

# POLITICS, SPENDING AND LOCAL ECONOMIC GROWTH: EVIDENCE FROM MEXICO

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## Abstract

This paper studies the economic consequences of politically motivated spending. I use a regression discontinuity design to estimate the causal effect of partisan favoritism on public spending and private-sector employment in the context of the 1998s expansion of intergovernmental transfers in Mexico. I find political alignment increases public spending and slows down the creation of private-sector jobs. The slowdown in job creation is stronger in tight labor markets and industries that are less dependent on public sector demand. This is consistent with a crowding-out effect, that is, when public spending affects the allocation of production factors that otherwise would have been employed in the private sector. I rule out the presence of standard mechanisms that are often linked to negative effects of fiscal windfalls, namely higher corruption or violence.

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# 1. Introduction

Public-sector spending can be an effective tool to boost economic growth in distressed economic areas or in places that suffer from temporary economic downturns (Chodorow-Reich, 2019). However, everyday public spending is not targeted to maximize the efficiency of fiscal policy. A large body of research on political economy documents that political factors drive the allocation of public spending (Golden and Min, 2013). Despite the ubiquitous role of political factors in defining the allocation of public-sector spending, there is limited evidence on how politically motivated spending affects local economic activity.

In this paper, I take advantage of the unique context of Mexico and focus on a salient political factor that distorts the allocation of public resources to ask: How does partisan favoritism affect local economic activity? Understanding the effects of public spending when it is channeled through partisan favoritism is essential to see if the problem of unequal allocation of public resources goes beyond equity concerns and creates its own distortions.

Two reasons may explain the scant evidence on the economic effects of politically motivated spending. First, the redistributive and countercyclical nature of fiscal policy makes it difficult to obtain causal estimates. The targeting of these policies implies that one would typically observe public spending directed to places already in a downward economic trend or affected by a temporary economic shock, which would bias any OLS estimate.<sup>1</sup> Second, politically induced spending is everywhere but hard to detect; most of the research that identifies causal effects of politics on public spending tends to do it over a fraction of public resources that are not sufficiently large to have any effect on local economic growth.<sup>2</sup>

I circumvent these problems by taking advantage of the political economy behind the implementation of a Ramo-33 in Mexico, a policy that led to a substantial increase in local public spending. In 1998, the government of Mexico expanded intergovernmental transfers to local governments, which led to an unexpected and economic sizable increase in local public spending. Although Ramo-33 transfers were earmarked and designed to be allocated on the basis of a objective formula; politics did have a sharp influence on where and when allocating these transfers. In particular, during the former years of the policy, state-governors

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<sup>1</sup> An OLS estimate would be downward bias if the confounder is related to the deep economic factors behind the downward economic trend; also, it would be upward biased if a mean reversion component confounds the policy impact.

<sup>2</sup> Curto-Grau, Solé-Ollé and Sorribas-Navarro (2018) focus on regional capital transfers (8% of total spending); while Brollo and Nannicini (2012) focus on federal infrastructure transfers (15% of infrastructure investment). The effects found in both papers imply relatively low increases in total spending.

took advantage of their role in allocating the transfers to skew public resources towards municipalities with political traits that offer them high political return (Díaz Cayeros and Silva Castañeda, 2004; Langston, 2010; Trillo and Rabling, 2007). This documented evidence motivates the empirical strategy developed in this paper.<sup>3</sup>

I take advantage of plausibly exogenous variation in political alignment from close election to identify the effects of political alignment on spending and employment.<sup>4</sup> My identification assumption is that municipalities where the governor's party candidate narrowly won are valid counterfactual to municipalities where the candidate narrowly lost, which allows me to implement a regression discontinuity analysis. The fact that political alignment is unpredictable among razor-close elections implies that aligned municipalities are not systematically different from misaligned municipalities in terms of unobservables that explain economic activity (e.g economic shocks or secular economic trends) or spending.

As a first step toward understanding how political alignment affects local economic activity, I assemble an unique dataset that provides information at the municipality-year level on several measures of local economic activity and public finance. This level of disaggregation allows me to precisely measure the dynamics of economic and public finance outcomes before and after a municipality becomes politically aligned. I use detailed public finance data to measure the effect of alignment on public spending. To construct my primary measure of economic activity, I use the employer-employee data for the universe of the Mexican formal sector, which allows me to measure total employment and wage bill for each municipality and distinguish across several characteristics: economic sector, and firm size. I combine this data with other sources of information that allow me to measure employment in the informal sector (household surveys, and economic censuses), consumption (night lights and electricity consumption), public employment (social security records of public employees) corruption (audit reports from anti-corruption agency) and homicides (vital statistics).

This paper investigates the economic consequences of politically motivated spending. I answer this research question in three steps. First, I provide causal evidence that during

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<sup>3</sup>Several studies about Ramo-33 transfers have suggested that political alignment resulted in a higher allocation of Ramo-33 (Díaz Cayeros and Silva Castañeda, 2004; Langston, 2010; Trillo and Rabling, 2007). One of the goals of this paper is to obtain a causal estimate of the effect of political alignment on the allocation of Ramo 33 transfers.

<sup>4</sup>This research design is known as a close election regression discontinuity design and it has been widely used to uncover the effects of partisan favoritism on the allocation of public resources on Brazil (Brollo and Nannicini, 2012), Italy (Bracco et al., 2015), Spain (Curto-Grau, Solé-Ollé and Sorribas-Navarro, 2018), and U.S. (Albouy, 2013)

the expansion of intergovernmental transfers. I find that politically aligned mayor's that are politically aligned with the governor's party received higher transfers and increased public spending. Second, I investigate the effects of political alignment on private-sector jobs using social security records for the universe of formal employees. I find the growth rate of private employment slows down in politically aligned municipalities. This result is robust to use coarser employment measures that include both formal and informal sector workers. Third, I Investigate the potential channels that may explain these results. Although there is no smoking gun, I find several pieces of evidence that suggest that public resources crowded out the creation of private-sector jobs. They disincentivize growth in sectors and municipalities that are less connected to local government demand. Also, consistent with a crowding out story, I do not find a reduction in citizens' welfare when looking at measures of total consumption, unemployment, and political returns for aligned mayors.

The first part of the paper focuses on the political economy behind the allocation of the earmarked transfers and its effects on total spending. I find that transfers' three year (mayor's term limit) growth rate increased by 46 percentage points in municipalities where the mayor belongs to the governor's party compared to where the mayor belongs to the opposition. I do not find that this increase in transfer crowds-out alternative revenue's sources (other intergovernmental transfers, taxes, or debt), which implies that total revenues should increase. In line with this logic, I find political alignment increase total spending growth rate by 10 percentage points.

The second part of the paper explores whether the alignment-induced spending crowd in or crowd out the private sector economic activity. To do so, I use measures of employment and wages from administrative records that cover the universe of private formal workers. I find political alignment affects employment but not wages. In particular, three-year employment growth rate is 10 percentage points lower in politically aligned municipalities. The impact of political alignment on formal employment is explained by null growth in aligned municipalities rather than a destruction of jobs. The formal employment ratio in our sample is about 28%, defined as formal employees over working-age population. A back of the envelop calculation suggests that the decline in formal employment is equivalent to a reduction in the employment rate of 2.8 percentage points ( $=28\% \times 10\%$ ), assuming no changes on informal employment.

Before moving into exploring the mechanisms, I evaluate to what extent the observed de-

cline in formal employment translates into a decline in the total number of jobs or if the result is explained by a shift from the formal to the informal sector. To do so, I use two coarser data sources of local employment: household surveys and the quinquennial economic census. The results from the household surveys suggest that the probability of being employed declines by 3.4 percentage points. When decomposing this decline in the employment rate by formal and informal sector workers, I find that the reduction in the formal sector explains 2.1 percentage points of the observed decline. The results from Economic census, although not precisely estimated, confirm a negative result of political alignment on total employment.

I explore three potential mechanisms that may explain my results. First, I explore whether public spending crowded-out private jobs. Therefore the decline in employment took place in tight labor markets and sectors that do not directly benefit from increases in public spending because the main channel through which it affects them is through competition for production factors.<sup>5</sup> Second, I use homicide data to test whether the reduction in the aggregate economy results from an increase in violence as a result of interest groups fighting for capturing these fiscal windfalls. Third, I use detailed data on audits to test whether the additional windfalls increased the probability of elected politicians to be engage in a corruption behavior, undermining local economic growth.

I find strong evidence that the reduction in private sector jobs is explained by crowding out effects rather than general negative spillover from an increase in violence<sup>6</sup> or corruption.<sup>7</sup> A crowding-out effect takes place only when the economy is at full capacity and in sectors that are not benefited enormously by an increase in public sector demand. Consistent with this, I find that the effect of political alignment is stronger on tight labor markets, the tradeable sector, and economies with a low share of government-dependent sectors.

A unique feature of this finding is that I can rule the traditional ways through which theory argues that crowding out happens, namely through higher taxes or interest rates.

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<sup>5</sup>This crowding-out effect could lead to lower aggregate economic growth when the activities demanded by the government are less productive but generate sufficient rents to attract entrepreneurs, which otherwise would be doing more productive activities .

<sup>6</sup>I do not find an increase in violence in politically aligned municipalities. This is consistent with the fact that the period studied, 1998-2006, had historically low levels of homicides and it was before the well-documented increase in violence that took place after 2006.

<sup>7</sup>I use data on anti-corruption audits performed by an autonomous watchdog agency (Auditoria Superior de la Federación), to test whether the fiscal windfalls spur higher levels of corruption. I do not observe that aligned municipalities are more likely to be accused of malfeasance or corruption. On the contrary, conditional on being audited, politically aligned municipalities are less likely to be accused of malfeasance.

The disproportional amount of transfers is nationally funded, and interest rates are only affected at the national level. I explore three alternative ways through which crowding out can affect private economic activity: public sector enlargement, economic disruption caused by infrastructure investment, and increase in contracts to private sector.

I find both infrastructure spending and private sector contracts increase in politically aligned municipalities while public employment remains stagnant.<sup>8</sup> The increase in spending does not translate into proportional increases in construction jobs<sup>9</sup>, stock of public infrastructure nor government related jobs. This suggest that a residual explanation based on these contracts deterring private investment. Entrepreneurs reallocate their efforts towards rent seeking activities, which offer higher profits but tend to be less labor intensive. Since this rent seeking activities are not meant to be not detectable it may be that are part of the informal sector.

Since by definition the rent seeking activities meant to be hidden I test indirectly the presence of this hypothesis by looking evidence that people is not losing jobs, consumption remain the same , and if anything increase and voters are satisfied. In particular, I find that voters of politically aligned municipalities tend to re-elect the same political party. I find that the probability of being re-elected next period increases by 40% (13 percentage points). Second, about two thirds of the decrease in the formal employment rate (2.7 percentage points) is explained by decreased labor force participation, which points towards a voluntary reduction of the labor force rather than a massive unemployment shocks that reduce citizen's welfare. Third, I find no statistically significant effects of alignment on night lights or electricity consumption, which is also consistent with the idea that voters' welfare did not decrease.

RELATED LITERATURE.— This paper contributes to several strands of the literature. First, it contributes to the literature that ask about the local employment effects of infrastructure spending. Most of the studies that focus on the short-run find that employment dips negative during the first few years after the infrastructure spending took place ([Garin, 2019](#); [Leduc and Wilson, 2013](#); [Dupor, 2017](#); [Buchheim and Watzinger, 2017](#)) to increase in the

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<sup>8</sup>This mechanism cannot explain my results because public employment is very stable. The R-squared of any two way fixed effects regression is above 0.9.

<sup>9</sup>Infrastructure spending could decrease total employment trough the negative spillovers of building infrastructure projects. [Ramey \(2020\)](#) suggest negative effects of infrastructure spending. In particular, it could affect negatively private employment because construction tend to disrupt economic activity or because the delay of infrastructure projects create a incentive to delay private investment decisions. I rule out this mechanism because I fail to find strong changes on either construction jobs or the stock of public capital.

long run as a result of the effect that a higher stock of public capital have on labor productivity (Kline and Moretti, 2014; Yaffe, 2020; Leduc and Wilson, 2013; Allen and Arkolakis, 2019). This literature suggests two mechanisms, they suggest that building infrastructure projects disrupts economic activity and delay private investment. I find negative effects on employment after exogenous increase on infrastructure spending, but fail to find concrete evidence that construction is increasing, which suggest that other mechanism could be at play. In particular, infrastructure spending may allow politicians to divert resources to unproductive activities, which may deter private investment.

Second, it contributes to the literature of distribute politics that focuses on how the partisan favoritism affect the allocation of public resources. The bulk of the literature have found that central politicians skew resources to politically aligned municipalities (Brollo and Nannicini, 2012; Curto-Grau, Solé-Ollé and Sorribas-Navarro, 2018; Bracco et al., 2015; Fiva and Halse, 2016; Albouy, 2013). This literature focuses on discretionary transfers. I provide suggestive evidence that political alignment can substantially distort the allocation of resources even in those circumstances where transfers are meant to be allocated with a predetermined allocation formula.

Third, I contribute to the literature that studies the economic effects of political favoritism. This literature agrees that ethnic and regional favoritism lead to higher economic growth (Hodler and Raschky, 2014; Alesina, Michalopoulos and Papaioannou, 2016); but has opposite findings regarding the effects of partisan favoritism. On one hand, Cohen, Coval and Malloy (2011) finds that alignment with politicians leading any congressional committee decrease employment *decreases* in the U.S; they argue the effects are explained by larger public spending crowding out private-sector economic activity. On the other hand, Asher and Novosad (2017), using data from India, finds that employment *increases* more in districts who are politically aligned with the ruling party at the state level, they argue that the main mechanism is the discretionary power that politicians have over-regulation. My findings are similar to Cohen, Coval and Malloy (2011) because I also focus on the same policy lever, namely, public spending. Therefore, I show that the question on how political alignment affects economic growth is very sensitive to the policy lever that politicians manipulate, which implies that the context one focus on define the answer one gets.

Also, this paper revisits the literature on the resource curse. There is a established consensus on the negative effects of fiscal windfalls on political institutions and conflict. Indepen-

dent of the origin of fiscal windfalls, higher fiscal resources tend to increase corruption and deteriorate the quality of political candidates (Brollo et al., 2013; Asher and Novosad, 2020; Chen and Kung, 2016; Vogel, 2021). This paper proposes a different channel through which fiscal windfalls may negatively affect local economies. In a similar fashion that the *ducth disease* reallocates labor towards resource-extractive industries the politically motivated fiscal windfalls reallocated labor towards the non-tradable sector, which tend to be less productive and suffer from higher informality rates. The stronger decline in the formal sector has two main negative consequences, it mechanically reduces taxes and the capacity of the workforce to contribute to the health and pension system.

Finally, I contribute to the literature of distributive politics in Mexico. The literature that focus on intergovernmental transfers have documented strong correlations between the allocation of transfers and several political variables like political competition, partisan alignment and turnout (Díaz Cayeros and Silva Castañeda, 2004; Langston, 2010; Trillo and Rabling, 2007). My contribution to this extensive literature is to quantify the *causal* effect of political alignment on the allocation of Ramo 33 transfers. Also another strand of the literature use my research design to show the effects of political alignment on access to loans and implementation of crackdowns (de la Garza and Lopez-Videla, 2020; Dell, 2015). These studies focus on the effects of political alignment with the president. My paper focus on the role of state governors and the discretionary allocation of intergovernmental transfers, which according to my results have a large impact on economic outcomes.

## 2. Institutional Context

This section describes the functioning of public finances in Mexico, focusing on creating new intergovernmental transfers that took place in 1998. These new intergovernmental transfers, known as Ramo-33, led to an unexpected and sizable increase in local public spending. Also, I explain how the newly enacted transfers' institutional design gives state governors disproportional power and, therefore, left room for political favoritism.

### A. The Expansion of Earmarked Transfers

Mexico has a revenue-sharing system in which the federal government collects most of the taxes to later redistribute them across lower government levels-states and municipalities.



Thus the fiscal capacity of sub-national governments is severely limited by the amount of intergovernmental transfers they receive. Therefore, any policy that substantially affects intergovernmental transfers can affect total local public spending substantially.

This paper takes advantage of the expansion of intergovernmental transfer that followed the creation of Ramo-33 in 1998. It focuses on the two subcomponents of Ramo-33 that are allocated to municipalities: FORTAMUN-DF and FISM. I do not include the rest of the subcomponents of Ramo-33 because those transfers are managed by state governments and therefore I can not observe the municipalities where they are allocated. From now on I refer to these two subcomponents as Ramo-33.<sup>10</sup> These two funds are desirable for identification purposes for two reasons: First, they provide unexpected increases in local public spending. As Figure 1 shows, there is a weak correlation between the growth rate of Ramo-33 municipal transfers and the growth rate of public spending before 1998. Second, this transfer is economically significant. Figure 2 shows that, between 1998 and 2006, local spending increased by 20 percentage points of municipal's GDP. These relatively large magnitudes resulted from the redistributive nature of Ramo-33. One of the core objectives of these transfers was to allocate disproportional public resources to less developed municipalities, which explains the significant increases for the average municipality.

Additionally, it is important to highlight that a large fraction of Ramo-33 is earmarked to infrastructure projects. As a result, it can be observed in Figure 3 that the expansion of the fund also led to an increase in public investment. Specifically, FISM is earmark to a broad set of infrastructure projects: from social infrastructure (e.g., health and school facilities) to core economic infrastructure (e.g., electrification, construction of dams, sewerage and municipal roads). In comparison, FORTAMUN-DF is earmark to either infrastructure (e.g., maintenance of urban infrastructure) or non-infrastructure projects (public security, debt payments, and acquisition of goods to strength the productivity of public workers). Overall more than two thirds of the transfers are earmarked to infrastructure projects.

To summarize, Ramo-33 implied an unexpected and economically substantial increase in local public spending. This spending shock is explained by a large growth of intergovernmental transfers to local economies and by a shift in the allocation of resources towards

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<sup>10</sup>Both sub-components uses explicit allocation formulas: FORTAMUN-DF is allocated based on population, and FISM is distributed according to a formula that uses a multidimensional deprivation index that considers: coverage to electricity, poverty, education, sewerage among others. The formulas are updated every time new information from the most recent population census is released. See guidelines of these sub-components here [https://www.coneval.org.mx/Informes/Evaluacion/Estrategicas/Ramo\\_33.PDF\\_02032011](https://www.coneval.org.mx/Informes/Evaluacion/Estrategicas/Ramo_33.PDF_02032011)

less developed areas, where the economic size of this spending increases is expected to be stronger.

### *B. The Political Economy of Earmarked Transfers*

One of the main motivations behind the creation of Ramo-33 was to protect the intergovernmental transfers from the political discretion of the Federal government. To do so, these intergovernmental transfers were designed as entitlements programs, that means these transfers were meant to be received by municipalities every year according to a fixed formula that use as input predetermined municipality characteristics. Also, by law, these federal transfers to municipal governments can not bypass the state governments. This restriction aimed to prevent municipalities with low bargaining power with respect to the federal government from receiving systematically fewer transfers.

However, these safeguards created their own distortions; they transfer disproportional power from the federal to the state government. As a result, anecdotal evidence suggests that state governments did not follow strictly the guidelines defined by the allocation formula when distributing the resources of Ramo-33. Some governors publicly stated that they should be allowed to skip the allocation defined by law and replace it with their own allocation.<sup>11</sup>

Figure 4 shows two pieces of evidence to substantiate the claim of manipulation of intergovernmental transfers. First, it shows a large proportion of municipalities that reported not receiving intergovernmental transfers between 1998 and 2002. This result is odd since the statutory allocation mandate a positive amount of transfers for all municipalities. Second, it shows the dispersion in the growth rate of intergovernmental transfers. Since these transfers worked as entitlement programs that allocated resources across municipalities based on a fixed formula, one should expect a coefficient of variation close to zero.<sup>12</sup> Figure 4, shows not only a positive coefficient of variation but also that it increases after the enactment of Ramo-33 until 2005. It is not clear what explains the substantial decline after 2005. Still, I find it correlates with the increases in fines imposed by the ASF (Autonomous watchdog agency) to municipal and state governments for malfeasance and waste of public resources.

To summarize, the evidence points towards to significant discretion in the allocation of

<sup>11</sup>See Díaz Cayeros and Silva Castañeda (2004), Trillo and Rabling (2007), (Langston, 2010).

<sup>12</sup>Several reasons can explain a positive dispersion on yearly growth rates, namely: measurement error, political business cycle, or a change in formula's inputs (which takes place every time a population census is released, in our period either in 1992, 2002, 2012).

intergovernmental transfers across municipalities. Since the distribution is in charge of state governors, this discretion is likely explained by distinct political factors that state governors care about, such as: political competition, turnout, partisan favoritism.

### 3. Identification

This section explains how my identification strategy allows me to estimate the effect of political alignment between municipality-mayors and state-governors on a wide variety of economic and public finance outcomes.

Political alignment is not random, as any electoral outcome it results from the aggregation of voters decisions when casting their ballots. Since voters' decisions are influenced by a myriad of political and economic factors that affect the outcomes of interest, I should expect strong biases from any naive OLS estimate.<sup>13</sup> To address this identification problem, I exploit variation from razor-close elections, a research design known as close election regression discontinuity design (RDD).

#### A. Identification Assumption

This identification strategy takes advantage of the variation provided by close elections to get causal estimates of political alignment. To implement it, I compute the vote margin for every municipal election indexed by  $m$  and  $e$ . The vote margin is defined as the difference, in votes between the candidate of the governor's party— $v_{m,e}^g$ , and the main opposition's party— $v_{m,e}^o$ , normalized by the total number of votes— $v_{m,e}$ .<sup>14</sup>

$$(1) \quad VM_{m,e} = \frac{v_{m,e}^g - v_{m,e}^o}{v_{m,e}}$$

<sup>13</sup>For example: state governors can invest in winning specific municipal elections, therefore the effect of political alignment on economic growth could be confounded by the independent effect of past governor's efforts on economic growth. Also if voters who live in municipalities that are in a downward economic trend tend to elect politically aligned candidates, the effects of alignment on economic growth could be downward bias.

<sup>14</sup>I consider both individual candidates and coalitions to define political alignment. When a political coalition forms the governor's party, I consider politically aligned, any mayor that belongs to any of the parties that are part of the political coalition. Moreover, the main opposition's party candidate is the candidate/coalition that does not belong to the governor's party/coalition and has the highest number of votes. This implies that the vote margin is not necessarily computed as the difference between the winner and the runner up.

Consequently, above (below) zero corresponds to municipalities where the elected candidate does (does not) belong to the state governor's party. Candidate's political affiliation is measured before elections take place, which rules out any concern regarding unobserved characteristics affecting the running variable.

As explained by [Hahn, Todd and Van der Klaauw \(2001\)](#) and [De la Cuesta and Imai \(2016\)](#) the identification assumption is continuity of the potential outcomes at the cut-off.<sup>15</sup> The main intuition of the *continuity* assumption is that municipalities where the politically aligned candidate barely lost are valid counterfactual of municipalities where the politically aligned candidate barely won.

This identification assumption has three critical implications for validating, interpreting and computing the parameter of interest. First, any confounder that systematically correlates with alignment should vary smoothly around the cut-off. Second, in the presence of heterogeneous treatment effects, the estimate obtained, should be interpreted as a local average treatment effect (the effect of alignment at the cut-off). Third, the sample analog estimator would be obtained by the difference between the expected value of aligned and misaligned municipalities at the cut-off. Therefore the precision of the estimates will increase with the amount of observations at the cut-off.

### B. Difference in Discontinuities Specification

I estimate the parameter of interest using a local linear regression ([Gelman and Imbens, 2019](#)) with triangular kernel weights ([Calonico, Cattaneo and Farrell, 2020](#)) over the subsample of close elections (i.e.  $VM_{m,e} \in (-h, h)$ ), defined as those with a vote margin lower or equal to five percentage points.<sup>16</sup> The regression pools the observations of the post-electoral years that correspond to the mayor's ruling period that took place during our period of study (1998-2006). In particular, I estimate the following equation:

<sup>15</sup>This assumption simply states that  $E[y(1)_{m,e} | VM_{m,e}]$  and  $E[y(0)_{m,e} | VM_{m,e}]$  are continuous at the cut-off (i.e.  $VM_{m,e} = 0$ ). where  $y_{m,e}(1)$  is the value of  $y$  when the candidate elected is politically aligned with the central government, and  $y_{m,e}(0)$  when is not politically aligned. See [De la Cuesta and Imai \(2016\)](#) for a clear explanation of why the *continuity* assumption is weaker than the usually claimed *local unconfoundedness* within a bandwidth

<sup>16</sup>The preference for an ad-hoc bandwidth ( $h=5$ ) lies in the fact that any data-driven bandwidth ([Calonico, Cattaneo and Farrell, 2020](#)) would lead to compositional problems when comparing results across different outcomes or subsamples. In the presentation of my results I also show estimates with a 11 percentage points bandwidth defined by [Calonico, Cattaneo and Farrell \(2020\)](#). The Appendix shows that results are qualitatively similar when using alternative bandwidth sizes and kernel weights.

$$\begin{aligned}
(2) \quad \Delta^3 y_{m,e,k} = & \alpha + \beta \text{aligned}_{m,e} \\
& + \theta VM_{m,e} \times \text{aligned}_{m,e} + \gamma VM_{m,e} \times (1 - \text{aligned}_{m,e}) \\
& + \delta_{s(m)} + \xi_{e,k} + \psi X_{m,e-1} + \epsilon_{m,e,k} \quad \forall VM_{m,e} \in (-h, h)
\end{aligned}$$

where  $\Delta^3 y_{m,e,k}$  is a three year log points difference of the outcome  $y$  measured  $k$  years after the latest election indexed by municipality- $m$  and year  $e$ ; the three year difference obeys to the fact that three years is the mayors term limit.<sup>17</sup>  $\text{aligned}_{m,e}$  is an indicator variable that identifies whether the current mayor belongs to the governor's party and is does not vary across  $k$ . The specification also includes a linear function of the running variable, estimated separately on either side of the cut-off. Finally, I control for state ( $\delta_{s(m)}$ ) and the interaction of election and election-time ( $\xi_{e,k}$ ) fixed effects. Also, I control for the vector  $X_{m,e-1}$ , which contains a set of political characteristics from the previous election cycle: political alignment, political party, governors vote margin. I cluster standard errors at the municipality level to control by the level at which treatment takes place and the correlation of political alignment over time (Abadie et al., 2017; Bertrand, Duflo and Mullainathan, 2004).

In this specification  $\beta$  measures the effect of political alignment across all  $k$  post-election years; and it is identified from variation in political alignment across municipalities who had a close election within the same state an during the same election cycle.<sup>18</sup>

### C. Dynamic Difference in Discontinuities

To observe the dynamics of the effect and support our identification assumption, I follow Cellini, Ferreira and Rothstein (2010) and frame the close election RDD as an event study. This specification allows me to disentangle the contemporary from the lagged effects of alignment and indirectly test the presence of parallel trends assumption.

<sup>17</sup>Most of the mayoral election have a three year term limit with few exceptions (2 percent of the elections have 4 years term limit). When municipalities have larger term limits I normalize the difference to be a three year growth rate equivalent. Also, results are qualitatively similar when either I re-weight our estimates by the inverse of the term limit or when I focus only on the sub-sample of municipalities with a three year term limit.

<sup>18</sup>The standard approach in the empirical literature is to exploit the richness of the cross sectional variation to properly estimate the effect of political alignment at the cut-off; some examples: Brollo and Nannicini (2012); Curto-Grau, Solé-Ollé and Sorribas-Navarro (2018); Asher and Novosad (2017). Including municipality fixed effect while holding the bandwidth would limit inference to municipalities with more than one close election and that change of political status (aligned not aligned) over time, resulting in small sample biases. The dynamic specification that I propose next, include municipality -election fixed effects after recasting the data to provide the variance needed.

This specification recast the dataset such that the unit of observation is a close election, defined by a municipality-electoral cycle pair for which the election's vote margin satisfy a specific election threshold. For each unit of observation I proceed to track the evolution of the outcomes of interest three years before and four years after the year of the election.<sup>19</sup> Over this new dataset I estimate the following equation:

$$\begin{aligned}
 (3) \quad y_{m,e,k} = & \alpha + \sum_{j=-3, j \neq -1}^3 \beta^j 1(k = j) \times aligned_{m,e} \\
 & + \sum_{j=-3, j \neq -1}^3 1(k = j) \left[ \theta^j VM_{m,e} \times aligned_{m,e} + \gamma^j VM_{m,e} \times (1 - aligned_{m,e}) \right] \\
 & + \delta_{m,e} + \psi_{e,k} + \epsilon_{m,e,k} \quad \forall VM_{m,e} \in (-h, h)
 \end{aligned}$$

where  $y_{m,e,k}$  is the inverse hyperbolic sine transformation of outcome  $y$  measure at  $k$  years of difference from the election cycle  $e$ . Notice that this specification include both years before and after the election took place, while in equation (2) I focused on the growth rates of the post-election period. Correspondingly,  $\delta_{m,e}$  are municipality-election cycle fixed effects, while  $\psi_{k,e}$  controls non-linearly for macroeconomic shocks and the trend of each election cycle  $e$ . Similarly to the main specification, I estimate equation (3) using a local linear regression of the running variable with triangular kernel weights and a 5 percentage point bandwidth. Standard errors are clustered at the municipality level to account for the serial correlation of political alignment over time (Bertrand, Duflo and Mullainathan, 2004).

Notice that the identifying variation comes from variation in trends among the subset of close elections that took place within a specific election cycle (i.e. cohort). This prevents that my estimates suffer from any of the standard critiques that apply to two way fixed effects models. This estimation could also be seen as the analog of the identification strategy proposed by (Cengiz et al., 2019) to circumvent problems related to event studies with staggered adoption, which is relevant in this case because elections are staggered across states.

The identification assumption of this specification is that conditional on the election cycle the trends among aligned and non aligned municipalities are continuous at the alignment

<sup>19</sup>More formally, if the same municipality has two close elections, I duplicate all its observations and follows the outcomes of interest over a specific window. This implies each copy (municipality-electoral cycle) as a separate unit that gets treated only once.

threshold.<sup>20</sup> Although one can not test this assumption directly, it is possible to perform indirect tests to ensure their plausibility. The following section presents the results of such examination.

## 4. Data and sample

The objective is to estimate the economic effects of political alignment when politicians can distort the allocation of intergovernmental transfers. To do so, I assemble a municipality-year dataset that combines data on local public finance, electoral results, employment and wages (public and private) from social security records. I also use alternative datasets to complement the main analysis, namely: labor force surveys, economic censuses, remote sensing data, and federal audits to local government. This section describes each source of information in detail, and the sample used to obtain the main estimates.

### *A. Data and Measurement*

**PUBLIC FINANCE.**— Municipalities produce yearly balance sheets classifying both revenues and spending across different subcategories. This data is collected by the Mexican National Institute of Statistics and Geography (INEGI). The revenues side provides information about distinct categories, from intergovernmental transfers to local property taxes, to fees for services provided by local governments. On average, 82% of local revenues come from intergovernmental transfers. In comparison, about 10% come from taxes (mostly property taxes) and other public services provided by local governments. The revenues data allows me to distinguish which revenue's source increases due to political alignment. Also, I can observe different components of spending data. The two most important in terms of their average share in total spending are the wage bill (40%) and public investment (30%).

**ELECTIONS.**— Electoral data come from Centro de Investigación para el Desarrollo (CIDAC) and the state electoral authorities. The election data provides information on the number of votes for each party or coalition for the universe of municipal, state, and presidential elections.<sup>21</sup> It is important to note that the party affiliation recorded in the electoral data is

<sup>20</sup>Notice that this is a weaker identification assumption than the standard parallel trends assumption, which states that aligned and misaligned municipalities would have the same trends in the absence of the treatment. This setting allows that these trends to be systematically different as long as they are continuous at the cut-off.

<sup>21</sup>I manually collect the elections not provided by CIDAC by requesting the data to the electoral institutions of each state.

defined months before the election. Therefore the measure of alignment is not affected by the politicians deciding their political party affiliation after knowing the electoral results. This alleviates any concern related to manipulation of alignment status.

MAIN EMPLOYMENT AND WAGE DATA.— To measure employment at the municipal-year level, I combine administrative records from the Mexican Institute of Social Security (IMSS) and the Institute of Social Security of Public Workers (ISSTE). Since both data sources correspond to social security records, they capture the universe of formal employees and employers. IMSS collects data on formal private-sector workers/employers and the ISSTE on formal public sector employees. The definition of formal workers here is all those workers who contribute to the social security system and therefore received health insurance and pension contributions.

In addition to employment counts, the IMSS data allows the measure of aggregate wage bills and, therefore, average wages. Also, it provides this data by sector, firm size, gender, and age groups. The data from ISSTE does not report wages; I circumvent that by using the total wage bill of local governments from the public finance data.

ALTERNATIVE EMPLOYMENT DATA.— The main drawback of IMSS and ISSTE is that they remain mute about what is happening to the informal sector and, therefore, to total employment. I use two alternative sources of information to infer the effects of alignment on aggregate (formal and informal) employment and, to some extent, on the informal sector. The first source of information is the Mexican Economic Census collected every five years by INEGI. It provides detailed municipal-level information for the universe of non-agricultural establishments, both formal and informal. I use this dataset to measure employment and wage bill growth between the 1998 and 2008 rounds of the economic census. I follow [Asher and Novosad \(2017\)](#) and assign to each intercensal growth rate the result of the earliest election that took place in between the two rounds of the economic census. The main drawback of the economic census is that it does not allow us to measure the change in employment precisely before and after every election, which lead estimates to be biased towards zero.

The second source of information corresponds to the labor force surveys collected by INEGI. In particular, I use the National Urban Employment Survey (ENEU), which is available at a quarterly level for 1998-2004. This survey is representative of about 48 metropolitan areas, and it collects a wide variety of socio-demographic and labor market information for both formal and informal workers. I used this data source to complement the analysis of the



administrative records, mainly regarding the effects of political alignment on informality and labor force participation.

The household surveys are not the preferred dataset for two main reasons. The first reason is that ENEU has little overlap with the primary sample used in the estimates. In particular, it only provides information for 40% of the municipality-year observations used in the main estimates. When I limit the sample to municipalities that appear before and after a close election, this percentage declines to 20%. The second reason is that household surveys are not representative at the municipality level; this implies a large within municipality variation that limits the ability to detect small effects.<sup>22</sup>

**ECONOMIC ACTIVITY.**— To measure aggregate economic activity, I use night lights luminosity and electricity consumption, both scaled by population, measured in log points, and available at the municipality level. The data on night lights comes from the National Oceanic and Atmospheric Administration (NOAA). Night lights data provides a luminosity measure for every square kilometer of the Mexican territory. This measure goes on a scale from 0 to 63. The fact that this information is censored from above may limit the power to find statistically significant effects in cities with several pixels censored at 63. To circumvent this problem, I measure total municipal luminosity growth considering only those pixels that by 2003 were below 63. This is equivalent to imputing the neighboring non-censored pixels' growth rate to those already censored.

The second source of data is the aggregate consumption of electricity. This data comes from the ministry of energy and regulation. This information corresponds to the total energy consumed by both establishments and households. It can be interpreted as a local measure of economic activity that can increase either because residents work more or because they increase their consumption from higher government transfers from the government.

**OTHER DATASETS.**— I also use other datasets to explore some potential mechanisms and perform balance tests over the data: i) The rollout of the number of beneficiaries from Seguro Popular, ii) Monthly payments and beneficiaries from PROGRESA, iii) Official report from audits performed to local governments from an autonomous watchdog agency (Auditoría Superior de la Federación) iv) Annual homicides data from INEGI.

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<sup>22</sup>I compute the correlation between the growth rate of formal employment captured by IMSS and that captured by the ENEU between 1998-2003; I find that at the state level, the correlation is 0.57, while at the municipal level, the correlation is 0.2; Bosch and Campos-Vazquez (2014) finds similar results.

### B. Sample

The final dataset provides variation at the municipal year level for the sample of elections between 1998 and 2003. Since the mayor have a three year term limit and the outcomes are measured as a three year growth rate, this implies that I follow the dynamics of employment and public finance outcomes for the period of 1996-2006. This study period has three advantages: First, it allows to estimate the effects of political alignment during the expansion and weak oversight of intergovernmental transfers. Second, it ends one year before the sudden and steep increase in violence experienced by Mexico after 2006, and that has been argued resulted from political alignment with the president's political party.

I exclude municipalities from the state of Oaxaca because most of them do not choose their mayor through elections but using a traditional governance structure, which makes it infeasible to construct the running variable.<sup>23</sup> Also, I limit the observations to those municipalities for which there is information available on formal private-sector employment for the study period 1998-2006. The final sample considers 1097 out of 2446 municipalities, which employ 99 % of all formal employees in Mexico and host 80% of the Mexican . This filter implies that the estimates are representative for middle and large municipalities and therefore they are relevant from a macroeconomic point of view.<sup>24</sup>

## 5. Validity of the Research Design

This section evaluates the internal validity of the identification strategy, which hinges on the fact that any other variable that affect my outcomes of interest change smoothly along the threshold. I perform two indirect tests for that purpose. I evaluate whether there are discontinuities along the cut-off on either the density of the running variable or baseline characteristics. Also I provide a raw look at the spatial clustering of the data.

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<sup>23</sup>Traditional governance structures in Oaxaca are valid after a constitutional reform that took place in 1995. This governance structure is known as "*Usos y costumbres*". The municipalities organized by this type of "polity" are ruled by assemblies rather than mayors. The election of these assemblies is informal and local leadership can be organized by rotating appointments without elections taking place.

<sup>24</sup>IMSS data records employment for 1,850 out of 2446 municipalities in Mexico. The rest of the municipalities either have none or few formal employees (e.g., less than 10) and therefore that IMSS group them into a larger neighboring municipality.

### A. Manipulation Test

The fact that political alignment brings benefits to local governments is a sufficient reason to think that local governments may select themselves into being politically aligned. I test for this by evaluating if the density of the vote margin changes abruptly at the cut-off. Figure 6 shows the histogram of the vote margin for the elections where the governor's party compete. Overall, I do not find evidence of sorting of municipalities on either side of the alignment threshold. This strong symmetry in the result of close elections can be appreciated by looking at the raw data. In particular, I find that 467 out of 1867 elections were decided by a margin of less than five percentage points, among those, 241 were won by the opposition and 226 by the governors party.<sup>25</sup>

I implement the McCrary (2008) test to formally evaluate if there are discontinuities in the vote margin at the threshold. In particular, I estimate the density function of the vote margin separately on each side of the cut-off and test if the two expected values of the density function at the cut-off are statistically different from zero. The results, presented in Figure 7, suggests a very precise no discontinuity of the density function around the cut-off. The p-value of the McCrary-test is 0.7, which indicates that neither the governor's party nor the opposition systematically wins close elections.<sup>26</sup>

### B. Discontinuity of Baseline Characteristics

Another indirect test to the identification assumption is to evaluate whether baseline characteristics jump discontinuously at the alignment threshold. A discontinuity on baseline characteristics would suggest that municipalities where the politically aligned candidate barely won are systematically different from municipalities where the politically aligned candidate barely lost. To perform this test I estimate the causal effect of political alignment using a variant of equation (2). The main difference is that now the baseline characteristics (measure in levels) are my main outcomes of interest, which implies that are excluded from my set of controls. Since I use the sample of close elections that took place during the study period (1998-2003),<sup>27</sup> and the main outcomes are measured before 1998; I

<sup>25</sup>This symmetry remains when I look at narrower bandwidths: I observe 282 (189) municipalities were decided by a margin of less than three (one) percentage points, among those, 149 (100) were won by the opposition and 133 (89) by the governor's party.

<sup>26</sup>Calonico, Cattaneo and Farrell (2020) and Bugni and Canay (2021) have proposed variations of the McCrary (2008) test. I obtain the same conclusion with any of these results (available upon request).

<sup>27</sup>The data set to perform this test is at the close election level, therefore municipalities with more than one close election shows up more than once. I account for this by clustering standard errors at municipality level,

should not find discontinuities of those outcomes at the alignment threshold.

Figure 8 shows the results of this continuity test on several economic, socio-demographic, geographic, and political characteristics measure several years before every election took place.<sup>28</sup> I standardize all non-binary variables and present estimates in terms of standard deviation units to facilitate comparison across variables. The figure reports the point estimates and 95% confidence intervals of each regression. It is reassuring to observe that there is no evidence of any discontinuous jump in the baseline characteristics. All the confidence intervals cross zero except in the case of the share of workers in manufacturing. The p-value of the joint hypothesis test that all baseline characteristics are statistically equal to zero is 0.8.

### *C. Spatial Concentration of Close Elections*

Another concern is that the close elections subsample is geographically clustered. This would bias the estimates either in the presence of spatial spillover effects or heterogeneous effects by state characteristics. Figure 9 shows the map of close elections during the study period using a bandwidth of 5 percentage points. If a municipality has more than one close election, I map the result of the first election. As it can be observed, close elections are spread all over the place. All 32 states have had close election won by either governor's or main opposition party.

## **6. Main Results**

This section presents our main estimates. First, It explores the extent to which political alignment affects the allocation of intergovernmental transfers and total public spending. Second, it shows the effects of political alignment on employment and wages for the universe of formal private-sector workers. Third, it uses coarser measures of total employment (both formal and informal) to evaluate whether the results on formal employment affect total employment or are explained by shifts between the formal and the informal sector. Unless otherwise indicated, I use equations (2) and equation (3) to obtain all the results presented in this section.

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results are robust to include only the first close election for each municipality.

<sup>28</sup>All socioeconomic characteristics are measured from the 1990s Population and 1989 Economic Censuses. The political characteristics are measured from the previous electoral period.

### A. Public Revenues and Spending

TRANSFERS.— The first-order question is whether being politically aligned during the period of expansion of earmarked transfers benefits municipalities. I use two measures to answer this question. The first measure is the probability of receiving transfers (extensive margin), and the second is the three-year growth rate of transfers per capita (intensive margin). The first measure aims to identify if state governments punish non-aligned municipalities by holding up intergovernmental transfers. The second measure test whether there is a difference in the total amount of transfers received.

Table 1 shows that politically aligned municipalities receive a higher amount of transfer rather than having a higher probability of receiving transfers. In particular, columns 1 to 4 show that political alignment increased the growth rate of earmarked transfers between 29 to 65 percentage points depending on the specification. Column 2 is my preferred specification since it uses the narrower bandwidth and includes the set of controls. This column indicates that the growth rate of earmarked transfers was 42 percentage points higher in aligned municipalities compared to their non-aligned counterparts. To put this into context, the average growth rate of earmarked transfers, for the non-aligned municipalities is 138 percent, which implies that political alignment increase by one-third ( $= 42/138$ ) the growth rate of intergovernmental transfers. These relatively large growth rates in the control groups are explained by out period of study, during which earmarked transfers expand from being almost zero of total revenues to accounting for almost 30% of total revenues. Columns 5 to 8 of Table 1 shows that political alignment does not consistently increase the likelihood of receiving earmarked transfers during the years of the mayor's term. This null result could be explained by the fact that 96 percent of municipalities in the control group (non-aligned municipalities) report receiving transfers leaving little room for discretion between aligned and misaligned municipalities.

Figure 10 plots the growth rate of earmarked transfers around the alignment threshold for the post-election and pre-election periods. The discontinuity for the post-election period is evident and implies that aligned municipalities have higher growth rates than their non-aligned counterparts (Panel A). Moreover, the fact that there are no discontinuities on the observed pre-election growth rates at the alignment threshold validates the identification assumption. This test is analog to what is referred to in the literature of difference and difference as the parallel trends test.

OTHER TRANSFERS, TAXES, AND DEBT.— Other revenue sources may offset the effect of earmarked transfers on total public revenues. Governors may compensate non-aligned municipalities with another type of public resources, leading to a misleading conclusion when studying the net effect of political alignment [Kramon and Posner \(2013\)](#). Another mechanism that could offset the effect of earmarked transfer on total spending is the response of taxes and debt. Local governments may change their optimal decisions regarding taxes and debt as a result of higher intergovernmental transfers. For example, a well-established theoretical result suggests that governments should reduce their taxes after a fiscal windfall.<sup>29</sup> The impact of fiscal windfalls on debt is less clear. On the one hand, higher transfers imply higher collateral for local governments; on the other hand, the fiscal windfalls imply lower borrowing needs.<sup>30</sup>

Table 2 uses the detailed categories of revenues collected in the public finance data to test if any of the mechanisms mentioned above amplify or offset the effects of political alignment on local public resources.

For ease of comparison, I present again in column 1 the effect of political alignment on the growth rate of earmarked transfers. Column 2 shows the impact on the revenue sharing transfers, which are the main revenue source (representing 53% of total revenues), and are also administrated by state governors. I do not find robust evidence of revenue transfers changing at the alignment threshold; results are statistically significant with an 11 percentage point bandwidth but disappear when using a 5 percentage point bandwidth. Still, I do not rule out that part of this non statistically significant, but economically significant coefficients, has a role in increasing overall spending.

Column 3 of Table 2 reports the effect of alignment on taxes. According to the table, taxes represent about 5.9 to 6.2 percent of total revenues. I find that the growth rate of taxes for aligned municipalities is higher but not statistically significant. Moreover, the point estimates of both Panel A and B suggest that the alignment effect on taxes would be positive, if anything. Column 4 of Table 2 shows the result for debt. During the study period, debt constitutes a relatively small fraction of local revenues; in our sample, it represents at most

<sup>29</sup>This prediction has motivated extensive empirical literature around the flypaper effect, which has found mixed results on this prediction. See [Inman \(2008\)](#) for a review

<sup>30</sup>Also, political alignment could directly affect debt if central politicians can influence the access to credit. [de la Garza and Lopez-Videla \(2020\)](#) shows that in Mexico, political alignment with the president between 2009 and 2013 explains higher access to debt. It is important to validate if his findings also apply to our context, which not only focuses on a different period but a different measure of political alignment.

3.3 percent of total revenues. The point estimates of the effect of political alignment are positive but neither statistically significant nor consistent across different bandwidths. To sum up, alignment-induced transfers do not seem to affect local governments' decisions regarding taxes and debt strongly. This evidence goes in line with the idea of a flypaper effect; grants increase total spending and has also been validated by [Bracco et al. \(2015\)](#) using data from Italy and a similar research design.

This implies that, if anything, political alignment brings more rather than fewer resources to local economies. Yet, I have not entirely ruled out that other public resources that I can not observe with the public finance data are not responding to political alignment. I will go back to this in the robustness section, where I explore the effect of political alignment in allocating other nationwide programs unrelated to intergovernmental transfers.

**PUBLIC SPENDING.**— The second main result is presented in the last column of Table 2. Total public spending increase in politically aligned municipalities. This is consistent with the fact that I did not find crowding-out effects from other sources of revenue (transfers, taxes, or debt). Both Panel A and B show a consistent story; political alignment increases the total public spending growth rate by 10 to 12 percentage points, since the growth rate of spending for the control was about 56 percent, this suggests that the effect of alignment on total resources is about 7 percent ( $1.07=164/156$ ). This estimate can be interpreted as a net effect of partisan alignment once any compensation and behavioral effects induced by the increase in intergovernmental transfers have been netted out. Panel A of Figure 11 confirms the discontinuity, while Panel B reassures our identification assumption.

### *B. Employment and Wages*

This subsection explores whether employment and wages evolve differently in politically aligned municipalities, which, as it was explained, receive a disproportional amount of governmental resources. To do so, I use data on total jobs and aggregate wage bill for the universe of formal sector jobs recorded by the Mexican Institute of Social Security.<sup>31</sup> I compute two outcome measures with this data that can be observed at municipal year level and disaggregated by sector and firm size. The first is the absolute number of formal jobs, and the second is a measure of wages that I compute as a total wage bill divided by the number

<sup>31</sup> Formal workers represent 40% of the jobs and account for about 70% of the output. I interpret the result here as relevant for the formal sector and do not extrapolate its conclusion to the informal sector. In the next subsection, I study the effects on aggregate employment using coarser sources of information like household surveys or economic censuses

of jobs.

Columns 1 to 4 of Table 3 shows the impact of political alignment on the growth rate of private employment. Overall the results show that aligned municipalities have a slower growth rate than their non-aligned counterparts. The growth rate of formal employment is between 9.5 to 12.1 percentage points lower in politically aligned municipalities. This effect is robust to the choice of bandwidth and is not sensitive to the different controls.

To provide an interpretation of the coefficient, I look at the sample mean for non-aligned municipalities presented in the table and the plots of the outcome variation against the running variable. Since the mean for non-aligned municipalities is between 7 to 9.1 percent, this suggests that the negative coefficient should be interpreted more as a slowdown in job creation in aligned places compared to non-aligned municipalities. Both Panel A and B of Figure 13 provides the same interpretation. The intersection of each slope with the alignment threshold, when the vote margin is equal to zero, could be interpreted as the conditional growth rates at the threshold. Panel A indicates that employment grew by more than 10 percent in non-aligned municipalities while slightly above zero for aligned municipalities. Panel B shows that before the election, both aligned and non-aligned municipalities were growing at the threshold.

Columns 5 to 8 of Table 3 show that political alignment did not affect average wages. The point estimates are not statistically significant and relatively small (less than 0.1 percent) compared with the average wage growth of misaligned municipalities (between 7 to 8 percent). For the sake of completeness, Figure 15 plots the growth rate of wages for both the post and pre-election period, and as expected, I do not observe discontinuities in wage growth either before or after alignment takes place.

### *C. Informality*

The previous analysis relies on social security records. Therefore, it remains mute about the impact of political alignment on employment in the informal sector and, consequently, on the total number of jobs.

A potential alternative explanation to the results is that public spending increases demand in sectors that disproportionately hire informal workers, like construction and services. In that case, the reduction of formal jobs is explained by a shift of workers from the formal to the informal sector rather than a slowdown in total employment. This explanation would be consistent with the evidence that the bulk of workers in the informal sector are informal



by choice and not by lack of opportunities of being formal workers (Alcaraz, Chiquiar and Salcedo, 2015; Maloney, 1999).

By definition, informal jobs are illegal, and therefore do not exist administrative records that allow me to measure informal or total employment (informal and formal) at the municipal-year level. To circumvent that measurement problem, I use two alternative sources of data: household force surveys and economic censuses.

The household survey data collects comprehensive individual-level information for a cross-section of individuals on a quarterly basis. This data allows me to measure the conditional probability of being employed and decompose it into the formal and informal sectors.<sup>32</sup> In particular, I use this rich individual-level data to estimate the effect of political alignment on the probability of belonging to one of these mutually exclusive labor statuses: formal worker, informal worker, unemployed, and out of the labor force. To do so, I estimate separate regression for each labor market status on an augmented version of equation (2) that includes a rich set of individual-level controls: age, education, gender, and household size. The data from the economic census reports the total number of jobs, among other establishment-level characteristics.<sup>33</sup> I use the same specification of equation (2) where the outcome variable is the five-year change in total employment. This equation is estimated for all the close elections that took place in between any close election year.

Panel A of Table 4 reports the results for total employment. Columns 1 and 2 show the effect of political alignment using the household surveys. They show that political alignment reduces the probability of being employed by 3.3 to 3.4 percentage points. This result suggests that the effects observed using only the formal sector have consequences on total employment. Columns 3 and 4 present the estimates on total employment using the economic census data. Although the estimates are not statistically significant, they are economically meaningful and close to the household surveys' results. The results suggest that political alignment reduces the total employment growth rate by 5-7 percentage points. The lower precision of the economic census may be because it can not be adapted to the Mexican staggered election system.<sup>34</sup>

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<sup>32</sup>I can not compute municipal level aggregates with the household surveys because the data collects information for a non-representative subsample of households living in each municipality. The survey design makes the data representative at the metropolitan area level, which is a larger geographical unit than the municipality level

<sup>33</sup>I only observe municipal-sector level aggregates of this establishment-level information.

<sup>34</sup>I use the 1998 and 2008 rounds of the economic census since both periods do not overlap with the ruling periods of the mayor's elected in my close election sample. Estimates may be less efficient for three reasons:

Table 5 decomposes the result from household surveys into two exclusive components, each computed as the probabilities over the population between 15 and 65 years old. Columns 1 and 2 show the effects of political alignment on the likelihood of working in the formal sector; in particular, Panel A shows that political alignment reduces the formal employment rate by 2.1-2.3 percentage points. In contrast, columns 3 and 4 show that the impact of political alignment on the informal employment is also negative, although imprecisely estimated. The sum of these two effects corresponds to the effect on the total employment, presented again for illustrative purposes in columns 5 and 6. Overall, the results suggest that alignment reduces the size of both the formal and the informal sector. Therefore I can rule out that my main results are explained by shifts of workers from the formal to the informal sector.

## 7. Mechanisms

### *A. Crowding-out and Income Effects*

**CROWDING-OUT EFFECTS.**— An increase in local public spending increases the demand for goods and services. A Keynesian macroeconomic framework predicts that demand increases lead to higher private employment when production factors are underutilized. On the contrary, if production factors are scarce, one would expect a crowding-out effect; that is, a reduction of the private sector employment that results from the competition for production factors between the public and private sectors.

I perform several tests to argue that a crowding-out effect that deters the expansion of the private sector is one of the main drivers of the main results. A first test for the crowding-out effect is to evaluate whether the impact of politically motivated spending depends on the pre-election economic cycle. Table 6 split the sample into two groups of municipalities, Panel A shows the results for municipalities with positive pre-election growth rate, while Panel B shows the results for municipalities with a negative pre-election growth rate. The results of columns 1 and 2 suggest that the amount of politically motivated is slightly higher in municipalities where the pre-election growth rate is negative (Panel B), compared to municipalities where the pre-election growth rate was positive (Panel A). Although the effect of

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first, it only allows to measure a ten-year growth rate, even when mayor's term last three years. Second, the baseline period is different for municipalities with different election years; for example for municipalities that elected a mayor in 2000, use as baseline period two years before the election, while municipalities that elected a candidate in 1998 use the same year of election.

alignment on spending does not differ substantially across the two groups, I find a substantial difference in the impact of alignment on employment depending on the economic cycle. In particular, I find alignment reduces the employment growth rate by 13 percentage points during economic expansions. This effect is reduced by a half 6.7 during non-expansionary periods.

A second test is to split the results between the tradeable and non-tradeable sectors. Non-tradeable industries rely more on local demand. Therefore, it is expected they benefit from increases in local public spending. This demand effect may partially offset the crowding-out effect that results from the competition for production factors. On the other hand, tradeable industries, which rely on external demand, are expected to be fully affected by the crowding-out effects.

Table 7 shows the effect of political alignment for tradeable and non-tradable industries. As it is expected from a mechanism that results from competition for production factors, the tradable sector is the one that experiences the bulk of the negative effect of political alignment. In particular, the results suggest that the effect of alignment on employment is about six times larger on the tradeable sector. Column 2 shows that political alignment reduces the employment growth rate by 14.6 percentage points in the tradeable sector, while its effects on the non-tradable sector are about 2.3 percentage points.

The third test of this hypothesis is to evaluate whether the pre-election industry composition is important to explain the observed effect of politically motivated spending on private employment. I split the sample into two groups, those with a high and low pre-election share of industry that supply the public sector, which I defined as government-dependent industries. The larger the share of government-dependent industries, the better the capacity of the local economy to accommodate the increase in public spending without demanding a severe reallocation of workers from other highly productive industries. On the contrary, the observed increase in public sector spending will attract more producers in a municipality with a small government-dependent industry.

Panel A and B of Table 8 shows the effect of alignment on public spending and employment growth on local economies with a relatively high and low share of government-dependent (GD) sectors. The results on the effect of political alignment on spending are similar across both sets of municipalities, which indicates that central politicians do not consider the size of the GD sectors when benefiting aligned municipalities. In particular,

I find that political alignment increases the spending growth rate by 9.9 percentage points in municipalities with a high share of GD jobs (Column 2 of Panel A) and 11.4 percentage points in municipalities with a relatively low share of GD jobs (Column 4 of Panel B). Although both types of municipalities receive a similar spending shock, I find that the impact of alignment on the employment growth rate tends to be stronger (point estimate is 57% stronger) in municipalities with a relatively low share of GD jobs. In particular, alignment reduces the employment growth rate by 11.8 (7.5) percentage points in municipalities with a low (high) share of GD sectors. This is suggestive evidence that the impact of alignment on employment is related to the presence of GD sector. A relatively large GD sector may imply less competition for production factors with other productive sectors in the economy.

**INCOME EFFECTS.**— A complementary mechanism is that the higher public spending is channeled to political activities which are less productive and may take place outside the formal sector. This would explain a reduction in the number of formal jobs. Three facts confirm this story. I do not observe a reduction in measures of total consumption. Table 9 measures aggregate consumption using two different measures, night time lights and electricity consumption. It is reassuring to see similar coefficients in both estimates. Both of them points towards positive but not statistically significant changes in aggregate consumption. This is consistent with the fact that the disproportional resources due to higher intergovernmental transfers are being allocated to household through other means than formal employment.

This result is also confirmed by Table 10. It estimates the effect on the probability of being employed, unemployed and part of the labor force. All of them computed over the population between 15 and 65 years old. The decline in employment that has been discussed is equal to the difference between population part of the labor force (columns 5 and 6) and the unemployed (columns 3 and 4). Panel A suggest that political alignment reduced by 2.8-2.9 percentage points the labor force participation with no significant changes on unemployment. This implies that observed negative effects of political alignment on total employment correspond to an increase in the labor force participation rather than an increase in the probability of being unemployed. This takeaway is consistent with interpreting the negative effect of alignment on employment as a slowdown in the net job creation rather than a destruction of jobs, which I should expect to generate a larger increase in the probability of being unemployed.

A third indirect evidence that households are receiving the disproportional amount of

resources and are not discontent with the reduction in formal jobs is to explore the effect of political alignment on the probability of winning the subsequent elections. Table 11 shows the probability of winning the next election (column 1 and 2) and two subsequent elections in a row (column 3 and 4). Although estimates of panel A are not statistically significant it is remarkable the consistency between the estimates. In the case of panel B I find strong incumbency advantage effects for mayors who were initially politically aligned. Looking at panel B, I find that the probability of winning the next election is 40 percent ( $=13/31$ ) higher for politically aligned municipalities. Also this municipalities duplicate the probability of winning two elections in a row ( $13/11$ ).

### *B. Ruling Out Public Employment and Infrastructure Construction*

**PUBLIC EMPLOYMENT.**— One crowding-out mechanism is that higher public spending leads to an increase in public sector employment, which may deter private sector employment growth. To test this hypothesis, I construct a measure of total jobs and an aggregate wage bill on the public sector.

To measure public sector jobs at the municipality year level, I combine administrative data from the institute of social security institute for state employees (ISSTE), and the institute of social security for private employees (IMSS).<sup>35</sup> It is important to clarify that this employment measure does not capture contractors hired by the public sector. Those are counted as private-sector workers. I also use the public finance data to measure total spending on salaries and work benefits for public employees, which I defined as total wage bill of public sector employees, and it represents about 30% of total public spending.

Table 12 shows that political alignment is not systematically associated with higher public employment. In particular, Columns 1 and 3 show positive and mildly statistically significant alignment effects on public-sector employment and wage bills. However, these effects are unstable and change abruptly in columns 2 and 4, including the controls defined in equation (2). The lack of coefficient stability between the estimations with and without controls is not a characteristic of our main results (Section 6). This implies that the variation between public employment and alignment is not strongly correlated with the increase in the public sector. Another aspect to highlight from the table is that the R-squared of the regression on

<sup>35</sup> About 92% of public workers are affiliated to ISSTE. I identify public workers affiliated with IMSS by taking advantage that IMSS data allows me to observe employment at the sector level. I classify a worker in IMSS as a public worker when it works in sector 94 or 99 defined by the 2-digit NAIC code.

public employment with controls is relatively high (0.9). This fact is consistent with the low turnover of the public sector in Mexico. It may be why I do not find changes in public sector employment because of political alignment.

INFRASTRUCTURE SPENDING.— An increase of infrastructure projects may be a potential mechanism behind the observed slowdown on local employment. A recent literature review by [Ramey \(2020\)](#) concludes that the short-term effects of infrastructure spending on employment are either negative or zero. Two suggestive explanations for this negative effect are a *disruption effect* and a *delay effect*. The disruption effect refers to the fact that, during the construction phase, infrastructure projects can increase traffic or even reduce sales in specific areas like retail or tourism. The delay effect suggests agents may decide to delay any private investment until an infrastructure project are built. They find it optimal to delay investment because the returns to private capital will be higher in the future once the stock of public capital increases. I test this hypothesis from several angles in table [13,15](#) and [16](#).

Table [13](#) confirms that the disproportional resources received by aligned municipalities led to an increase in public investment. In particular, column 2 of panel A suggests political alignment increases the growth rate of infrastructure spending by 40 percentage points. This effect is relatively large compared to the growth rate of non-aligned municipalities (120 percent) and the point estimate of political alignment on total spending (12 percentage points).<sup>36</sup> This result could be interpreted in two ways; first, a mechanical effect of higher compliance with the earmarks' spending rules, which assigns spending to infrastructure projects.<sup>37</sup> Second, It has been argued that politicians may prefer to build infrastructure, even white elephants, to signal their power and obtain higher electoral returns [Robinson and Torvik \(2005\)](#).

However, the increase in infrastructure spending is insufficient to argue that the rise in infrastructure projects explains the slowdown of private-sector jobs. As is stated by [Garin \(2019\)](#) and [Ramey \(2020\)](#), one should observe either higher inputs used by infrastructure projects, i.e., construction jobs, or higher outputs that result from infrastructure projects, i.e., increases in the stock of public capital.

Table [15](#) evaluates whether politically aligned places experienced an increase in construction jobs. Columns 1 and 2 explore the effects of political alignment on the number of con-

<sup>36</sup>See results in Table 2.

<sup>37</sup>Ramo-33 has two components FISM and FORTAMUN, the former was earmark to infrastructure projects, See section 2 for more details.

struction jobs using the social security records, while Columns 3 and 4 explore the results on wages. The results of Panel A do not show a consistent result. The more conservative interpretation is that alignment have not statistically significant effect on jobs or wages in the construction sector. However, when looking at the estimates of Panel B, the point estimates of employment turn to be negative and statistically significant. The higher spending on infrastructure with missing construction jobs may be suggestive evidence of corruption taking place. I will test this interpretation with data on corruption in the next subsection, until now the fact that construction jobs are not positive suggest that either the disruption of the delay effects will not explain my results.<sup>38</sup>

Finally, Table 16 looks at the effect of alignment on long-term (1995-2010) changes of distinct public infrastructure measures, the proportion of households with access to electricity, water, and sewerage. Looking at the long term allows me to rule out that I cannot see results because of the expected delays of construction projects. The results suggest relatively small and not statistically significant infrastructure improvements in politically aligned places, which is in line with no higher construction jobs taking place.

### *C. Ruling Out Violence and Corruption*

VIOLENCE.— Resource abundance is associated with increased conflict between population subgroups trying to capture rents from the fiscal windfalls. An increase in violence could undermine the positive effects of higher spending and explain why I observe a slow down in total employment. Table 17 estimate the effect of political alignment on homicides. Column 1 and 2 measures the effect of alignment on the probability of having a homicide during each year of the mayor's term; while columns 3 and 4 study the effects on the growth of the homicide rate. In summary, I do not find consistent and statistically significant evidence that alignment increase homicides. However, the standard errors are relatively large, and therefore I can not reject that political alignment increases the homicide rate.

To conclude about the effect of alignment on violence, I rely on the institutional context of Mexico . During my study period, 1998-2006, homicides were on a declining trend. Therefore the abrupt changes I observe on economic activity because of increases in political alignment are not likely to be explained by historically low levels of homicides. This test also

<sup>38</sup>Since about 85% of the workers on infrastructure are informal, I complement this analysis using the subsample of municipalities present in the household surveys. Results suggest that political alignment increases the probability of working in the construction sector as informal workers. However, the estimates are not statistically significant (results available upon request).



rules out that political alignment increases violence because it facilitates the implementation of anti-drug crackdowns.<sup>39</sup>

**CORRUPTION.**— Another channel through which higher spending could create lower economic growth is corruption. [Brollo et al. \(2013\)](#) shows that fiscal windfalls spur corruption, and it has been shown that the latter can reduce local economic growth [Colonnelli and Prem \(2020\)](#). The basic argument is that fiscal windfalls increase corruption either because the incumbent politicians tend to be more corrupt, moral hazard effect; or because past fiscal windfalls attract low-quality politicians in the subsequent elections, selection effect.

The effect of alignment on employment takes place immediately after the increase in transfers. Therefore changes in the quality of candidates of subsequent elections can not explain my results.<sup>40</sup> Still, the results could be explained by a moral hazard effect; that is, it could be that the elected mayor changes its behavior as a response to the excess of resources and becomes more corrupt. This increase in corruption should be sufficiently large to undermine the potentially positive effect obtained through additional resources.

I use data on audits to local governments to test if corruption is a mediation mechanism that explains the negative impact of political alignment on total employment. The audits are performed by an autonomous watchdog agency (Auditoria Superior de la Federación) that is part of the federal government and out of reach of the state governors.

The audits are done to a subsample of municipalities and report continuous measures of corruption and malfeasance for each municipality audited.<sup>41</sup>

Table 18 shows the results of political alignment on the probability of being audited (columns 1 and 2); the likelihood that more than 10% of the audited spending is not documented, i.e., being found guilty of corruption (columns 3 and 4); and the probability that more than 10% of audited spending does not correspond with the purpose of the earmarks, i.e., malfeasance (columns 5 and 6). Three conclusions emerge from this table: First, it is reassuring that po-

<sup>39</sup>[\(Dell, 2015\)](#) finds that political alignment facilitated the implementation of anti-drug crackdown policies, which ended up increasing violence. I do not find this effects because I focus on a different period (2007-2009) and under a different definition of political alignment, i.e. she focused on the alignment between mayors and the president's party.

<sup>40</sup>The research design assumes no systematic difference between aligned and misaligned municipalities in baseline characteristics, among those the pool of candidates before alignment is decided. Although I do not have information on the valence of candidates to test this assumption, I use a wide set of baseline characteristics in Figure 8.

<sup>41</sup>The selection of municipalities to be audited is not random, it obeys to population and total municipal budget.<sup>42</sup> They report the percentage of audited spending that is not supported by receipts, flagged as corruption. Also, the municipal audits focus on evaluating the malfeasance of Ramo-33 transfers; in particular, they focus on the FISM transfers. Their measure of malfeasance is defined as the percentage of spending that is not spent on the goods or services that are in line with the purpose of the earmarked transfers.



litical alignment does not affect the probability of being audited (columns 1 and 2). The point estimates are positive (1.9 percentage points in Panel A column 2) but not statistically significant. This is in line with the fact that the watchdog agency that performs the audits is autonomous and not influenced by state governors. Second, I find that alignment does not increase the probability of being accused of corruption (columns 3 and 4) but it does reduce the probability the likelihood of being accused of malfeasance (columns 5 and 6). The latter effect is particularly strong; it suggests that the likelihood of being accused of malfeasance falls by 42 percentage points at the cut-off. The last result is particularly strong if considered that the control's mean is 22 percentage points.

The surprising result that political alignment reduces malfeasance could be interpreted in two opposite ways. One interpretation is that governors exert more control and provide more guidelines to aligned mayors, which improve their management practices and the results of the audits. A second interpretation is that state-governors influence the audits' results, asking the watchdog agency to be more lenient with politically aligned mayors.

Since distinguishing between these two hypotheses is not possible unless other data is available,<sup>43</sup> I argue that audit reports are not politically manipulated for three reasons: First, the constitution gives economic and political independence to the watchdog agency, also by being a centralized institution, it is more difficult for governors to exert control over the audit's results. Second, several studies consider this data a valid corruption measure (Chong et al., 2015; Arias et al., 2018; Ajzenman, 2021). Third, suppose aligned municipalities are less likely to be accused of malfeasance. In that case, I should observe more spending on the infrastructure projects (the primary purpose of the earmarks), which is confirmed by the data.

## 8. Conclusions

This paper estimates the effect politically induced public spending in private-sector economic activity. To do so, I causally estimate the effect of political alignment on private employment in the context in which governors are able to disproportionately allocate a econom-

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<sup>43</sup>For example, Chu et al. (2020) get a similar result. They find that auditors reduce the proportion of questionable spending reports when evaluating their hometowns. The authors collect firm-level data of state-owned enterprises and compute real activity manipulation measures to disentangle between a discipline or a manipulation effect. Their evidence supports a manipulation effect. This data is not available for the case of Mexico. Still, it is definitively an area of future research.

ically significant amount of public spending to municipalities that elected a mayor that is from the governor's political party.

I find that political alignment with state governors increases public spending about 10 percentage points due to larger intergovernmental transfers received by aligned municipalities. Municipalities that experience the disproportional increase in spending suffer from a slowdown in private sector job creation. This implies that the growth of private sector jobs in non-aligned municipalities is 10 percentage point less in politically aligned municipalities.

I do not find evidence that higher corruption, a larger public sector enlargement or a increase in construction of infrastructure projects explain the observed results. The lack of a similar negative effect on our proxy of total economic activity, measured by nighttime light and electricity consumption suggests that the results can be interpreted as a crowding out effect, where there is not effects on output but some substitution between public sector spending and private economic activity.

The literature about the impact of political alignment on economic welfare has found positive findings for economies where politicians' policy levers are not related to higher spending but regulation ([Asher and Novosad, 2017](#)). In our context, the main policy lever is spending, and in line with the findings of [Cohen, Coval and Malloy \(2011\)](#), it seems that it crowds out the private economic sector.

These findings imply that politically induced public spending can have unintended consequences that may affect negatively welfare. Although the results does not imply lower welfare in the short term (at least when measure trough nigh lights and electricity consumption) it may affect welfare in the long term trough three channels. First lower formal employment implies lower tax collection, which leads to a higher national deficit n the long run. Second, less workers in the formal sector implies lower pension savings. Third higher informality can reduce the future incentives of firms to grow expand in order to remain informal.

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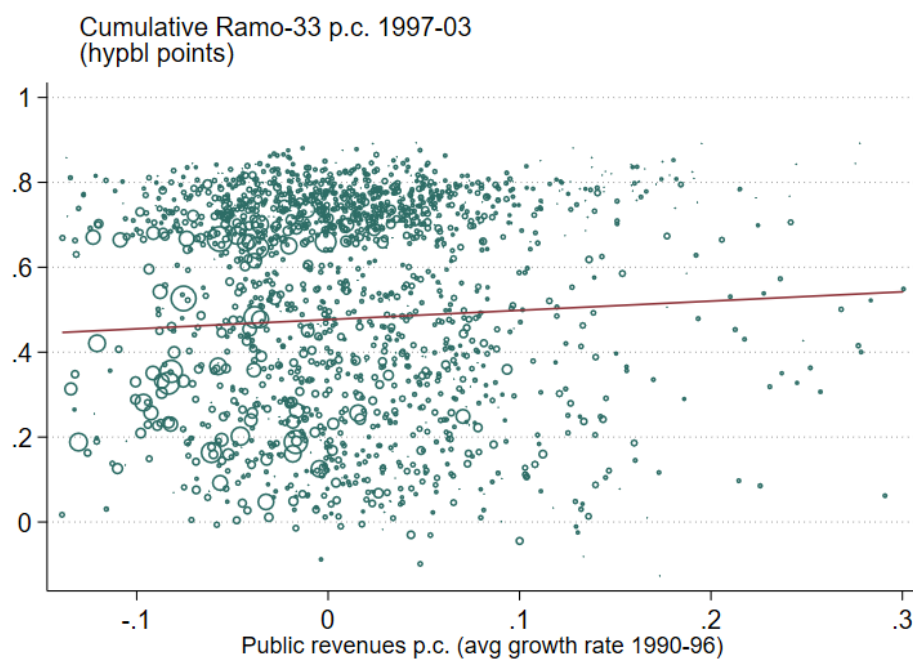
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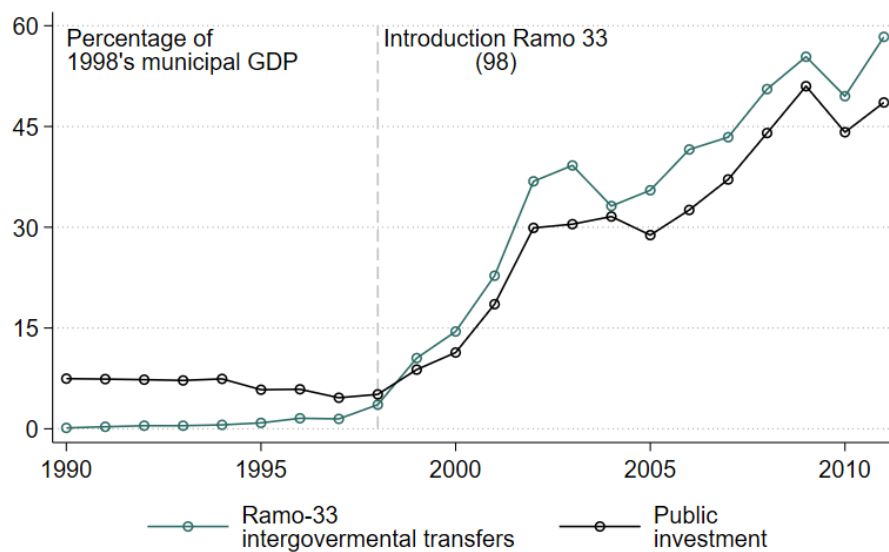
## 9. Figures

Figure 1: The economic size of Ramo-33



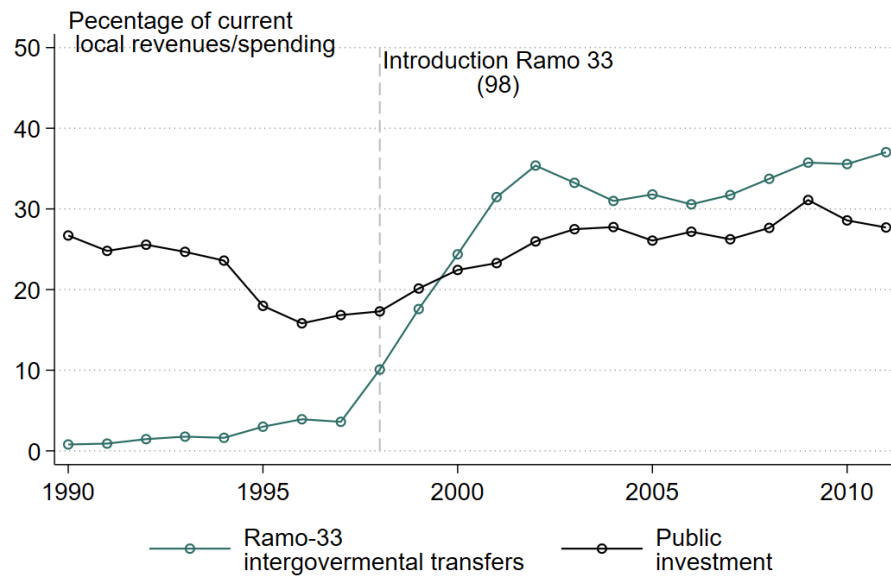
NOTE— The figure show the population weighted average of revenues as a share of local GDP in 1998. Ramo-33 for the year after 1998 and PRONASOL for years before 1998.

Figure 2: The economic size of Ramo-33



NOTE— The figure show the population weighted average of revenues as a share of local GDP in 1998. Ramo-33 for the year after 1998 and PRONASOL for years before 1998.

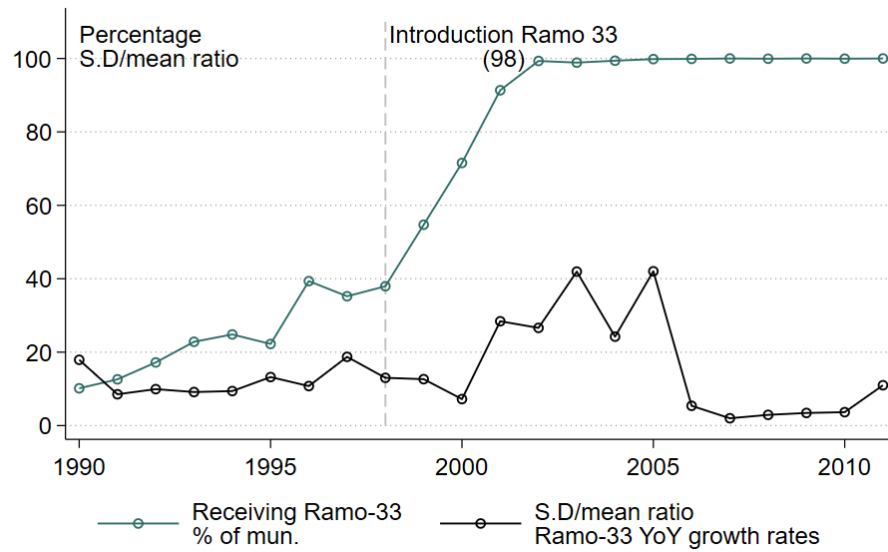
**Figure 3:** The size of Ramo-33 in the local public finances



NOTE— The figure show the population weighted average of infrastructure investment as share of total spending or revenues. Ramo-33 for the year after 1998 and PRONASOL for years before 1998.

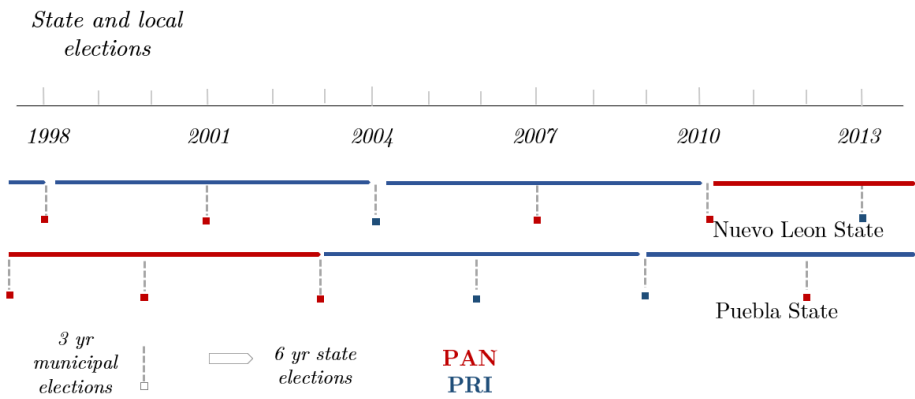


Figure 4: The non-compliance with Ramo-33 *de jure* allocation



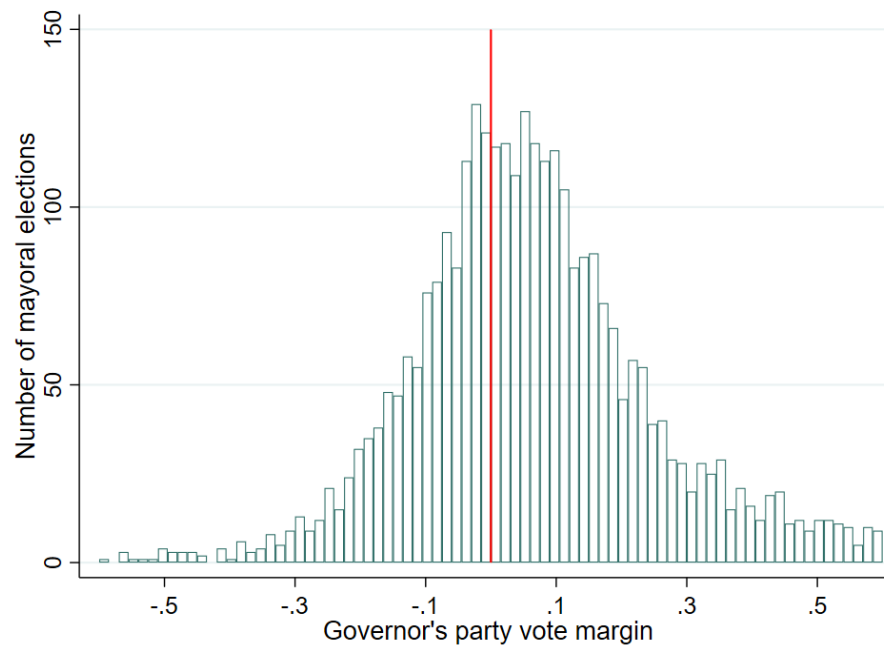
NOTE— The figure show the population weighted average of municipalities receiving transfers and the coefficient of variation (standard deviation / mean) of the distribution of yearly growth rates of Ramo-33 for the year after 1998 and PRONASOL for years before 1998.

Figure 5: Staggered elections and variation in political alignment



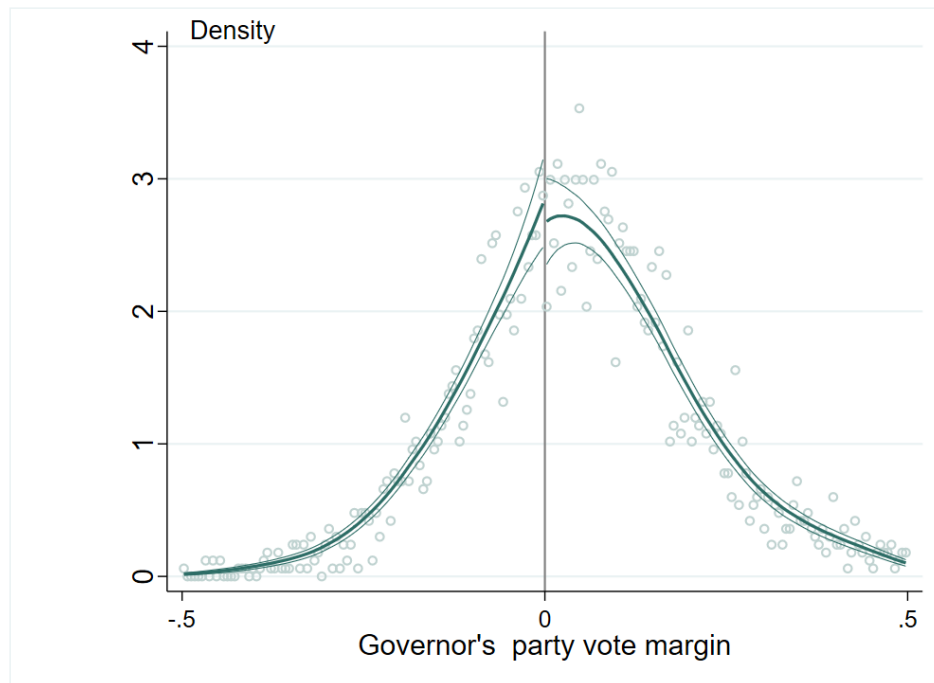
NOTE— This figure is an example of two states who have election cycles at different calendar years. The horizontal bar represent the governor’s term limit (six years), while the space between squares is the mayoral term limit (three years). The vertical dashed represent election dates and the colors a different political party (PRI in blue and PAN in red). .

Figure 6: Distribution of mayoral elections along the vote margin  $V_{m,e}$  1998-2003



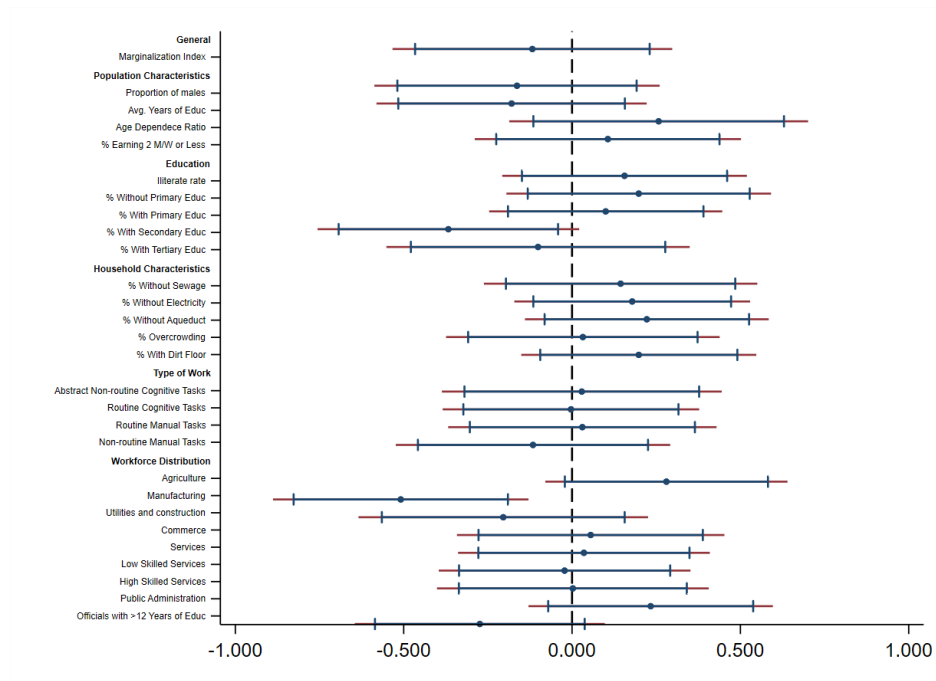
NOTE— This figure shows the histogram of the governor's party vote margin on the mayoral elections used in our estimates (1998-2003).

Figure 7: McCrary density estimates of the vote margin  $V_{m,e}$  1998-2004



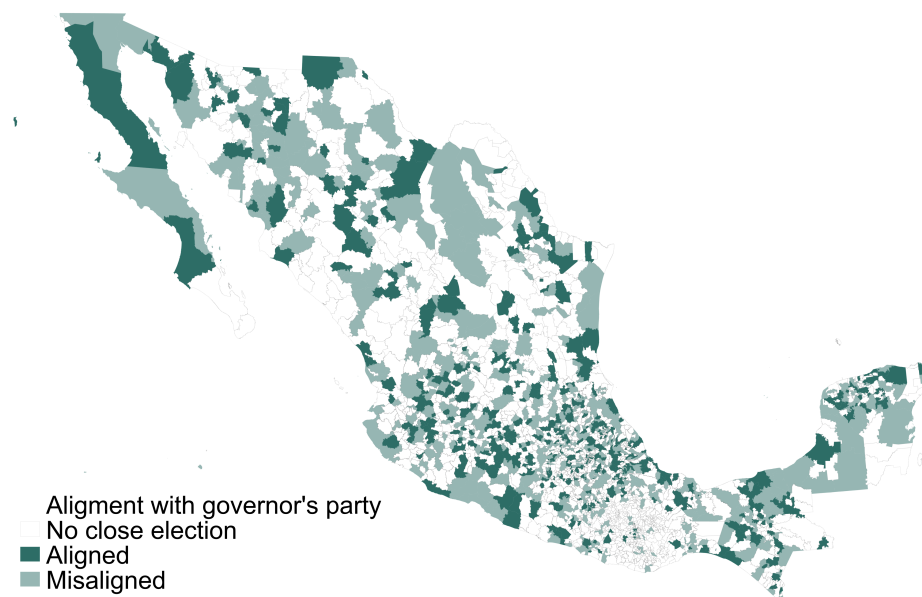
NOTE— This figure shows a estimate of the density of governor's party vote margin on mayoral elections used in our estimates (1998-2003). Each bubble groups all elections that took place in half percentage points spread bins. The dark line is the point estimate of the density function and the light lines a 95% confidence interval.

**Figure 8:** Balance on predetermined (1990s) covariates



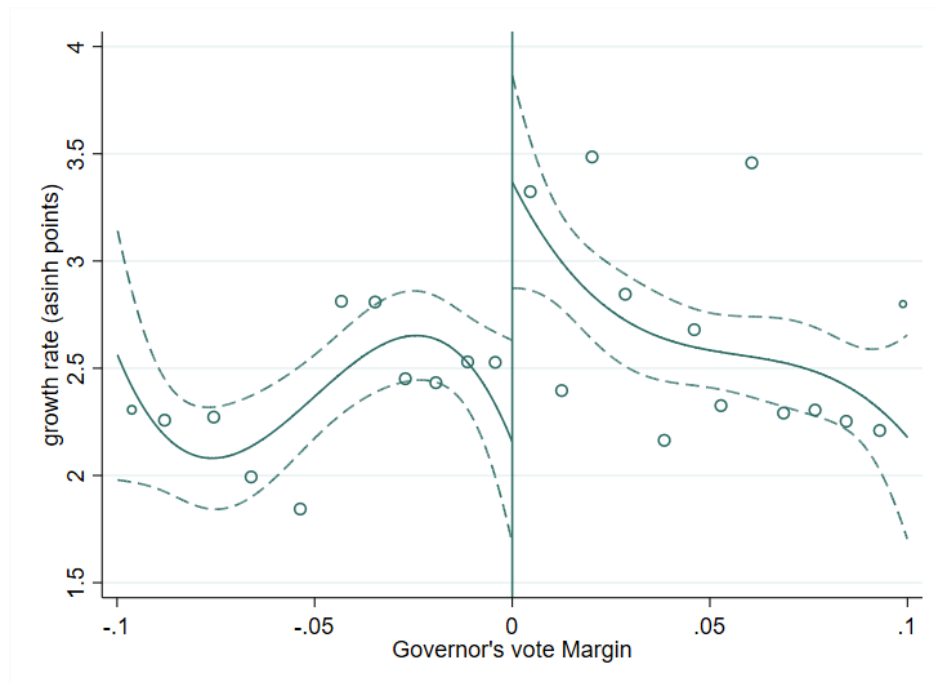
*NOTE*— The reported coefficients come from separated regressions that estimated the causal effect of political alignment on predetermined covariates using a variant of equation (2) that only controls linearly for the running variable on either side of the cut-off. When a municipality has more than one close election I consider only first reported election from the studied period (1998-2003). All reported outcomes are measure circa 1990 using populatin and economic census.

**Figure 9:** Spatial distribution of political alignment in close elections

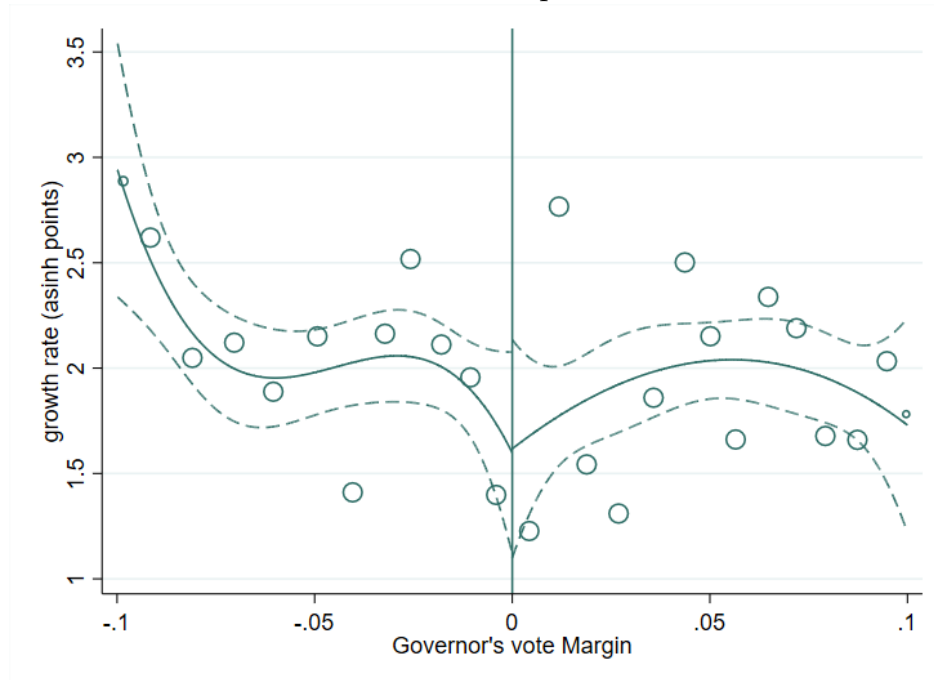


*NOTE*— The figure maps municipalities ruled by aligned and opposition parties for the sample used to obtain our main estimates (see section 4), where elections were decided by less than 5 percentage points.

Figure 10: Growth rate of earmarked transfers and Governor's vote margin



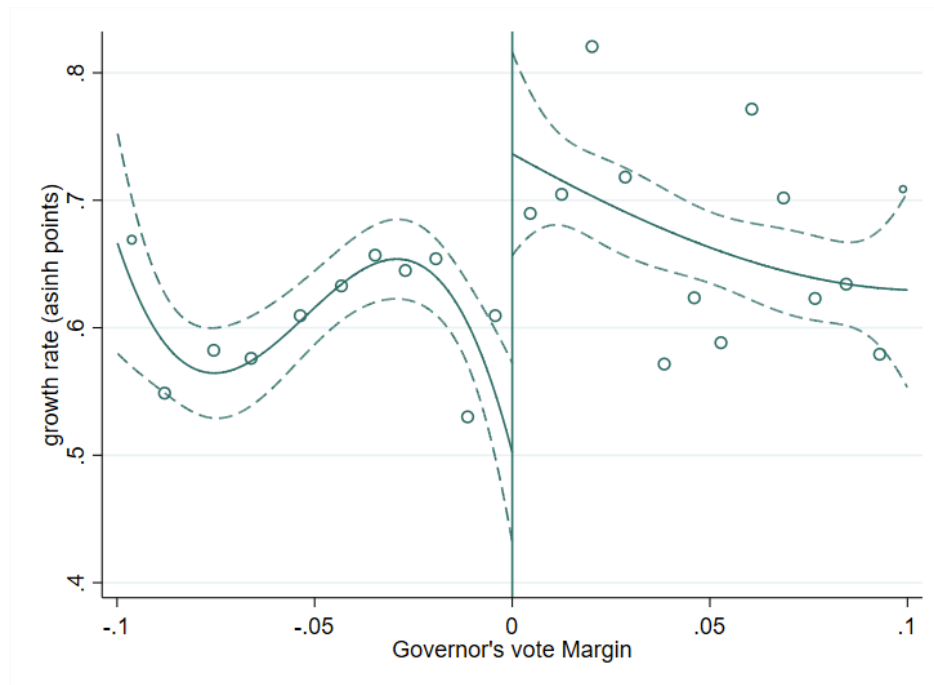
A. Post-election period



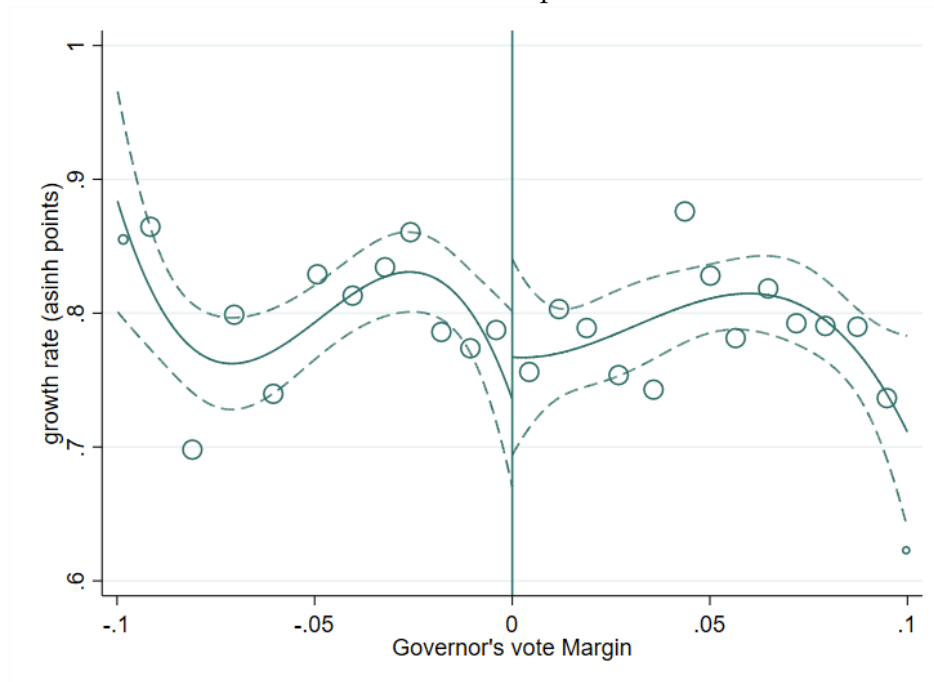
B. Pre-election period

NOTE— This plot aggregate data into bins of half percentage points and estimate a third order polynomial regression between the running variable and the bins on each side of the cut-off.

Figure 11: Growth rate of total spending and Governor's vote margin



A. Post-election period

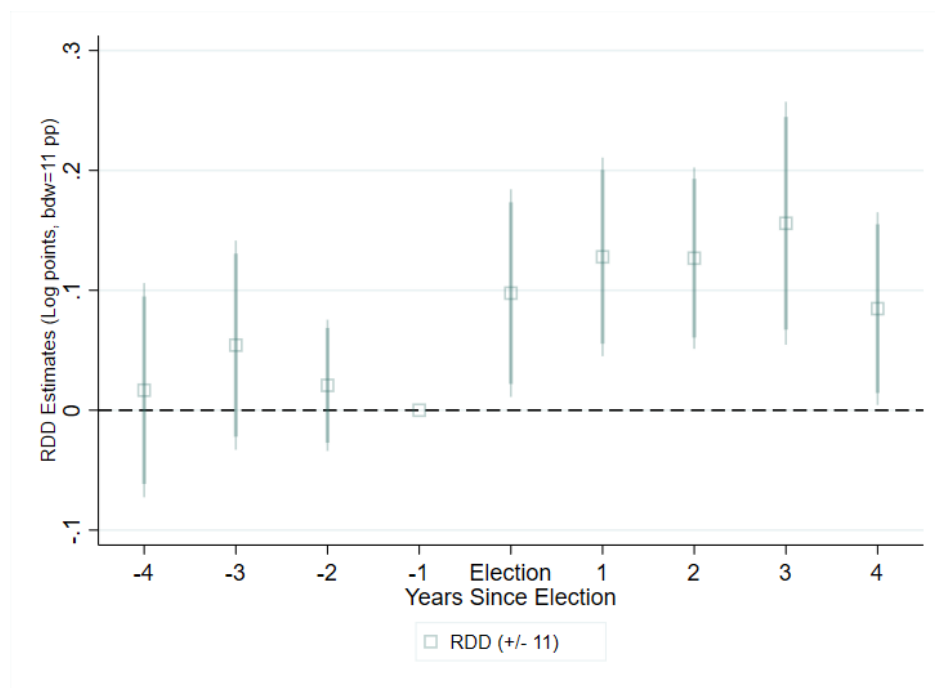


B. Pre-election period

NOTE— This plot aggregate data into bins of half percentage points and estimate a third order polynomial regression between the running variable and the bins on each side of the cut-off.

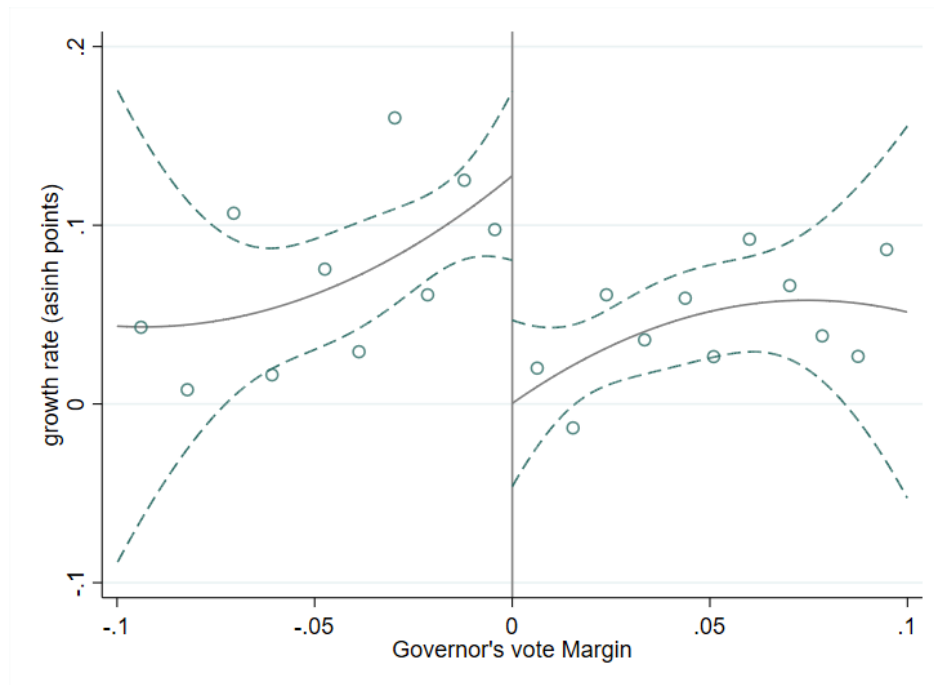


Figure 12: Event study total spending after political alignment

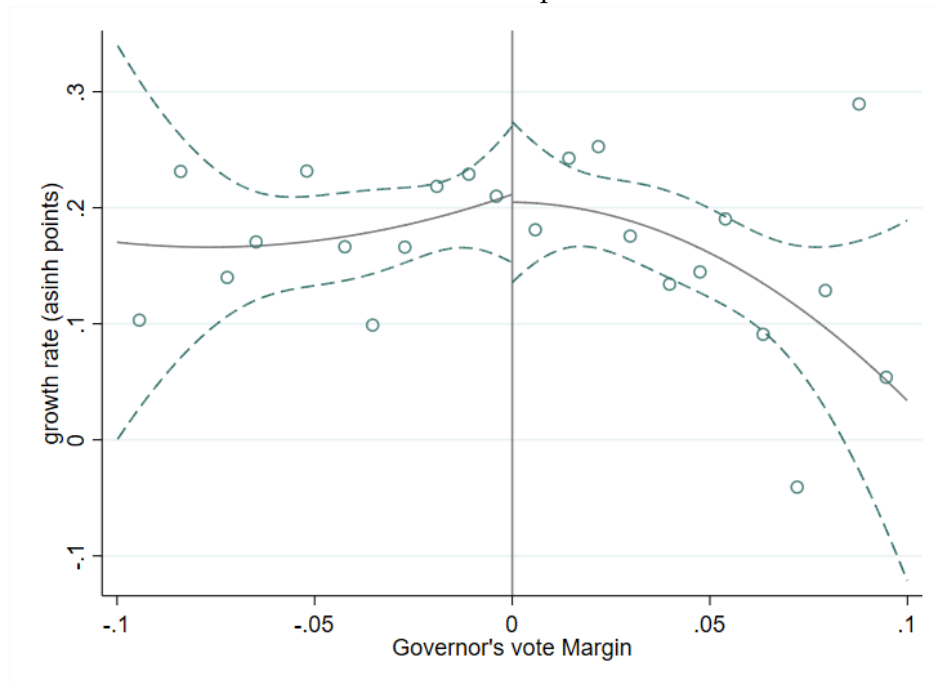


NOTE— This plot aggregate data into bins of half percentage points and estimate a third order polynomial regression between the running variable and the bins on each side of the cut-off.

Figure 13: Growth rate of formal employment and Governor's vote margin



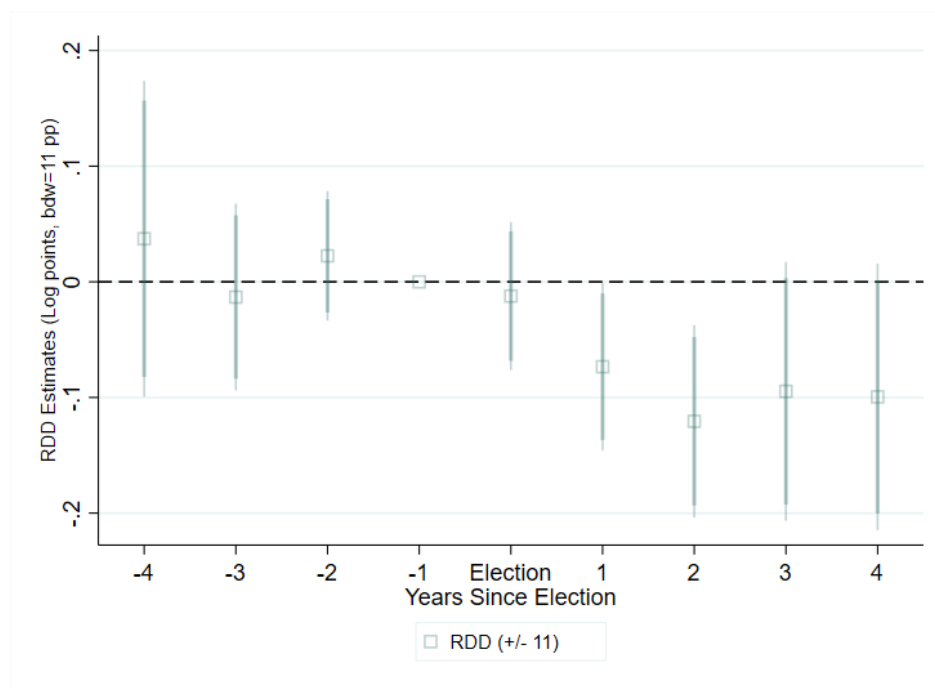
A. Post-election period



B. Pre-election period

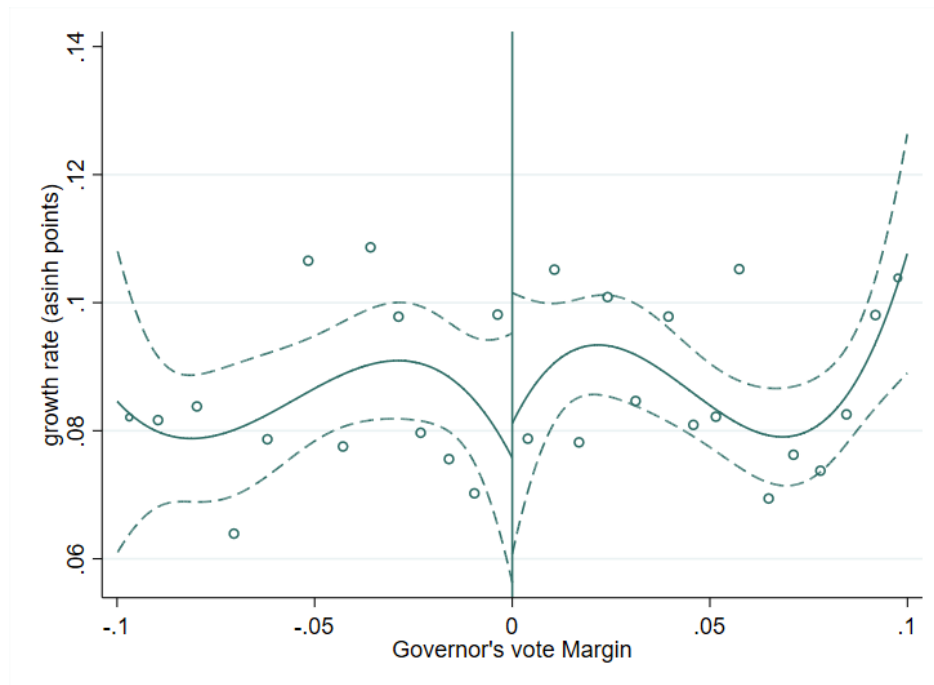
NOTE— This plot aggregate data into bins of half percentage points and estimate a third order polynomial regression between the running variable and the bins on each side of the cut-off.

Figure 14: Event study formal employment after political alignment

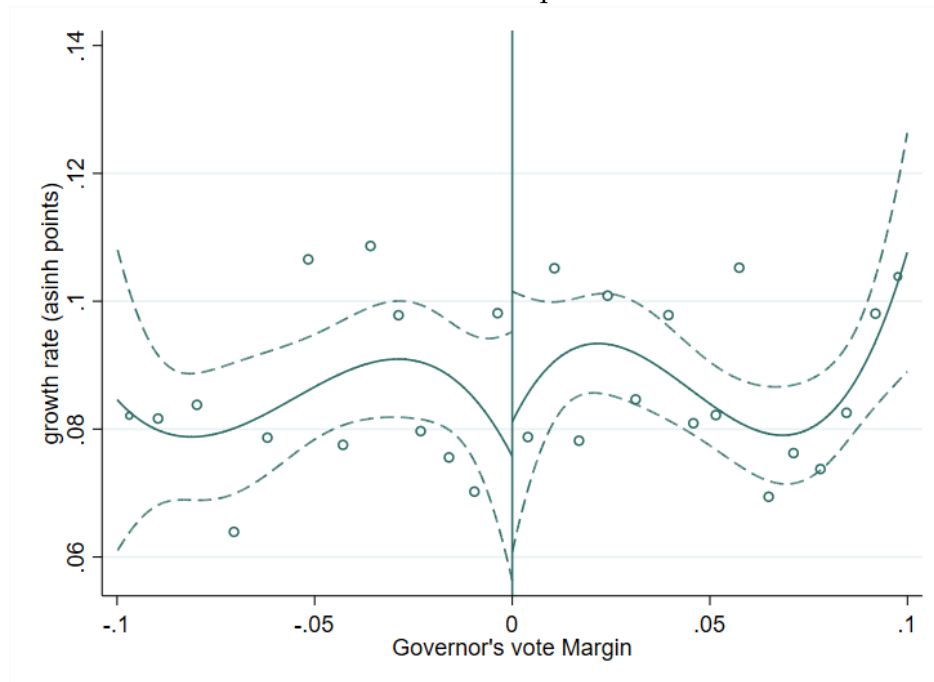


NOTE— This plot aggregate data into bins of half percentage points and estimate a third order polynomial regression between the running variable and the bins on each side of the cut-off.

Figure 15: Growth rate of wages and Governor's vote margin



A. Post-election period



B. Pre-election period

NOTE— This plot aggregate data into bins of half percentage points and estimate a third order polynomial regression between the running variable and the bins on each side of the cut-off.

## 10. Tables

**Table 1**—Effect of Alignment on intergovernmental transfers

	Earmarked Transfers Growth				Prb(Earmarked Transfers > 0)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political alignment	.651* (.38)	.420** (.18)	.594** (.26)	.290** (.12)	-.0170 (.01)	.00239 (.01)	.00901 (.01)	.0224** (.01)
Mean dep var	1.38	1.38	1.44	1.44	.97	.97	.98	.98
R <sup>2</sup>	.01	.79	.01	.80	.01	.21	.00	.22
Controls		✓		✓		✓		✓
Bandwidth	5	5	11	11	5	5	11	11
Obs	1313	1313	2639	2639	1313	1313	2639	2639

*NOTE*— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

Table 2—Effect of Alignment on source of revenue

	Earmarked transfers	Revenue transfers	Taxes & services	Public debt	Other revenues	Total revenues
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A. Bandwith 5 pp N=1313</b>						
Political alignment	.420** (.18)	.0422 (.07)	.0808 (.10)	.287 (.36)	.229 (.15)	.121*** (.05)
Control mean dep var	1.38	.33	.36	.61	.36	.56
% of revenues	.22	.53	.062	.033	.15	1
R <sup>2</sup>	.79	.24	.22	.48	.41	.68
<b>Panel B. Bandwith 11 pp N=2639</b>						
Political alignment	.290** (.12)	.0921* (.05)	.0496 (.07)	.0478 (.23)	.0759 (.09)	.103*** (.03)
Control mean dep var	1.44	.35	.38	.60	.38	.57
% of revenues	.22	.54	.059	.029	.15	1
R <sup>2</sup>	.80	.31	.18	.46	.39	.67

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

Table 3—Effect of Alignment on Private formal employment and earnings

	Private Employment				Private Wages			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political alignment	-.121** (.05)	-.116** (.05)	-.105*** (.04)	-.0950** (.04)	.00192 (.01)	-.00213 (.01)	.00159 (.01)	-.00243 (.01)
Mean dep var	.091	.091	.071	.071	.082	.082	.079	.079
R <sup>2</sup>	.01	.10	.01	.06	.00	.48	.00	.44
Controls		✓		✓		✓		✓
Bandwidth	5	5	11	11	5	5	11	11
Obs	1294	1294	2587	2587	1297	1297	2595	2595

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

**Table 4**—Effects on  $100 \times$  probability of employment by formal and informal sector

	100 $\times$ Probability of being employed		Total employment 5yr growth	
	(1)	(2)	(3)	(4)
<b>Panel A. Bandwith 5 pp</b>				
Political Alignment	-3.384*** (1.06)	-3.412*** (.93)	-.0765 (.08)	-.0598 (.06)
R <sup>2</sup>	.02	.10	.00	.27
Observations	1,004424	1,004424	467	467
<b>Panel B. Bandwith 11 pp</b>				
Political Alignment	-3.061*** (.95)	-3.156*** (.85)	-.0614 (.04)	-.0347 (.03)
R <sup>2</sup>	.00	.24	.01	.20
Observations	2,102277	2,102277	945	945
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.



**Table 5**—Effects on  $100 \times$  probability of employment by formal and informal sector

	Formal employment		Informal employment		Total employment	
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A. Bandwith 5 pp N=1004424</b>						
Political alignment	-2.360*** (.48)	-2.100*** (.61)	-1.024 (.86)	-1.312 (.79)	-3.384*** (1.06)	-3.412*** (.93)
R <sup>2</sup>	.02	.15	.02	.10	.00	.24
<b>Panel B. Bandwith 11 pp N=2102277</b>						
Political alignment	-1.707*** (.42)	-1.976*** (.39)	-1.354* (.70)	-1.180* (.69)	-3.061*** (.95)	-3.156*** (.85)
R <sup>2</sup>	.02	.15	.02	.10	.00	.24
Municipality FE	✓	✓	✓	✓	✓	✓
Election Year $\times$ Year FE	✓	✓	✓	✓	✓	✓
Individual $\times$ Year FE		✓		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

Table 6—Effect of Alignment by pre-election economic cycle

	Public spending		Private-Employment	
	(1)	(2)	(3)	(4)
Panel A. High pre-election growth				
Political Alignment	.113 (.08)	.131** (.06)	-.130** (.06)	-.137** (.06)
Control mean dep var	.63	.63	.050	.050
R <sup>2</sup>	.01	.49	.01	.10
Observations	1198	1146	1248	1248
Panel B. Low pre-election growth				
Political Alignment	.155** (.06)	.0934** (.05)	-.0711 (.04)	-.0670* (.04)
Control mean dep var	.51	.51	.089	.089
R <sup>2</sup>	.01	.52	.00	.09
Observations	1441	1441	1568	1568
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

Table 7—Effect of Alignment on employment by tradable and non tradable

	Private-Employment			
	Tradable		Non-Tradable	
	(1)	(2)	(3)	(4)
Panel A. Bandwidth 5 pp, N= 1220				
Political Alignment	-.157** (.07)	-.146** (.07)	-.0145 (.06)	-.0235 (.06)
Control mean dep var	.020	.020	.15	.15
R <sup>2</sup>	.01	.09	.00	.07
Panel B. Bandwidth 11 pp, N= 2421				
Political Alignment	-.134*** (.05)	-.139*** (.05)	-.00995 (.04)	.00153 (.04)
Control mean dep var	-.0026	-.0026	.16	.16
R <sup>2</sup>	.01	.05	.00	.05
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

**Table 8**—Effect of Alignment on employment by pre-election share of government dependent sectors

	Public spending		Private-Employment	
	(1)	(2)	(3)	(4)
Panel A. High share of government dependent sectors, N=1300				
Political Alignment	.134*	.0995*	-.0682	-.0754*
	(.08)	(.06)	(.05)	(.04)
Control mean dep var	.57	.57	.067	.067
R <sup>2</sup>	.01	.50	.00	.08
Panel B. Low share of government dependent sectors, N=1275				
Political Alignment	.154*	.114**	-.110**	-.118**
	(.08)	(.05)	(.05)	(.06)
Control mean dep var	.56	.56	.077	.077
R <sup>2</sup>	.01	.50	.01	.12
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

Table 9—Effect of Alignment on consumption

	Night lights		Electricity consumption	
	(1)	(2)	(3)	(4)
Panel A. Bandwidth 5 pp				
Political Alignment	.0738*	.0376	.0905	.0359
	(.04)	(.03)	(.07)	(.06)
Control mean dep var	.028	.028	.11	.11
R <sup>2</sup>	.00	.75	.01	.12
Observations	1313	1313	887	887
Panel B. Bandwidth 11 pp				
Political Alignment	.0363	.0171	.0328	.000
	(.03)	(.02)	(.05)	(.05)
Control mean dep var	.022	.022	.13	.13
R <sup>2</sup>	.00	.73	.00	.07
Observations	2638	2638	1704	1704
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

**Table 10**—Effects on  $100 \times$  probability of being employed, unemployed and part of the labor force

	Total employment		Unemployment		Labor force	
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A. Bandwith 5 pp N=1004424</b>						
Political alignment	-3.384*** (1.06)	-3.412*** (.93)	.448 (.36)	.534 (.35)	-2.936*** (.84)	-2.878*** (.70)
R <sup>2</sup>	.00	.24	.00	.01	.00	.25
<b>Panel B. Bandwith 11 pp N=2102277</b>						
Political alignment	-3.061*** (.95)	-3.156*** (.85)	.509* (.29)	.557* (.28)	-2.552*** (.79)	-2.599*** (.70)
R <sup>2</sup>	.00	.24	.00	.01	.00	.25
Municipality FE	✓	✓	✓	✓	✓	✓
Election Year $\times$ Year FE	✓	✓	✓	✓	✓	✓
Individual $\times$ Year FE		✓		✓		✓

*NOTE*— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

**Table 11**—Effect of Alignment on probability of winning subsequent elections

	Prob of winning next election		Prob of winning next two elections	
	(1)	(2)	(3)	(4)
Panel A. Bandwidth 5 pp, N=1313				
Political Alignment	.0648 (.09)	.0410 (.09)	.0828 (.06)	.0925 (.06)
Control mean dep var	.25	.25	.077	.077
R <sup>2</sup>	.03	.15	.04	.19
Panel B. Bandwidth 11 pp, N=2639				
Political Alignment	.156** (.06)	.134** (.06)	.128*** (.05)	.130*** (.05)
Control mean dep var	.31	.31	.11	.11
R <sup>2</sup>	.03	.11	.03	.12
Controls		✓		✓

*NOTE*— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

Table 12—Effect of alignment on public employment and wages

	Public Employment		Wage bill Public Employees	
	(1)	(2)	(3)	(4)
Panel A. Bandwidth 5 pp, N= 1313				
Political Alignment	.309*	-.0243	.208*	.128
	(.18)	(.05)	(.11)	(.10)
Control mean dep var	.46	.46	.51	.51
R <sup>2</sup>	.00	.90	.01	.32
Panel B. Bandwidth 11 pp, N= 2639				
Political Alignment	.191	-.00319	.121	.0935
	(.14)	(.05)	(.08)	(.07)
Control mean dep var	.50	.50	.54	.54
R <sup>2</sup>	.00	.89	.00	.35
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.



Table 13—Effect of alignment on public investment

	Employment		Wages	
	(1)	(2)	(3)	(4)
Political Alignment	.383 (.33)	.406** (.16)	.363 (.22)	.282*** (.10)
Control mean dep var	1.20	1.20	1.14	1.14
R <sup>2</sup>	.19	.19	.20	.20
Observations	1313	1313	2639	2639
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

**Table 14**—Effect of alignment on public spending by categories

	Infrastructure Investment	Service Contracts	Subsidies & Transfers	Public workers salaries	Other spending	Total spending
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A. Bandwith 5 pp N=1313</b>						
Political alignment	.406** (.16)	.252** (.11)	.270** (.11)	.128 (.10)	.0525 (.09)	.121*** (.05)
Control mean dep var	1.20	.28	.64	.51	.45	.56
% of spending	.19	.15	.14	.32	.22	1
R <sup>2</sup>	.83	.42	.71	.36	.57	.68
<b>Panel B. Bandwith 11 pp N=2639</b>						
Political alignment	.282*** (.10)	.159** (.07)	.0650 (.08)	.0935 (.07)	.0739 (.06)	.103*** (.03)
Control mean dep var	1.14	.31	.57	.54	.46	.57
% of revenues	.20	.15	.14	.31	.21	1
R <sup>2</sup>	.81	.40	.69	.35	.54	.67

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

Table 15—Effect of alignment on inputs of infrastructure spending: construction jobs

	Employment		Wages	
	(1)	(2)	(3)	(4)
Panel A. Bandwidth 5 pp, N= 1313				
Political Alignment	-.211 (.16)	-.0930 (.15)	.299** (.15)	.0769 (.06)
Control mean dep var	.18	.18	.40	.40
% total jobs	.10	.10		
R <sup>2</sup>	.01	.16	.01	.77
Panel B. Bandwidth 11 pp, N= 2639				
Political Alignment	-.256** (.10)	-.222** (.10)	.111 (.09)	.0366 (.04)
Control mean dep var	.15	.15	.40	.40
% total jobs	.11	.11		
R <sup>2</sup>	.01	.12	.00	.64
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

**Table 16**—Effect of alignment on outputs of infrastructure spending: stock of public infrastructure

	$\Delta$ 1995-2010 log points difference			
	(1)	(2)	(3)	(4)
<b>Public infrastructure</b>				
<i>Sewerage service</i>	2.765 (3.575)	0.841 (2.930)	0.551 (2.369)	-0.248 (1.940)
<i>Electric lighting</i>	3.014 (2.682)	3.147 (2.808)	3.278* (1.739)	2.368 (1.721)
<i>Piped water</i>	5.398* (2.840)	4.378 (3.136)	2.860 (1.907)	2.329 (1.912)
<b>Private assets</b>				
<i>Overcrowding</i>	-2.620*** (0.982)	-1.925** (0.941)	-1.747** (0.706)	-1.320** (0.616)
<i>Concrete floor</i>	3.857 (2.494)	1.887 (2.395)	3.319* (1.738)	1.594 (1.600)
Observations	461	461	934	934
<b>Controls</b>		✓		✓
<b>Bandwith</b>	5	5	11	11

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

Table 17—Effect of Alignment on Homicides

	Prob (Homicide>0)		Homicide rate	
	(1)	(2)	(3)	(4)
Panel A. Bandwidth 5 pp, N= 1428				
Political Alignment	-.0599 (.05)	.0313 (.05)	-.178 (.16)	.0963 (.15)
Control mean dep var	.0054	.0054	-.099	-.099
R <sup>2</sup>	.00	.34	.00	.31
Panel B. Bandwidth 11 pp, N= 2871				
Political Alignment	-.0132 (.04)	.0406 (.04)	-.0840 (.11)	.0754 (.11)
Control mean dep var	.0081	.0081	-.086	-.086
R <sup>2</sup>	.00	.32	.00	.29
Controls		✓		✓

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.

**Table 18**–Effect of Alignment on Corruption

	Prb(Audited)		Prb(corruption>10%)		Prb(malfeasance>10%)	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Bandwidth 5 pp						
Political Alignment	.0112 (.01)	.0126 (.01)	.111 (.21)	.085 (.19)	-.580*** (.19)	-.455** (.22)
Control mean dep var	.017	.017	.30	.30	.35	.35
R <sup>2</sup>	.00	.15	.04	.53	.19	.69
Observations	4137	4134	83	83	83	83
Panel B. Bandwidth 11 pp						
Political Alignment	.00551 (.01)	.00433 (.01)	-.0774 (.13)	-.0853 (.12)	-.420*** (.14)	-.439*** (.13)
Control mean dep var	.018	.018	.30	.30	.22	.22
R <sup>2</sup>	.00	.15	.02	.40	.10	.42
Observations	8652	8640	186	186	186	186
Controls	✓		✓		✓	

NOTE— This table reports the estimates of political alignment from equation (2). The sample includes post electoral years of all municipalities with close elections during the period 1998-2003. The outcome variables are measure as a three year changes. Controls refers to state fixed effects, election-year fixed effects, and baseline political characteristics (incumbency status, previous political alignment, previous political party). Mean dep var refers to the sample average of the outcome variable for the non-aligned municipalities.