\,[v_{it} + \beta v_{it+1} + \beta^2 v_{it+2}]. \quad \text{(A7)}$$

This problem is equivalent to

$$\begin{aligned}\text{Max } \mathbf{E}_t[g_{it} + \alpha \ln(c_{it}) + \beta(g_{it+1} + \alpha \ln(c_{it+1})) + (\beta \mathrm{I}_{Ot+1} + \beta^2 \mathrm{I}_{Ot+2})\, k_i\,] \\ = \mathbf{E}_t[g_{it} + \alpha \ln(c_{it}) + \beta(g_{it+1} + \alpha \ln(c_{it+1})] + \mu_{it}(\beta + \beta^2)\, k_i, \quad \text{(A8)}\end{aligned}$$

since the expected value of indicator function I_O is the probability of being reelected μ_i.

The maximum problem (A8) is subject to restrictions (2), (4), (5), and (7), as well as optimal fiscal responses (9) and (10) after elections, and reelection function (11). Replacing in (A8), this problem can be expressed as a function of π_{it} and d_{it}:

$$\begin{aligned}\text{Max } & \mathbf{E}_t[(\theta_{it} + \pi_{it} + d_{it} + f_{it}) + \alpha \ln(y - \pi_{it})] \\ & +\beta\, \mathbf{E}_t[(\theta_{it+1} + y - \alpha + f_{it} - (1 + r(d_{it}))d_{it}) + \alpha \ln(\alpha)] \\ & + \left(\tfrac{1}{2} + D_i\left(d_{it} - \hat{d}_{it}\right)\right)(\beta + \beta^2)\, k_i. \end{aligned} \quad \text{(A9)}$$

Because there is no electoral incentive to manipulate taxes, the first-order condition with respect to π_{it} leads to the same result as (10); this is equation (12) in the main text. In relation to d_{it}, the first-order condition for an interior solution is:

$$\mathbf{E}_t[1 - \beta(1 + r(d_{it}) + r'(d_{it})d_{it})] + D_i(\beta + \beta^2)\, k_i = 0. \quad \text{(A10)}$$

The second-order condition is satisfied because $r' > 0, r'' > 0$.

If we define an implicit function $f(d_{it}) = 1 + r(d_{it}) + r'(d_{it})d_{it}$, this function is invertible because $f' > 0$. The main text solves explicitly for optimal d_{it}^* in (13).

B. Equilibrium with discretional federal transfers: derivations

Probability of reelection (equation 15)

The voter prefers the current district incumbent if

$$\mathbf{E}_t\left[\, g_{it+1} + \alpha \ln(c_{it+1}) + \beta \mathrm{I}_{A_{it}} \phi_{it+1}^{inc} + \beta^2 \mathrm{I}_{A_{it}} \phi_{it+2}^{inc} \mid \hat{\varepsilon}_{it} \,\right]$$

$$\geq \mathbf{E}_t\left[g_{it+1} + \alpha \ln(c_{it+1}) \ + \beta\left(1 - \mathrm{I}_{A_{it}}\right)\phi_{it+1}^{opp} \ + \beta^2\left(1 - \mathrm{I}_{A_{it}}\right)\phi_{it+2}^{opp}\right], \tag{A11}$$

i.e., if

$$\hat{\varepsilon}_{it} \geq \mathbf{E}_t\left[\left(1 - \mathrm{I}_{A_{it}}\right)\left(\phi_{it+1}^{opp} + \beta\phi_{it+2}^{opp}\right) - \mathrm{I}_{A_{it}}\left(\phi_{it+1}^{inc} + \beta\phi_{it+2}^{inc}\right)\right]. \tag{A12}$$

The probability of reelection of the incumbent is thus

$$\mu_{it} = \Pr\left(\varepsilon_{it} \geq \hat{\gamma}_{it} - \gamma_{it} + \mathbf{E}_t\left[\left(1 - \mathrm{I}_{A_{it}}\right)\left(\phi_{it+1}^{opp} + \beta\phi_{it+2}^{opp}\right) - \mathrm{I}_{A_{it}}\left(\phi_{it+1}^{inc} + \beta\phi_{it+2}^{inc}\right)\right]\right). \tag{A13}$$

Since the distribution of ε_{it} is uniform, one can use this assumption to derive the probability of reelection (15) in the main text.

Optimal national policy in electoral periods (equation A20)

The national government will want to distribute transfers ϕ_{it} so as to to

$$\text{Max } \mathbf{E}_t[v_t + \beta v_{t+1} + \ \beta^2 v_{t+2}] \ , \tag{A14}$$

which is equivalent to

$$\text{Max } \Sigma_{i=1}^{I}\left(\omega_i \mathrm{I}_{A_{it}}\phi_{it} - {\phi_{it}}^2\right) + \beta\mathbf{E}_t\left[\Sigma_{i=1}^{I}\left(\omega_i \mathrm{I}_{A_{it+1}}\phi_{it+1} - {\phi_{it+1}}^2\right)\right]$$
$$+\beta^2\mathbf{E}_t\left(\Sigma_{i=1}^{I}\left(\omega_i \mathrm{I}_{A_{it+2}}\phi_{it+2} - {\phi_{it+2}}^2\right)\right). \tag{A15}$$

The expected values of federal transfers in periods $t+1$ and $t+2$ equals the probability that an aligned candidate is elected, times the expected transfers in that period: $\mathbf{E_t}\left[\mathrm{I}_{A_{it+1}}\phi_{it+1}\right] = \mu_{it}{\phi^A_{it+1}}^*$ and $\mathbf{E_t}\left[\mathrm{I}_{A_{it+2}}\phi_{it+2}\right] = \mu_{it}{\phi^A_{it+2}}^*$. Hence, (A15) becomes

$$\text{Max}\ \Sigma_{i=1}^{I}\left(\omega_i \mathrm{I}_{A_{it}}\phi_{it} - {\phi_{it}}^2\right) + \beta\left[\Sigma_{i=1}^{I}\mu_{it}\left(\omega_i{\phi^A_{it+1}}^* - ({\phi^A_{it+1}}^*)^2\right)\right]$$
$$+\beta^2\left(\Sigma_{i=1}^{I}\mu_{it}\left(\omega_i{\phi^A_{it+2}}^* - ({\phi^A_{it+2}}^*)^2\right)\right). \quad \text{(A16)}$$

Since the probability of reelection depends by (15) on current government expenditure, and current government expenditure depends on current federal transfers, current federal transfers affect the district incumbent's probability of reelection. Using $\gamma_{it} = \pi_{it} + d_{it} + \phi_{it}$ and $\hat{\gamma}_{it} = \pi_{it} + \hat{d}_{it} + \hat{\phi}_{it}$ in (15), plugging (15) in (A16), and differentiating, the first order condition for the national incumbent in each aligned district is given by:

$$(\omega_i - 2\phi_{it}) + D_i\beta\left(\left(\omega_i{\phi^A_{it+1}}^* - ({\phi^A_{it+1}}^*)^2\right)\right) + D_i\beta^2\left(\left(\omega_i{\phi^A_{it+2}}^* - ({\phi^A_{it+2}}^*)^2\right)\right) = 0. \quad \text{(A17)}$$

The second-order condition is satisfied.

Solving for ${\phi^A_{it}}^*$ in equation (A17) leads to (A18):

$${\phi^A_{it}}^* = \frac{1}{2}\left(\omega_i + D_i\beta\left(\left(\omega_i{\phi^A_{it+1}}^* - ({\phi^A_{it+1}}^*)^2\right)\right) + D_i\beta^2\left(\left(\omega_i{\phi^A_{it+2}}^* - ({\phi^A_{it+2}}^*)^2\right)\right)\right). \quad \text{(A18)}$$

The second and third terms are non-negative because the national incumbent can always pick zero discretional transfers. Since transfers to aligned districts in $t+1$ are strictly positive by condition (14) in Proposition 2, transfers to aligned districts in electoral years will be strictly larger than in non-electoral years:

$$\phi_{it}^{A^*} = \frac{1}{2}\left(\omega_i + D_i\beta\left(\frac{\omega_i}{2}\right)^2 + D_i\beta^2\left(\left(\omega_i {\phi_{it+2}^{A}}^* - ({\phi_{it+2}^{A}}^*)^2\right)\right)\right). \quad \text{(A19)}$$

Moving condition (A17) two periods forward, ${\phi_{it+2}^{A}}^*$ can be calculated; replicating the process leads to an infinite series in terms of ω_i. If the sum of the series converges to a finite number, $\phi_{it}^{A^*} = {\phi_{it+2}^{A}}^*$ since district conditions are stationary. This leads to the following quadratic equation:

$$D_i\beta^2(\phi_{it}^{A^*})^2 + (2 - D_i\beta^2\omega_i)\phi_{it}^{A^*} - \left(\omega_i + D_i\beta\left(\frac{\omega_i}{2}\right)^2\right) = 0. \quad \text{(A20)}$$

Since there are two real roots (the discriminant is positive), and these roots have different signs (the last term, which equals the product of the roots, is negative), the solution $\phi_{it}^{A^*}$ is given by the positive root of (A20).

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Table 1. Variables for each province available annually

Name of variable	Description	Source
Fiscal variables		
exp	Public expenditure divided potential GGP	MECON and Mirabella (2002)
own	Own revenues divided potential GGP	MECON and Mirabella (2002)
fed	Revenues from national government divided potential GGP	MECON and Mirabella (2002)
rev	Total revenue divided potential GGP: *rev* = *own* + *fed*	MECON and Mirabella (2002)
bal	Budget balance divided potential GGP: *bal* = *rev* – *exp*	MECON and Mirabella (2002)
$AV(fedlag_{it})$	Average of *fed* during three years before election	AU
$SD(fedlag_{it})$	Standard deviation *fed* during three years before election	AU
Control variables		
growth	Growth rate of GGP (gross geographic product)	Mirabella (2002)
income	Natural log of per capita GGP in constant prices	AU based on Mirabella (2002) and INDEC
Political variables		
ele	Binary variable equal to 1 in gubernatorial election years and 0 otherwise	AU based on *Guía electoral*
align	Binary variable equal to 1 if governor aligned with national executive and 0 otherwise	AU based on *Guía electoral*
vote	Vote share of incumbent's party in gubernatorial elections	AU based on *Guía electoral*
margin_lag	Difference between vote shares of incumbent governor's party and main opposition party in past election	AU based on *Guía electoral*
close_lag	Binary variable equal to 1 if last gubernatorial election was competitive (past electoral margin below 5)	AU based on *Guía electoral*

Notes: Revenues from national government comprise federal tax-sharing revenues (*coparticipación federal de impuestos*) plus other transfers from the national government, including discretional transfers such as *Aportes del Tesoro Nacional*. The original fiscal variables are deflated by the combined consumer-wholesale price index of the INDEC before dividing them by GGP at constant price, as in Porto (2004). Mirabella (2002) estimates provincial gross geographic product (GGP) at constant prices using residential electricity consumption. MECON: Ministry of Economy (Dirección Nacional de Coordinación Fiscal con las Provincias, Secretaría de Hacienda, Ministerio de Economía). INDEC: National Institute of Statistics and Census. AU: authors.

Table 2. Fiscal variables: descriptive statistics

	Mean	Std. dev.	Min.	Max.	No. obs.
bal	-0.022	0.031	-0.155	0.058	374
exp	0.237	0.123	0.052	0.812	374
rev	0.215	0.113	0.046	0.825	374
own	0.028	0.014	0.004	0.121	374
fed	0.186	0.110	0.024	0.704	374

Note: Federal transfers (*fed*) changed their structure between 1959 and 2001: the relative importance of federal tax-sharing revenues (coparticipación federal de impuestos) represented more than 80% of the total until 1970; since then, other transfers increased their relative importance, reaching 40% of the total in 2001 (Porto et al. 2004: 153).

Table 3. Budget balance as a share of potential GGP

Panel A: Estimation results	(1)	(2)	(3)	(4)	(5)
Dependent variable: *bal*					
ele	-0.415**	-0.656**		-0.560**	-0.974***
	[0.182]	[0.251]		[0.267]	[0.267]
align			0.502	0.537	0.258
			[0.393]	[0.442]	[0.572]
ele x align				0.127	0.465
				[0.428]	[0.457]
close_lag		-0.906***			-1.074***
		[0.319]			[0.358]
ele x close_lag		0.622			1.067
		[0.556]			[0.673]
align x close_lag					0.530
					[0.591]
ele x align x close_lag					-0.886
					[0.801]
bal(-1)	0.460***	0.452***	0.455***	0.447***	0.440***
	[0.070]	[0.070]	[0.065]	[0.066]	[0.067]
growth	-1.836	-1.541	-2.007	-1.937	-1.524
	[1.314]	[1.284]	[1.348]	[1.414]	[1.452]
income	4.691***	4.379**	4.381**	4.523**	4.262**
	[1.656]	[1.620]	[1.593]	[1.646]	[1.670]
constant	5.295**	5.191**	4.555**	4.820**	4.897**
	[2.099]	[2.095]	[1.948]	[2.032]	[2.088]
Observations	374	374	374	374	374
R-squared	0.26	0.27	0.262	0.266	0.276
Provinces	22	22	22	22	22
Panel B: Linear combination of estimators (Linear Comb)					
Linear Comb 1		-0.940**			-0.981
		[0.463]			[0.685]
Linear Comb 2		-0.284			-0.007
		[0.525]			[0.725]
Linear Comb 3				-0.434	-0.509
				[0.313]	[0.412]
Linear Comb 4					-0.614
					[0.644]
Linear Comb 5					-0.364
					[0.761]

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Tests for dependent variable *y*:

Linear Comb 1: E[*y*|*ele*,*close_lag*] = *ele* + *close_lag* + *ele x close_lag*;

Linear Comb 2: E[*y*|*ele*,*close_lag*] - E[*y*|*ele*,*~close_lag*] = *close_lag* + *ele x close_lag*;

Linear Comb 3: E[*y*|*ele*,*align*] - E[*y*|*~ele*,*align*] = *ele* + *ele* x *align*;

Linear Comb 4: E[*y*|*ele*,*align,close_lag] = ele* + *align* + *ele* x *align* + *close_lag* + *ele x close_lag* + *align x close_lag* + *ele* x *align x close_lag*;

Linear Comb 5: E[*y*|*ele*,*align,close_lag]* - E[*y*|*ele*,*align,~close_lag] = close_lag* + *ele x close_lag* + *align x close_lag* + *ele* x *align x close_lag.*

Table 4. Revenue from national government as a share of potential GGP

Panel A: Estimation results	(1)	(2)	(3)	(4)
Dependent variable: ln(*fed*)				
ele	0.047***		0.027	0.025
	[0.011]		[0.020]	[0.026]
align		0.041***	0.030**	0.037*
		[0.011]	[0.014]	[0.019]
ele x align			0.028	0.022
			[0.027]	[0.033]
close_lag				0.005
				[0.024]
ele x close_lag				0.012
				[0.039]
align x close_lag				-0.023
				[0.028]
ele x align x close_lag				0.027
				[0.066]
ln(*fed*(-1))	0.688***	0.684***	0.691***	0.686***
	[0.027]	[0.027]	[0.025]	[0.024]
growth	0.411***	0.410***	0.412***	0.402***
	[0.093]	[0.088]	[0.086]	[0.091]
income	0.109	0.1	0.094	0.098
	[0.079]	[0.078]	[0.076]	[0.073]
constant	0.853***	0.843***	0.814***	0.828***
	[0.131]	[0.133]	[0.127]	[0.119]
Observations	374	374	374	374
R-squared	0.565	0.562	0.574	0.575
Provinces	22	22	22	22
Panel B: Linear combination of estimators (Linear Comb)				
Linear Comb 1			0.0558***	0.0465***
			[0.0140]	[0.0188]
Linear Comb 2			0.0579**	0.0587**
			[0.0204]	[0.0275]
Linear Comb 3				0.0735
				[0.0608]
Linear Comb 4				0.0205
				[0.0334]

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Tests for dependent variable *y*:

Linear Comb 1: E[*y*|*ele*,*align*] - E[*y*|*~ele*,*align*] = *ele* + *ele* x *align*;

Linear Comb 2: E[*y*|*ele*,*align*] - E[*y*|*ele*,*~align*] = *align* + *ele* x *align*;

Linear Comb 3: E[*y*|*ele*,*align,close_lag] - E[y*|*~ele*, *align, close_lag*] = *ele* +*ele* x *align* + *ele* x *align x close_lag;*

Linear Comb 4: E[*y*|*ele*,*align,close_lag]* - E[*y*|*ele*,*align,~close_lag] = close_lag + ele x close_lag + align x close_lag + ele* x *align x close_lag.*

Table 5. Own revenues as a share of potential GGP

Panel A: Estimation results Dependent variable: ln(*own*)	(1)	(2)	(3)
Ele	-0.149*		0.045
	[0.072]		[0.068]
align		-0.029	0.067
		[0.100]	[0.124]
ele x align			-0.348*
			[0.186]
ln(*own*(-1))	0.424***	0.415***	0.432***
	[0.046]	[0.046]	[0.046]
growth	-0.286	-0.315	-0.355
	[0.427]	[0.418]	[0.399]
income	1.151***	1.144**	1.104**
	[0.399]	[0.426]	[0.428]
constant	2.143***	2.122***	2.044***
	[0.528]	[0.587]	[0.599]
Observations	372	372	372
R-squared	0.224	0.215	0.235
Provinces	22	22	22
Panel B: Linear combination of estimators (Linear Comb)			
Linear Comb 1			-0.303**
			0.150
Linear Comb 2			-0.281**
			0.145

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Tests for dependent variable *y*:
Linear Comb 1: E[*y*|*ele*,*align*] - E[*y*|~*ele*,*align*] = *ele* + *ele* x *align*;
Linear Comb 2: E[*y*|*ele*,*align*] - E[*y*|*ele*,~*align*] = *align* + *ele* x *align.*

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Table 6. Public expenditure as a share of potential GGP

Panel A: Estimation results Dependent variable: ln(*exp*)	(1)	(2)	(3)
ele	0.020		0.032
	[0.013]		[0.021]
align		0.036*	0.041*
		[0.019]	[0.021]
ele x align			-0.029
			[0.031]
ln(*exp*(-1))	0.680***	0.695***	0.691***
	[0.052]	[0.053]	[0.053]
growth	0.307***	0.308***	0.298***
	[0.108]	[0.102]	[0.104]
income	0.045	0.030	0.024
	[0.117]	[0.115]	[0.116]
constant	0.947***	0.875***	0.872***
	[0.234]	[0.239]	[0.241]
Observations	374	374	374
R-squared	0.474	0.479	0.482
Provinces	22	22	22
Panel B: Linear combination of estimators (Linear Comb)			
Linear Comb 1			0.00282
			[0.0199]
Linear Comb 2			0.0117
			[0.0268]

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Tests for dependent variable *y*:
Linear Comb 1: E[*y*|*ele*,*align*] - E[*y*|~*ele*,*align*] = *ele* + *ele* x *align*;
Linear Comb 2: E[*y*|*ele*,*align*] - E[*y*|*ele*,~*align*] = *align* + *ele* x *align.*

Table 7. PBCs and distributive politics: main results

Results	Source
PBCs: effects in electoral years	
- The budget balance worsens significantly	Table 3
- The budget balance in swing districts deteriorate slightly more (but not significantly)	Table 3
- Federal transfers increase significantly (but this is not a decision of the district governor)	Table 4
- Own revenues decrease significantly	Table 5
- Expenditure does not increase significantly	Table 6
Distributive politics: effects over the governor's whole term	
- The budget balance is slightly better in aligned districts (but not significantly)	Table 3
- Federal transfers to aligned districts are significantly larger	Table 4
- Own revenues are slightly lower in aligned districts (but not significantly)	Table 5
- Expenditure is significantly higher in aligned districts	Table 6
Interaction of PBCs and distributive politics in electoral years	
- The budget balance worsens significantly only in unaligned districts	Table 3
- Federal transfers increase significantly only in aligned districts	Table 4
- Own revenues decrease significantly only in aligned districts	Table 5
- Expenditure does not increase significantly in any district	Table 6

Note: Based on previous tables.

Table 8. Behavior of vote share

Dependent variable: *vote*	(1)	(2)	(3)	(4)	(5)
Estimation method	OLS	IV	OLS	OLS	OLS
growth(-1)	-5.916	-7.512	-5.912	-5.950	-5.947
	[8.378]	[8.973]	[8.674]	[8.170]	[8.307]
growth(-2)	4.113	0.404	1.938	5.997	5.236
	[10.292]	[11.355]	[12.068]	[9.474]	[12.296]
fed			-0.399		-0.122
			[0.663]		[0.806]
$AV(fedlag_{it})$	1.039***	1.373*	1.273**	1.009**	1.082*
	[0.353]	[0.707]	[0.498]	[0.373]	[0.569]
$SD(fedlag_{it})$				-0.809**	-0.768
				[0.311]	[0.486]
constant	37.679***	33.883***	39.956***	38.691***	39.335***
	[4.162]	[11.190]	[5.844]	[4.587]	[6.564]
Observations	89	89	89	89	89
R-squared	0.131		0.136	0.154	0.154
Provinces	22	22	22	22	22
R-squared 1st stage		0.950			
Coefficient *align*(-3), 1st stage		2.352***			
		[0.528]			

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. The estimation of Column 2 follows an IV method, where the R-squared of the 1st stage estimation and the coefficient of the excluded instrument of the 1st stage estimation are reported at the bottom of Column 2.