Fighting Crime with a Little Help from my Friends: Political Alignment, Inter-Jurisdictional Cooperation and Crime in Mexico [*]

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ABSTRACT

We investigate the relationship between inter-jurisdictional cooperation and law enforcement in Mexico. Exploiting a Regression Discontinuity Design in close municipal elections, we study how improved opportunities for cooperation in crime prevention among neighboring municipalities - proxied by the degree of political alignment between mayors - may result in lower rates of violent crime. We find that municipalities in which the party in power in the majority of neighboring jurisdictions barely won experience significantly lower homicide rates during the mayor's mandate than those in which it barely lost. This effect is sizeable and robust, is increasing in the share of neighboring municipalities governed by the same party, is independent of which party governs the neighboring municipalities, and does not appear to be driven by improved cooperation with either federal or state authorities.

«[Mexican] municipal police forces...are also among the least effective:

the patchwork of command muddles operations.

In Monterrey the metropolitan area alone has eleven different forces,

using different training, tactics and even brands of radio.

"If a criminal crosses the street he has reached a safe haven," admits one official»

The Economist, October 14th 2010

1. INTRODUCTION

The literature on federalism has traditionally focused on the fundamental trade-off between the capacity of a decentralized system to tailor policies to local preferences, and that of a centralized one to properly internalize inter-jurisdictional spillovers (Oates, 1977, 1999; Gonzalez-Navarro, 2008; Knight, 2011).[1]

One aspect that could potentially alter the terms of this trade-off concerns the possible synergies from *horizontal* inter-jurisdictional cooperation, that is, between jurisdictions of the same administrative level. When spatial spillovers are present, systematic cooperation among local authorities can make local provision of public goods more effective, whereas the lack of it can exacerbate the inefficiencies associated with decentralization.

One area in which this aspect is particularly relevant is law enforcement: in the context of a fragmented public security system, better coordination and information sharing among local police forces can favor effective crime reduction efforts. Indeed, the potential benefit from inter-jurisdictional cooperation, and the implications for the efficient organization of the administration of justice, have been extensively discussed in both the criminal justice and the public administration literature (McDavid, 1974; Ostrom et al., 1978; Parks, 2009), but have been largely disregarded by economists. One noticeable exception is represented

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[1] For a thorough discussion of alternative models of federalism, of the concept of federal governance and its relation with economic performance see respectively Inman and Rubinfeld (1997) and Inman (2007).

by Loeper's recent theoretical contribution on inter-jurisdictional coordination in federal systems (2011).[2]

In this paper we investigate the relationship between horizontal inter-jurisdictional cooperation and the effectiveness of law enforcement in the context of Mexico, where crime incidence has steadily increased over the past decade, and an animated debate over the need for better coordination among local police forces is ongoing. Studying the effect of inter-jurisdictional cooperation is challenging because this is likely to be correlated with various unobservable factors that may affect policy outcomes in other ways. To address this concern we exploit quasi-random variation in the potential for cooperation due to sudden changes in the level of political alignment between mayors of neighboring municipalities. In particular, we apply a Regression Discontinuity (RDD) in close elections and compare the evolution of violent crime - measured by homicide rate - between municipalities where the candidate of the party governing the majority of neighboring jurisdictions won and lost by a small margin. The key idea is that effective cooperation is more likely to emerge between municipalities governed by mayors of the same party than between mayors of competing parties, particularly in a highly polarized political environment such as the Mexican one. Indeed, we show that this conjecture is supported by evidence on the existence of cooperation agreements between Mexican municipalities in various policy domains, including law enforcement.

Our identification strategy relies on the assumption that, if random factors - e.g. unexpected breaking news, weather conditions on election day, etc. - have an (even small) impact on electoral outcomes, the victory of the candidate of the party that governs the majority of neighboring municipalities would mimic random assignment in elections decided by a narrow margin. Such RDD set-up therefore delivers a (local) source of exogenous variation in political alignment with neighbors, which should facilitate cooperation in law enforcement.

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[2] While Loeper's argument refers to the case of a pure coordination game and focuses on the external cost for a jurisdiction to choose a policy different from that chosen by others, his framework does not allow for actual cooperation and does not take into account the spatial dimension of it, that is, that cooperation with neighbors may be more valuable than cooperation with non-neighbors.

Using this approach, we find that municipalities where the candidate of the party in power in the majority of neighboring municipalities won by a small margin experienced significantly lower homicide rates during that mayor's mandate than comparable municipalities in which that party barely lost. The effect is sizeable: the close election of a candidate politically aligned with most of the neighboring mayors is associated with a decrease in homicide rate of 33 to 53%. Furthermore, the effect is robust to the use of different specifications, and to controlling for the relation between margin of victory and crime both parametrically and non-parametrically. Reassuringly, political alignment with neighbors is not correlated with a range of other socioeconomic outcomes, including crime incidence prior to the (close) election. Finally, that the result is driven by improved horizontal cooperation is further corroborated by the fact that the reduction in crime is more pronounced the larger the share of same-party neighbors, is independent of the party's identity, and is not accounted for by political alignment with state or federal authorities.

Our contribution relates to various streams of literature. First and foremost, our work contributes to the literature on decentralization in federal systems by providing novel evidence that, in the presence of geographical spillovers, inter-jurisdictional cooperation can lead to more effective provision of local public goods. Although our findings are specific to the area of law enforcement and public security, we believe that some of the insights from our analysis can apply to other areas of public policy involving inter-jurisdictional spillovers.[3]

Our contribution is also related to the literature on the role of coordination in the implementation of crime-reducing policies: while previous contributions have focused on coordination between local and federal police (Dell, 2015), or between different police forces at the federal level (Soares and Viveiros, 2010), we focus on horizontal coordination between local police forces operating in geographically distinct (but adjacent) locations, an aspect which economists have largely disregarded or examined only indirectly (Wheaton, 2006).

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[3] In this respect, our contribution relates to recent work by Acemoglu et al. (2013) on the effect of local state capacity in the context of Colombia which highlights the importance of using a network approach to study spillovers effects on public good provision and economic development.

Our work also relates to previous studies on the importance of political alignment (Dell, 2015; Brollo and Nannicini, 2011). While these contributions focus on the impact of shared party affiliation between local and central authorities - on drug-related crime deterrence in Mexico and on federal transfers to municipal government in Brazil respectively - to the best of our knowledge our paper is the first to study the causal impact of political alignment between jurisdictions at the same administrative level.[4]

Finally, from a methodological perspective, our work is related to numerous studies that have exploited close elections to identify the impact of party affiliation on a variety of political and economic outcomes[5]. A novelty of our approach is the use of an RDD setup to examine the spatial dimension of cooperation in a rather parsimonious and intuitive fashion.[6]

The remainder of the paper is organized as follows. Section 2 provides background information on the Mexican political and institutional system. Section 3 describes the data used in the empirical analysis. Section 4 illustrates the empirical strategy and presents the main findings which are further discussed in section 5. Section 6 concludes.

2. BACKGROUND ON MEXICO

The Mexican context is particularly well-suited for an empirical analysis of the impact of cooperation among local police forces on violent crime. Indeed, over the past decade homicide rates in Mexico have sharply increased. As depicted in Figure 1 - which shows the evolu-

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[4] In this respect, the closest contribution is probably the one by Lipscomb and Mobarak (2015) who, looking at the impact of decentralization on pollution spillovers in Brazil, document lower cross-border pollution when neighboring counties share party affiliation.

[5] Examples include: Lee (2001); Lee et al. (2004); DiNardo and Lee (2004); Pettersson-Lidbom (2008); Dal Bó et al. (2009); Eggers and Hainmueller (2009); Ferreira and Gyourko (2007); Cellini et al. (2010); Gerber and Hopkins (2011); Boas and Hidalgo (2011); Folke and Snyder (2012); Gagliarducci and Paserman (2011)

[6] Recent contributions have criticized the use of RDD based on close elections showing that, in some cases, even victory in very close elections can be significantly correlated with observable attributes of one of the candidates, such as incumbency status or political alignment with officials in charge of monitoring the elections (Snyder, 2005; Caughey and Sekhon, 2011a; Grimmer et al., 2012). However, a recent study by Eggers et al. (2015) - which combines data from 40,000 close elections in ten countries - shows that this type of concern is specific to races for the U.S. House in the post-war period, and does not generalize to other type of races or to other countries, including Mexico.

tion of the number of monthly homicides recorded in the country since 2000 - while until 2006 the incidence of homicides remained relatively constant (around 1,000/month), since 2007 the number of homicides has steadily increased, reaching more than 2,000/month by the end of 2010. This unprecedented surge in violent crime in Mexico has made the object of a growing literature in social sciences to which this paper attempts to contribute.

Most observers view the increase in homicides as a direct consequence of the federal government's strategy against drug-related organized crime, which has been primarily focused on neutralizing drug cartel leaders, resulting in increased violent conflict among gangs for the control of the territory (Guerrero-Gutiérrez, 2010; Dell, 2015). This paper does not attempt to identify the causes of the observed increase in violent crime; rather we attempt to shed light on whether better coordination among local polices can be instrumental to its containment.

Indeed, poor coordination can be especially problematic in the context of Mexico's highly fragmented security apparatus, in which, as estimated by Sabet (2012), over 3,000 police forces coexist. Municipal polices, in particular, play a central role in this system and account for over 40% of Mexican total law enforcement officers (Guerrero-Gutiérrez, 2010). According to a report by the General Direction for the Coordination and Development of State and Municipal Polices - a division of the Federal Ministry for Public Security - leaked to the press in 2010, as of that year 2008 of Mexico's 2445 municipalities had a local police force.[7] The Mexican Constitution (as amended in 1983 and 1999) establishes that responsibilities in the domain of public safety are shared between the federal government, states, and municipalities "within their competences", and explicitly indicates "preventive policing" as one of competences of municipal governments. As head of the municipal government the mayor is the highest authority in the domain of public security. The mayor nominates and can remove all top public security officials - including the chief of the local police and the

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[7] Of the 417 municipalities with no municipal police 362 were located in the state of Oaxaca, while the remaining ones were distributed among 17 other states. Since municipalities from the state of Oaxaca are excluded from our sample for other reasons (discuss below), almost all the municipalities we look at had a local police force in the period of interest.

director of the municipal prison system - and presides over all agreements of cooperation with other municipalities. Indeed, the Constitution explicitly acknowledges the possibility for municipal governments to cooperate with each other to improve the provision of local public goods, including law enforcement. Cooperation between different municipalities in the area of law enforcement usually operates through the creation of inter-municipal councils in which officials from all municipalities share information and discuss how to best coordinate their efforts. While in some states the creation and functioning of these councils is explicitly regulated by the law, in others councils have emerged spontaneously and operate according to mostly informal procedures.

As suggested by anecdotal evidence, the mayor's party affiliation can have a considerable impact on the functioning, priorities, and policing style of municipal forces.[8] More important, in the context of Mexico's highly polarized political landscape, political divisions between mayors of neighboring municipalities, and the tensions that may derive from them, may further hinder inter-jurisdictional cooperation and have, in some instances, even resulted in actual confrontations between different local police forces (Davis, 2006; Tapia, a,b). In our empirical section we present evidence that differences in party affiliation between neighbors are indeed associated with lower cooperation in various areas of policy making, particularly in law enforcement.

In light of the fragmentation and scarce coordination of Mexican police forces, it is not surprising that an animated debate on the opportunity of reforming the current organization of

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[8] A curios example of how the mayor's party affiliation can impact even the most basic aspects of local police organization - such as equipment purchases - is reported by Sabet (2012): "PAN administrations argue that police the world over wear blue uniforms and therefore issue uniforms and vehicles in blue. However, blue happens to be the color of the PAN party, and PRI governments have tried to emphasize other colors. When PRI Hank Rhon came to office in Tijuana in 2004 after fifteen years of PAN rule, he gave the police new black uniforms, repainted the police cruisers black, and created a new emblem for the police. Hank Rhon sold the action as symbolic of a new police force that was making a break from the past and reinventing itself, but the partisan undertone was unmistakable. When the PAN returned to office in 2007, they reversed the previous administration's changes, issued new blue uniforms, painted the patrol cars blue, and returned to the old police emblem. Mexicali's PAN administration repainted the city's black-and white cruisers blue when it came into office in 2007. Hermosillo's new PRI government, on the other hand, chose to paint the formerly blue police cars orange, a color they argued is the color of Hermosillo and not of any political party."

the Mexican security apparatus has emerged among Mexican policy-makers, including at the highest level. In October 2010, for example, the then president Felipe Calderón Hinojosa proposed a bill for the creation of a single-command national police force, motivated by the need to foster coordination and increase homogeneity in the operation of local police forces. A similar reform, was recently proposed by his successor, president, Enrique Peña Nieto. With a similar motivation, since 2011 the National Conference of Mexican Governors (CONAGO, a periodic summit of Mexican State governors) has implemented regular cooperative efforts aimed at reinforcing information sharing among local police forces engaged in operations against crime. While these initiatives have not yet been rigorously evaluated, they indicate that local authorities recognize the need for better coordination as an instrument to combat crime in a more effective way.

Recent academic contributions on violence in Mexico have also discussed the importance of cooperation among police forces. In particular, Dell (2015) presents evidence on the impact of improved coordination between federal and local police on drug-related crime and finds that improved opportunities for cooperation between local and federal governments (proxied by the degree of political alignment) result in a *higher* number of drug-related homicides. However, to the best of our knowledge, no previous empirical study has attempted to measure the impact of improved horizontal cooperation among local police forces.

Before moving to the empirical analysis we provide additional details on the Mexican institutional and political context. Mexico is a multi-party competitive democracy with three major political parties disputing most of the positions at stake in local and federal elections: the Institutional Revolutionary Party (PRI), the National Action Party (PAN), and the Party of the Democratic Revolution (PRD). With regard to the parties' ideological position, while PAN is right-to-center and PRD left-to-center, PRI is generally considered as centrist. While federal and state elections are held every six years, municipal elections are held every three years with all the municipalities in a state voting at the same time. In both local and federal elections the three major parties - particularly PRI and PRD - generally form coalitions

with smaller parties, although in the vast majority of these cases, the coalition candidate is drawn from the major party. It is hence very likely that when the coalition led by one of the major parties prevails in two neighboring municipalities, the elected mayors will belong to the same party. In some (rather uncommon) cases, two of the major parties may join the same electoral coalition. Since in these instances inferring the party affiliation of the elected mayor (and the degree of political alignment with neighboring mayors) is rather difficult, we prefer to exclude these cases from our analysis. In addition, regular elections for mayor are only held in 146 of the 570 municipalities in the state of Oaxaca. In this state, characterized by the highest concentration of indigenous population in Mexico, local leaders in most municipalities are selected according to traditional mechanisms that differ considerably from conventional electoral processes and that largely exclude national political parties from local political competition.[9] For this reason, we also exclude municipalities in the state of Oaxaca from our sample.

3. DATA

The data used in our empirical analysis come from a variety of sources. Detailed geographic information on Mexico's administrative divisions is available from the Mexican Institute for Statistics and Geography (INEGI). We use these data to identify, for each municipality, the set of neighbors, defined as those municipalities with which the municipality shares one or more boundaries.

To examine the relation between mayors' shared party affiliation and the incidence of cooperation agreements, we use data from the National Survey of Municipal Governments (Encuesta Nacional de Gobiernos Municipales, ENGM) conducted by the Ministry for Social Development (Secretaría de Desarrollo Social, SEDESOL) in 2004. The ENGM, which surveyed all mayors holding office at the time of the survey, was aimed at gathering information

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[9] More information on these systems, defined as "Usos y Costumbres" (Uses and Customs) in the state constitution in 1995, is available from Benton (2011) and Anaya (2006).

on the state of Mexico's local political institutions. The survey includes detailed information on a wide range of variables including the composition of the municipal council, each municipality's income sources and expenditures, incumbent mayor's individual characteristics. Crucially for the purpose of our analysis, the survey also contains information on whether each municipality participates in any formal cooperation agreement with other jurisdictions, with which ones, and in what policy domain (e.g. public safety, water management, schooling, etc.). Table 1 reports the descriptive statistics for the survey question on participation in any inter-municipal cooperation agreements, and on the specific domain of cooperation. Overall, 2,167 of Mexico's 2448 municipalities answered the question; 21.2% of these reported being part of some formal cooperation agreements with other municipalities. Interestingly, the largest share of these agreements are in the area of public safety (35.4%), followed by water management (17.6%), road paving (16.7%), and garbage collection (14.1%).

Regarding electoral data for municipal elections held since 2000, these are available from the Mexican Research Center for Development (CIDAC). As mentioned, Mexican municipalities hold elections every three years to renew their local authorities. While all municipalities in a state vote in the same year, municipalities in different states may hold elections in different years. Table 2 reports, for each state, the election year for which electoral data are used. For each municipality the data include the total number of votes cast, and those attributed to each party. For every election we identify the two parties with most votes and compute the gap in vote share between the winner and the loser. From the outcome of the previous election, we identify the incumbent's party affiliation. Figure 2 represents the distribution of the ruling party's identity across Mexican municipalities in 2008. While some areas are largely controlled by a single party, there is considerable spatial heterogeneity in party's influence both across and within regions. Using this information, we compute, for each municipality, the share of neighboring municipalities controlled by each of the three main

parties at the time the mayor took office.[10]

As our main outcome of interest we consider the number of homicides in each municipality in the three years (before and) after the relevant election. Homicide statistics, available from INEGI, are derived from official administrative records and include the total number of homicides recorded each year in a municipality between 2000 and 2010 (Figure 1). We combine these data with information on municipalities' total population in 2005 - also available from INEGI - to calculate the yearly homicide rate in a municipality defined as the number of homicides per 100,000 inhabitants.

Finally, we also use data on a variety of socio-economic variables at the municipal level which we include as controls in our regressions. Data on death rate, adult literacy rate, share of households with access to sewage, electricity, or running water, school attendance for individuals aged 6 to 24 are available from the 2005 INEGI population count (Conteo de Población y Vivienda). Data on infant mortality rate, human development index, and the share of female politicians are available from the United Nations Development Program (UNDP).

Table 4 reports descriptive statistics for all the variables mentioned above separately for the full set of Mexican municipalities, and for the restricted sample of municipalities used in our empirical analysis. Some differences in observed means between the restricted sample and the rest of Mexican municipalities are statistically different from zero. These include: winning party's and incumbent party's identity, area, and other socio-economic indicators such as infant mortality rate, human development index and share of households with no access to sewage. Although these differences in observables may question the external validity of the estimates presented below, to the extent to which our empirical strategy correctly exploits exogenous variation in mayors' party affiliation, our findings on the relationship between political alignment across neighbors and the evolution of homicide rates should be valid for

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[10] While for neighboring municipalities within the same state we consider the party of the mayor elected in the same electoral cycle, for out-of-state neighbors which did not hold elections in the same year, we consider the party in power at the time of the election.

the municipalities in our sample.

4. EMPIRICS

4.1. POLITICAL ALIGNMENT AND COOPERATION

The existence of a positive relation between party alignment and inter-jurisdictional cooperation is a crucial element of our conceptual framework, and is based on the assumption that mayors affiliated to the same party are more prone to encourage cooperative behavior and information-sharing by their respective municipal police departments. This could be due to closer personal connections between fellow party members operating in the same area, or to shared views regarding crime-reduction strategies and priorities. Party discipline is also likely to play a role particularly in a country like Mexico where politicians cannot run for re-election and have strong incentives to earn the confidence and support of party leaders who influence future nominations and appointments for higher offices (Sabet, 2012; Guillén López, 2006).

As mentioned above, previous work has documented the impact of political alignment on cooperation between central and local authorities. However, evidence that the same may apply to horizontal cooperation is rather scant. One notable exception is a recent contribution by Lipscomb and Mobarak (2015) on the impact of decentralization on water pollution in Brazil which documents that a match in party affiliation between mayors in neighboring upstream-downstream jurisdictions mitigates the border effects on water pollution.

To explore systematically the relation between political alignment and horizontal cooperation in the context of Mexico we combine data on mayors' party affiliation and on the existence of formal cooperation agreements between neighboring municipalities available respectively from CIDAC and from the ENGM survey introduced above. Since the ENGM survey was discontinued in 2004, no data on cooperation are available for more recent years, i.e. the period when the surge in violence occurred and which our main analysis focuses on. Nevertheless, examining the link between party affiliation and cooperation in that period is

informative for the interpretation of our main findings which we introduce below.

Our analysis proceeds as follows. Based on the mayors' responses, we construct an indicator variable for the existence of bilateral cooperation between each pair of neighboring municipalities. We then regress this outcome on a dummy variable for whether the mayors of the municipalities in the pair are from the same party. Since a municipality typically belongs to more than one neighbor-pair, this approach allows to include fixed effects for each neighbor within pairs. In Table 3 we estimate such regressions using as dependent variables measures of bilateral coordination in any area (column 1), and, separately, in each of the four areas in which cooperation is more widespread, i.e., public safety (column 2), water management (column 3), road maintenance (column 4), and garbage collection. Our findings indicate that political alignment is associated with significantly higher level of cooperation in any area and specifically in public safety and water management. The effect of political alignment is rather sizeable: having mayors of the same party increases the probability that two municipalities cooperate bilaterally in any area by about 50% (from 7.5% to 10.8%), and in the area of public safety by about 40% (from 3.4% to 4.7%).[11]

Taken together these results corroborate the view that, by making coordination and information sharing less costly, shared party affiliation between mayors facilitates inter-municipal cooperation in general and in the area of law enforcement in particular. In what follows we examine to what extent improved opportunities for cooperation - proxied by a shock in political alignment - translate into lower incidence of violent crime.

4.2. POLITICAL ALIGNMENT AND VIOLENT CRIME

One way to test whether improved cooperation in law enforcement - driven by political alignment between mayors - contributes to reduce violent crime is to simply compare homicide

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[11] Although the incidence of self-reported bilateral cooperation in public safety was generally quite low in 2004, it is reasonable to think that the rapid surge in violent crime in the following years compelled municipalities to improve their law enforcement efforts including through more effective cooperation with their neighbors.

rates between municipalities that are politically aligned with their neighbors and municipalities that are not. However, this procedure is likely to deliver a biased estimate of the causal impact of political alignment on crime-related outcomes since, for example, local political preferences may themselves be affected by crime levels. To isolate the causal impact of political alignment on homicide rates, we employ a regression discontinuity design (Imbens and Lemieux, 2008; Lee and Lemieux, 2009); in particular, following previous studies on the impact of party identity on various socio-economic outcomes (Dell, 2015; Lee et al., 2004), we exploit the arguably exogenous discontinuity in the identity of the ruling party in a municipality given by its victory in a close election.

Since we are interested in the degree of political alignment between a given municipality and its neighbors, we look at those municipalities for which at least 50% of the neighboring municipalities were governed by the same party, and, among these, focus specifically on those municipalities in which the party governing the majority of neighbors won or lost by a small margin (5% or less).

Indeed around the discontinuity municipalities in which the party ruling in most of the neighbors barely won would experience an exogenous shock in their capacity of cooperating with neighbors. Figure 3 illustrates the basic intuition behind our identification strategy by mean of an example. The figure depicts two municipalities in the state of Veracruz holding local elections in 2007: Samahil (shaded red area) and Timucuy (shaded blue area). Both municipalities share a border with five other municipalities, three of which were governed by the PRI, one by the PAN, and one by a minor party. However, while in Timucuy the PAN won over the PRI by a small margin, in Samahil the PAN lost to the PRI by a similarly small margin. Our identification strategy is based on the comparison of post-election homicide rates between ex-ante similar municipalities some of which - like Samahil - became politically aligned with the majority of their neighbors and others - like Timucuy - that did not.

Figure 4 graphically summarizes our analysis. We take the set of municipalities for which at least 50% of the neighbors is governed by one party and divide them into 50 bins, each

representing a 0.2-percentage-point difference in vote share between the party governing the majority of neighbors and its closest competitor (defined as vote spread in the figure). This variable is positive if the party governing the majority of neighbors won the election in the municipality and negative if it lost it. We then define a dummy variable indicating whether the homicide rate recorded in the municipality in the three years after the relevant election is above the national median, and regress it on all the control variables introduced above. Finally, we plot the average residual of this regression against the vote spread. As depicted, while the average homicide rate tends to increase with vote spread, there is a significant decrease in the share of municipalities with above-median post-election homicide rate right at the point in which the vote spread becomes positive, that is, when the candidate of the party in power in the majority of neighbors is elected. In line with our identification strategy, this drop can be interpreted as the causal effect of an increase in political alignment on post-election homicide rates. In Appendix Figure A1 (a)-(e) we replicate this exercise fitting on each side of the discontinuity respectively a linear, a quadratic, a fractional polynomial, a local polynomial, and a lowess regression. All results confirm that the observed break at the discontinuity is robust to controlling flexibly for the relationship between vote spread and crime. In figure 5 we replicate this exercise using as dependent variable the dummy variable indicating whether the homicide rate was above the national median in the previous mandate, and find no evidence of a discrete jump at the discontinuity.

To examine this pattern more formally, and to be able to control for other factors that may affect homicide rates at the local level, we control for a flexible relationship between the vote spread and the homicide rate, through a non-parametric local linear regression on each side of the discontinuity, on the sample of municipalities with at least 50% of neighbors governed by the same party and in which that party won or lost the election by a margin of 5% or less.

Our empirical strategy is summarized by the following equation:

$$C_{is} = \alpha_0 + \alpha_1 Mwin_{is} + F(Sp_{is}) + \delta X'_{is} + \gamma_s + \varepsilon_{is} \tag{1}$$

where subscript *is* indicates municipality i located in state s; C_{is} is a dummy variable taking value one if the homicide rate in the municipality in the three years after the election is above the national median, or, alternatively, the log of the homicide rate (+1); $Mwin_{is}$ is a dummy variable taking value one if the party governing 50% or more of i's neighbors won the election in municipality i; $F(\cdot)$ is a flexible function of Sp_{is} which is the difference between this party's vote share and that of its closer competitor; and finally X'_{is} is a vector of characteristics of municipality i in state s, including winning party dummies, incumbent dummies, and a range of socio-economic characteristics. State fixed-effects (γ_s) are included in all the regressions discussed below.

For our empirical strategy to correctly estimate the causal effect of political alignment on homicide rate two key assumption must be satisfied: i) the outcome of interest must vary smoothly with respect to the margin of victory (or loss) of the party governing most of the municipality's neighbors, ii) only the treatment - that party's victory - must have an effect on the outcome of interest at the discontinuity (Caughey and Sekhon, 2011b).

To shed light on this aspect, in Table 5 we report the differences in means between observations on each side of the discontinuity for all control variables included in the regressions, and also present the results of simple regression discontinuity analyses (adjusting a linear trend on each side of the discontinuity for the relationship between each outcome and the vote spread) using each control as dependent variable. The fact that no significant difference in these characteristics is observed between municipalities in which the party ruling the majority of neighbors barely won or lost the election is reassuring of the fact that the municipalities in the two groups were not dissimilar *ex ante*. As a further robustness check, in what follows we also replicate the analysis using the homicide rates in the three years prior to the relevant election as dependent variable, to confirm that the treatment variable is not correlated with pre-election crime incidence.

4.3. RESULTS

Given that the distribution of murder rates in our sample is highly skewed (see Figure 6), in the first part of our analysis we consider as dependent variable a dummy indicating whether the murder rate in a municipality is above the national median in the three years after the relevant elections. The results are reported in table 6. In columns 1 and 2 we control for state fixed effects, winning and incumbent party fixed effects; in columns 3 and 4 we also control for death rate, total area, population density, adult literacy rate, the fraction of households with access to sewage, electricity and water, infant mortality rate and human development index. In columns 5 and 6 we control for school attendance rate for individuals aged 6 to 24, and for a variable indicating the fraction of local politicians that are women. In columns 1, 3 and 5 we use the optimal bandwidth for the non-parametric estimates on each side of the discontinuity according to Imbens and Kalyanaraman (2012), while in columns 2, 4 and 6 we reduce the optimal bandwidth to half to explore whether the result is sensitive to a more flexible relationship between the vote spread and the outcome of interest. In all specifications political alignment with neighbors displays a negative and significant coefficient (1% level). Furthermore, the coefficient remains very stable when additional controls are included, and when the bandwidth is reduced. The magnitude of the coefficient ranges between -0.23 and -0.37, which implies that municipalities that are politically aligned with their neighbors are 23 to 37 percent less likely to experience above-median homicide rates than municipalities that are not.

To rule out the possibility that political alignment might be related to pre-existing crime patterns, we replicate the analysis looking, this time, at the effect of political alignment on homicide rates in the three years prior to the election (Table 7). The results provide no evidence of a relationship between pre-election homicide rate and post-election political alignment: in none of the specifications the coefficient of interest is significantly different from zero. This confirms that politically aligned municipalities experienced a decrease in homicide rate only *after* the party governing the majority of its neighbors had come to power.

The binary nature of the dependent variable used in Table 6 makes it rather hard to interpret the magnitude of the effect of political alignment on homicide rate. To give a better sense of this magnitude, and given the highly skewed distribution of the homicide rate in our sample, in Table 8 we re-estimate equation (1) using the log of the post-election homicide rate (+1) as the dependent variable. In Table 9 we report the analogous results for the three years prior to the election. Controls in each column are the same included in Tables 6 and 7. Based on the results in Table 8, we estimate that the improved cooperation resulting from political alignment between a municipality and its neighbors decreases the log of one plus the homicide rate by 0.4 to 0.83. Given the observed mean in homicide rates (45.4/100,000 inhabitants), these coefficients suggest a reduction in murder rates corresponding to a 33 to 53 percent reduction. Once again, political alignment does not appear to be correlated with the murder rate recorded in the three years prior to the election: the estimated coefficients in Table 9 are very close to zero and statistically insignificant.

5. DISCUSSION

The results presented thus far indicate that municipalities that become politically aligned with their neighbors experience significantly lower murder rates than those that do not. Although these findings may be explained by improved cooperation among local police forces when mayors of neighboring municipalities belong to the same party, they are also consistent with alternative explanations. For instance, if the party ruling most of a municipality's neighbors is also the incumbent, lower homicide rates may be due to more effective crime deterrence efforts by more experienced mayors rather than to improved cooperation. Alternatively, if the party that governs most of a municipality's neighbors is also in power at the state or at the federal level, lower crime might result from improved cooperation of municipal police with state or federal authorities (as examined by Dell, 2015) rather than with municipal polices in neighboring jurisdictions. More in general, the close election of a mayor from a specific party may have an impact on crime prevention in a municipality for reasons other

than better coordination with same-party neighboring mayors, e.g. because crime prevention is a priority for that party, or because it supports more effective anti-crime policies.

In this section we present additional evidence of the robustness of our baseline results and test some alternative explanations. In particular, we test whether the effect of political alignment with neighbors: (i) is larger the higher the share of neighboring municipalities governed by the same party (in line with an explanation based on improved horizontal cooperation); (ii) is not contingent on the winning party being the same as the incumbent; (iii) is not contingent on the winning party being in power at the state level; (iv) is not contingent on the identity of the winning party.

To test these hypotheses, we turn to a parametric estimation, restricting the sample to municipalities for which the party governing the majority of neighbors won or lost by a margin of 5% or less. Equation (2), below, summarizes our empirical strategy which is based on testing whether the impact of political alignment varies when the latter is interacted with other characteristics:

$$
\begin{aligned}
C_{is} = \alpha_0 + \alpha_1 Mwin_{is} + \sum_{t=1}^{4} (\alpha_{2,t} Mwin * Sp_{is}^t + \alpha_{3,t}(1 - Mwin) * Sp_{is}^t) + \\
\alpha_4 Mwin_{is} * Y_{is} + \alpha_5 Sp_{is} * Y_{is} * Mwin_{is} + \alpha_6 Sp_{is} * Y_{is} * (1 - Mwin_{is}) + \delta X_{is}' + \gamma_s + \varepsilon_{is}
\end{aligned}
\tag{2}
$$

The notation largely reproduces that of equation (1); however, because the specification is parametric, we include a fourth order polynomial of the vote spread on each side of the discontinuity. In addition, Y_{is} denotes each of the variables used to separately test each of the hypotheses spelled above, namely: (i) the share of neighboring municipalities governed by the party in power in the majority of them; (ii) a dummy variable indicating whether the party governing most of the neighbors is also the incumbent; (iii) a dummy variable indicating whether the party governing most of the neighbors is also in power at the state level; (iv) a dummy variable indicating whether the party governing most of the neighbors is the PAN (in power at the federal level during the period of interest), the PRI, or the PRD respectively.

In this context, the coefficient α_4 captures whether the effect of the discontinuity on the outcome of interest varies with Y_{is}, while α_5 and α_6 account for the possibility that the same outcome varies smoothly, but in different ways, for municipalities with different Y_{is}.

Table 10 summarizes the results of these tests. The first column reports the results for the baseline regression - including all the controls but not the interaction with Y_{is} - which represents our benchmark. The following columns report the results with the interaction terms with the share of neighboring municipalities governed by the same party (column 2), with a dummy for the party ruling most of the neighbors being the incumbent (column 3), with a dummy for the party ruling most of the neighbors also controlling the state government (column 4), with a dummy for the party ruling most of the neighbors being respectively the PAN, the PRI, or the PRD respectively (columns 5-7).

In column 2 both the coefficients on political alignment with neighbors ($Mwin_{is}$) and on its interaction with the share of neighboring municipalities governed by the same party are negative and large in magnitude. The sum of the two coefficients is significantly different from zero at the 1% level. This result is consistent with the idea that the election of a mayor from a given party in a municipality is more likely to boost inter-jurisdictional cooperation the larger the share of neighboring mayors that belong to that party. In column 3, while the coefficient on political alignment with neighbors is similar in magnitude to that displayed in column 1, the interaction with the dummy for the winning party being the incumbent has virtually no effect. The results are similar in column 4: while the effect of political alignment with neighbors remains largely unchanged, the coefficient on the interaction with the dummy for the party governing most of the neighbors being also in power at the state level is small, negative, and statistically insignificant. Finally, and crucially, the results in columns 5 to 7 confirm that the effect of political alignment with neighbors is not simply capturing alignment with the PAN - which at the time controlled the federal government - or

with any of the other major party[12]. Overall, these additional findings suggest that the impact of political alignment with neighbors on crime reduction is independent from the degree of political alignment with federal or state authorities, from the identity of the winning party, and from any incumbency effect, and further support the view that the observed reduction in crime relates to improved horizontal rather than vertical cooperation.

6. CONCLUSION

To what extent should policy-making be decentralized in a federal system? And what are the contrasting forces that should be considered when determining the optimal degree of decentralization? The academic debate around these crucial questions has been traditionally dominated by the fundamental trade-off between the necessity to adapt policies to local preferences, and the need to minimize possible inter-jurisdictional externalities (Oates, 1977). Any evaluation of the performance of a decentralized system, however, should also take into account how inter-jurisdictional cooperation - or the lack of it thereof - can make the local provision of public goods more or less effective. This aspect, however, has been largely disregarded in the literature.

This paper attempts to fill this gap by investigating the impact of horizontal inter-jurisdictional cooperation in one policy area in which this aspect is especially important: law-enforcement. In particular, we look at the context of Mexico and apply a Regression Discontinuity Design (RDD) to examine whether improved opportunities for cooperation in crime prevention among neighboring municipalities - proxied by their degree of political alignment between mayors - facilitates crime deterrence and results in lower crime rates. Our empirical strategy exploits the arguably exogenous discontinuity in the identity of the ruling party in a

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[12] That the effect of political alignment with neighbors remains largely unchanged when controlling for the interaction with the winning party being the PRI is especially reassuring. Indeed, since PRI mayors account for about two thirds of our sample, one potential concern is that political alignment with neighbors might be simply picking up the effect of having a mayor affiliated with the PRI. Our findings suggest, instead, that political alignment with neighbors is associated with a reduction in crime also in the sample of municipalities governed by other parties

municipality given by its victory in a close election. To estimate the causal effect of political alignment, we compare the evolution of crime rates in municipalities where the party governing most of the municipality's neighbors won the election by a small margin to those in which it lost by a small margin. We find that municipalities that are politically aligned with their neighbors experience significantly lower homicide rates in the years following the election. This effect is sizeable - 25 to 40% reduction in murder rates - robust to various specifications and, crucially, appears to be independent from the identity of the party in power in the neighboring municipalities. Furthermore, political alignment appears to have no impact on murder rates prior to the election, confirming that the treatment variable is not correlated with pre-election crime incidence. Finally, our findings do not provide support for alternative explanations based on the importance of political alignment with the ruling party at the state or federal levels, further confirming the importance of horizontal over vertical cooperation.

Our research contributes to the economic literature on crime by providing novel evidence that the effectiveness of decentralized law enforcement systems may crucially depend on the degree of inter-jurisdictional cooperation that can be supported under decentralization, and by emphasizing how this aspect can be crucial to determine whether a single state or national police force may be preferable to multiple uncoordinated local ones.

The evidence presented above also contributes to the broader debate on decentralization by raising awareness that a thorough evaluation of the costs and benefits of decentralization should not only take into account the potential inefficiencies due to the presence of geographic spillover effects, but also those related to the potential lack of of horizontal cooperation. Indeed, our findings suggest that, unless proper instruments to foster horizontal inter-jurisdictional cooperation are put in place, a (non-cooperative) decentralized system might be inferior to a centralized one. To this regard, our contribution exemplifies the importance of using a network-based approach to study public good provision in decentralized systems (Acemoglu et al., 2013).

Finally, our research provides new insights with regard to the role of political parties in democratic systems by documenting how, in certain cases, by favoring coordination between local policy-makers, party discipline can contribute to mitigate the inefficiencies of poorly designed decentralized systems.

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FIGURE 1: TOTAL MONTHLY HOMICIDES IN MEXICO (2000-2010)
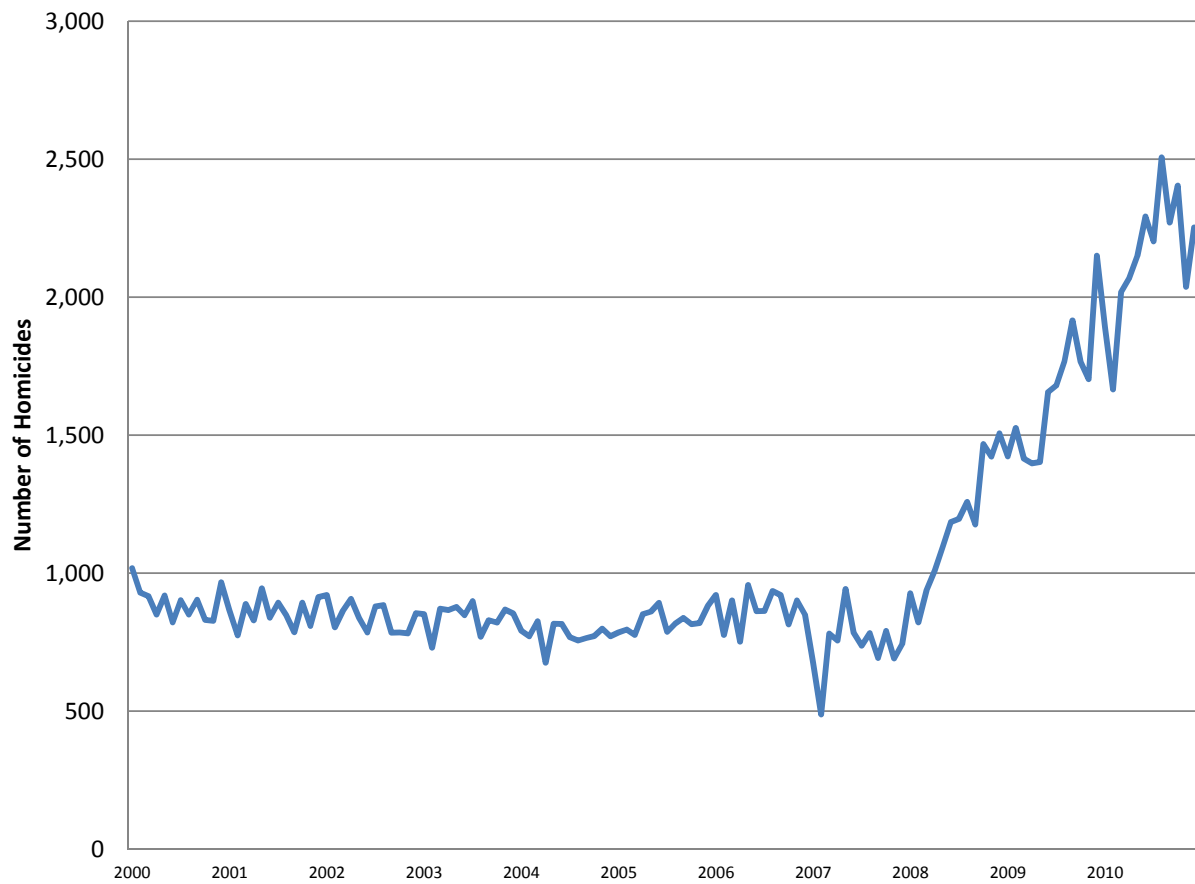
The figure depicts the evolution of the monthly number of homicides recorded in Mexico between 2000 and 2010. Data from the Mexican Institute for Statistics and Geography (INEGI).

FIGURE 2: MUNICIPALITIES BY MAYOR'S PARTY AFFILIATION (2008)
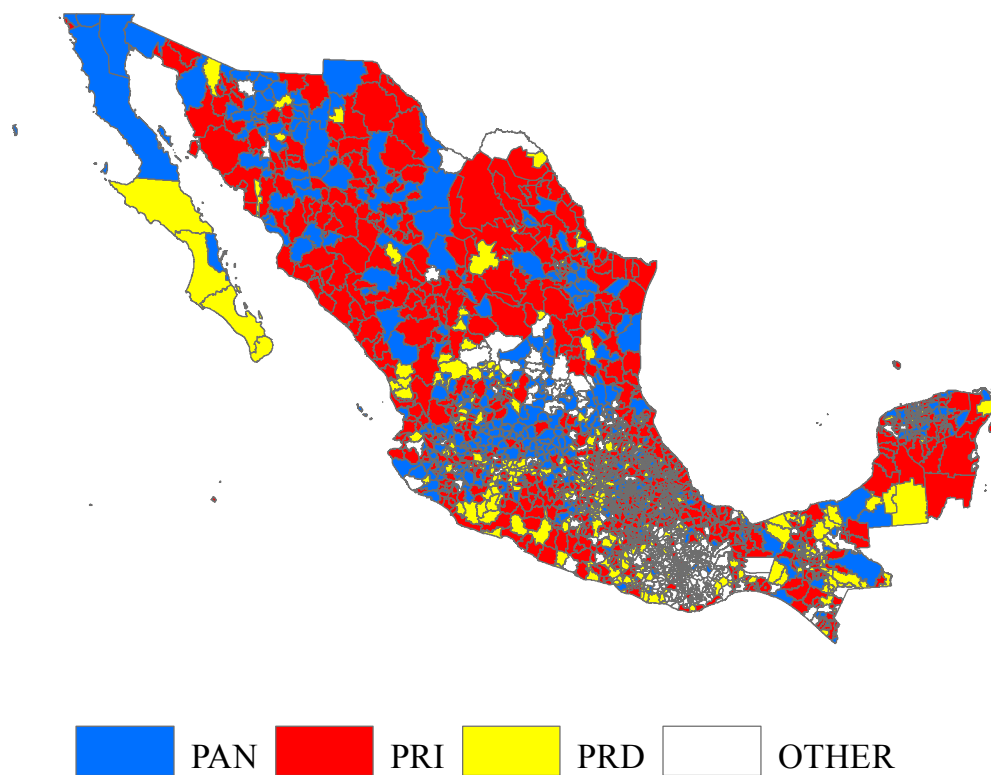
The figure shows the party affiliation of mayors in Mexican municipalities as of 2008. Data from the Mexican Research Center for Development (CIDAC).

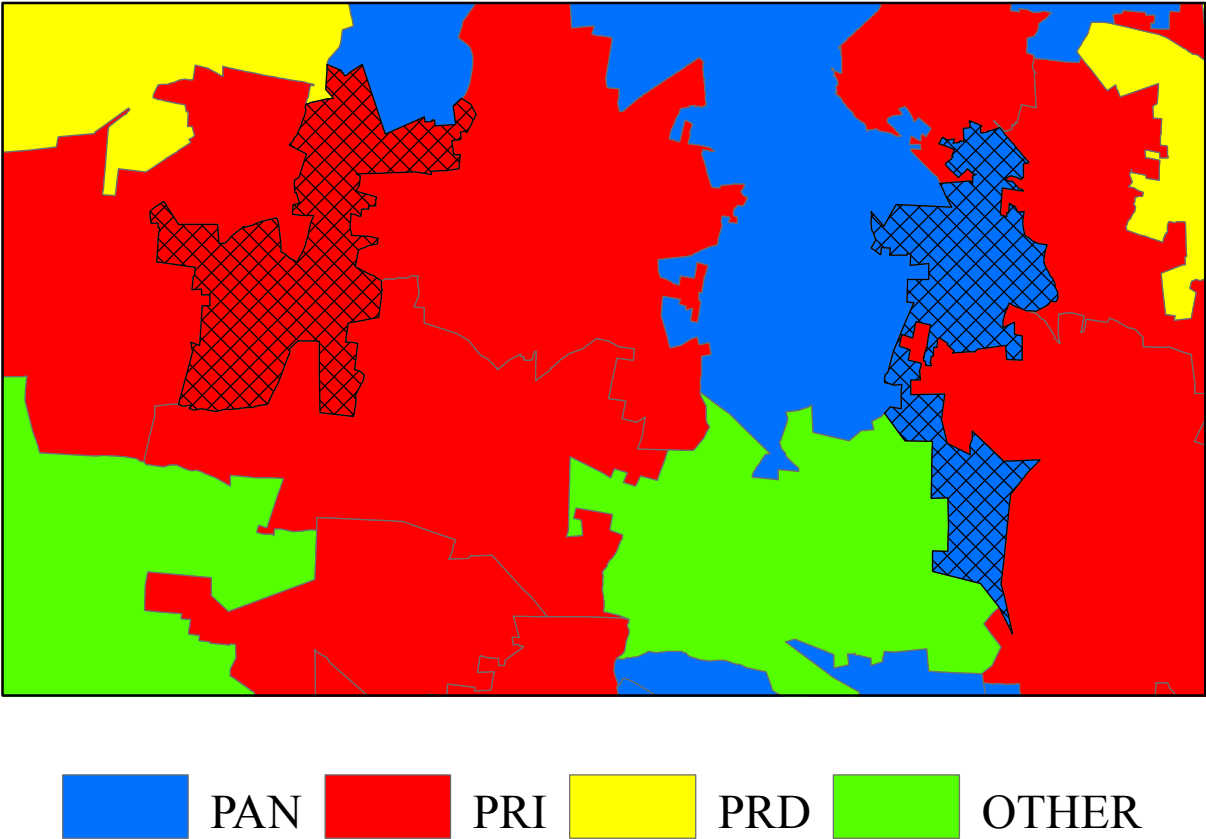FIGURE 3: EXAMPLE OF POLITICAL ALIGNMENT WITH NEIGHBORING MUNICIPALITIES

FIGURE 4: RDD GRAPHICAL ANALYSIS
SHARE OF MUNICIPALITIES WITH ABOVE-MEDIAN HOMICIDE RATE, POST-ELECTION MANDATE
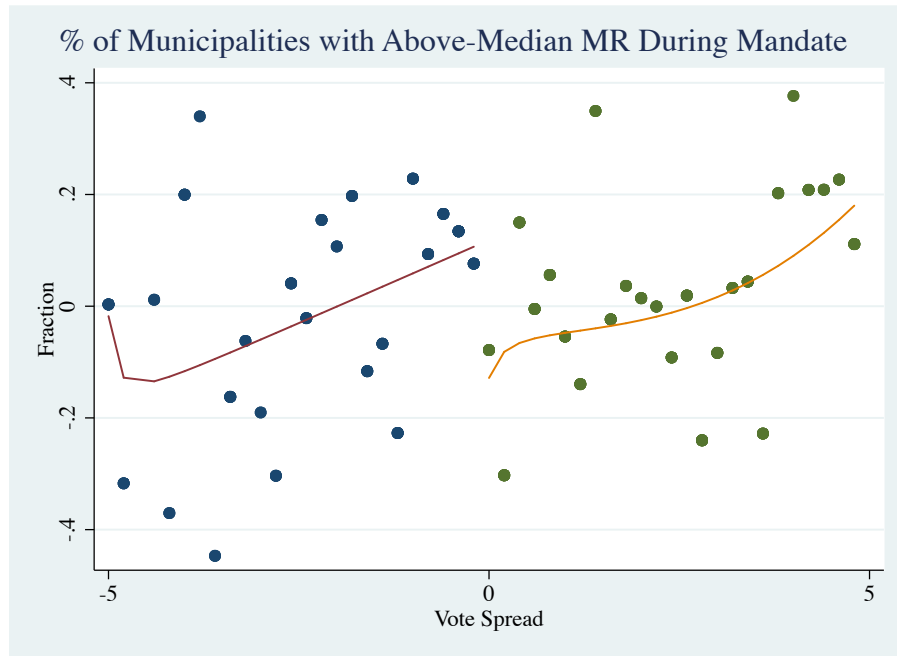

FIGURE 5: RDD GRAPHICAL ANALYSIS
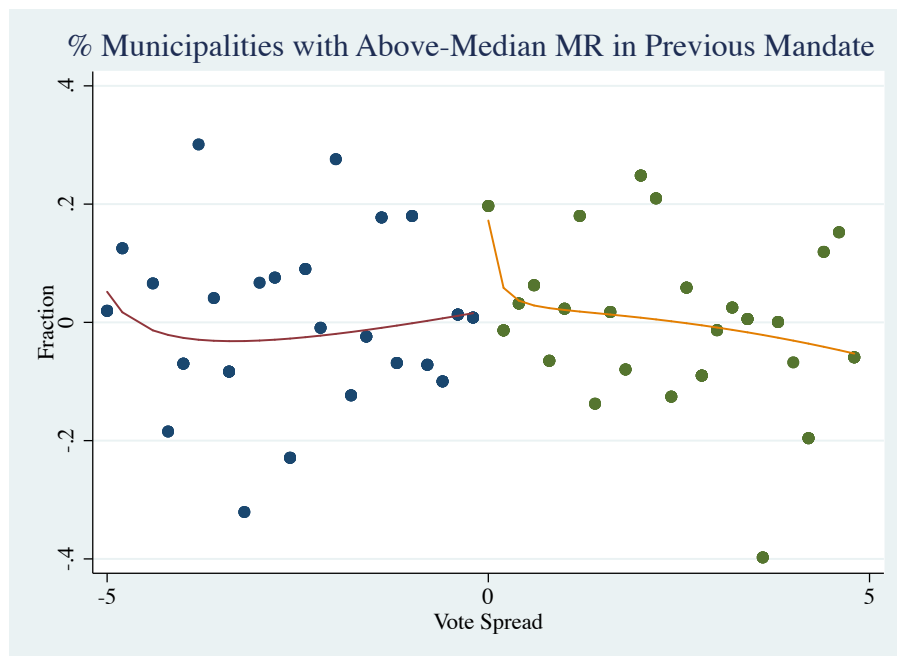SHARE OF MUNICIPALITIES WITH ABOVE-MEDIAN HOMICIDE RATE, PREVIOUS MANDATE

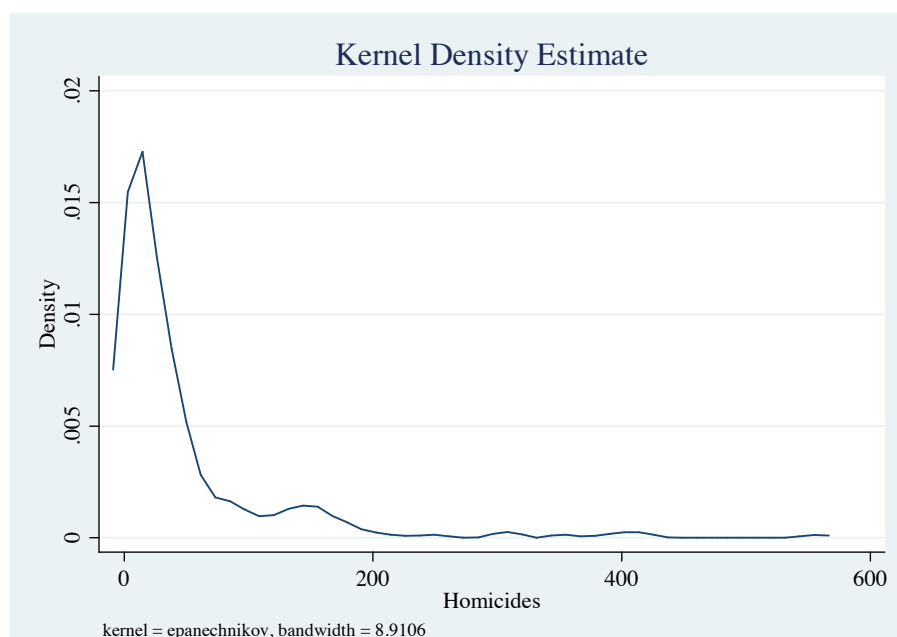FIGURE 6: DISTRIBUTION OF MUNICIPALITIES BY HOMICIDE RATE

kernel = epanechnikov, bandwidth = 8.9106

TABLE 1: INTER-MUNICIPAL COOPERATION: DESCRIPTIVE STATISTICS (ENGM 2004)

	Observations	Mean
Cooperates with another municipality	2,167	0.212
Conditional on cooperation		
Cooperates in public safety	460	0.354
Cooperates in the provision of drinking water	460	0.176
Cooperates in road paving	460	0.167
Cooperates in garbage collection	460	0.141
Cooperates in draining and sewers	460	0,078
Cooperates in the provision of street lighting	460	0,061
Cooperates in roadway services	460	0,061
Cooperates in transportation services	460	0,059
Cooperates in street cleaning	460	0,054
Cooperates in staff training	460	0,049
Cooperates in water treatment	460	0,041
Cooperates in butcheries	460	0.030
Cooperates in tax collection	460	0,015
Cooperates in the organization of produce markets	460	0,007
Cooperates in cemeteries	460	0,007
Cooperates in park and gardens	460	0,004

The table reports summary statistics based on data from the 2004 National Survey of Municipal Governments (ENGM) conducted by the Ministry for Social Development (SEDESOL) and involving 2,167 then incumbent mayors. Each variable is a dummy indicating whether the municipality cooperated with other municipalities (row 1), and if so in what policy area.

TABLE 2: ELECTION YEAR BY STATE

Election Year	State
2006	Aguascalientes, Campeche, Colima, Distrito Federal, Guanajuato, Jalisco, México, Morelos, Nuevo León, Querétaro, San Luis Potosí, Sonora, Tabasco
2007	Baja California, Chiapas, Chihuahua, Durango, Michoacán, Oaxaca, Puebla Sinaloa, Tamaulipas, Tlaxcala, Veracruz, Yucatán, Zacatecas
2008	Baja California Sur, Coahuila, Guerrero, Jalisco, Nayarit, Quintana Roo

TABLE 3: PARTY ALIGNMENT AND INTER-MUNICIPAL COOPERATION: OLS REGRESSIONS

Dependent Variable: Dummy=1 if there is a cooperation agreement between the two municipalities

	In any area (Mean: 0.0746)	Public Safety (Mean: 0.0340)	Water services (Mean: 0.0160)	Road Paving (Mean: 0.0154)	Garbage Collection (Mean: 0.0122)
Party alignment	0.0325 [0.006]***	0.013 [0.005]***	0.0108 [0.003]***	0.0071 [0.003]	0.0024 [0.003]
Constant	0.0587 [0.004]***	0.0278 [0.003]***	0.0109 [0.002]***	0.0119 [0.002]***	0.0111 [0.002]***
Observations	14,210	14,210	14,210	14,210	14,210
R-squared	0.490	0.522	0.534	0.533	0.552

The table examines the relation between inter-municipal cooperation and party alignment using data from the 2004 National Survey of Municipal Governments (ENGM). The unit of analysis is a pair of neighboring municipalities. The dependent variable is a dummy for whether the municipalities in the pair have a formal agreement in any policy area (column 1), and in specific policy areas such as public safety (column 2), water management (column 3), road maintenance (column 4), and garbage collection (column 5). The regressor of interest is a dummy for whether the mayor of the municipalities in the pair belong to the same party. All regressions include municipalities fixed effects. Standard errors clustered at the municipality level reported in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%..

TABLE 4: DESCRIPTIVE STATISTICS: OVERALL VS. RESTRICTED SAMPLE

	Non-Sample	Sample	Difference	t-stat on means difference
Homicide Rates Previous Mandate (per 100,000)	32.52	34.34	1.83	[0.53]
Homicide Rates (pero 100,000)	39.10	45.43	6.33	[1.49]
PAN affiliated winner	0.20	0.24	0.05	[1.82]*
PRI affiliated winner	0.42	0.53	0.11	[3.52]***
PRD affiliated winner	0.13	0.17	0.03	[1.57]
PAN affiliated governor	0.15	0.13	-0.02	[0.69]
PRI affiliated governor	0.69	0.68	-0.01	[0.18]
PRD affiliated governor	0.16	0.19	0.02	[0.88]
Majority of Neighbors PAN	0.14	0.15	0.01	[0.25]
Majority of Neighbors PRI	0.51	0.77	0.26	[8.31]***
Majority of Neighbors PRD	0.11	0.08	-0.03	[1.43]
Majority of Neighbors not identified	0.24	0.00	-0.24	[9.33]***
PAN affiliated incumbent	0.20	0.26	0.06	[2.19]**
PRI affiliated incumbent	0.40	0.51	0.12	[3.75]***
PRD affiliated incumbent	0.16	0.16	0.01	[0.31]
Share of Local Politicians that are Men	83.98	79.67	-4.31	[4.76]***
Population Density	0.00	0.00	0.00	[0.71]
Area (km2)	19.24	19.73	0.49	[5.01]***
Death Rates	569.07	546.95	-22.12	[1.71]*
Infant Mortality Rate	30.47	29.88	-0.59	[1.30]
Index of Human Development	0.70	0.72	0.01	[2.84]***
Adult Literacy Rate	81.39	82.96	1.57	[2.08]**
Percentage of HH with no sewage in 2005	9.88	12.06	2.18	[2.80]***
Percentage of HH with no electricity in 2005	5.50	5.09	-0.40	[0.79]
Percentage of HH with no water in 2005	17.71	16.29	-1.43	[1.13]
School Attendance	60.05	59.42	-0.64	[1.59]
Observations	2120	281	---	---

The table reports the descriptive statics for the variables used in the analysis respectively for the restricted sample of municipalities with close elections involving the party ruling the majority of neighbors (column 2) and for all other Mexican municipalities (column 1). It also reports the difference in each variable between the two samples (column 3), and the corresponding significance level (column 4). * significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 5: DESCRIPTIVE STATISTICS: RESTRICTED SAMPLE

	Party ruling majority of neighbors lost by < 5%	Party ruling majority of neighbors won by < 5%	t-stat on means difference	RD estimate	t-stat on RD estimate
PAN affiliated governor	0.10	0.15	[1.17]	--	--
PRI affiliated governor	0.71	0.67	[0.71]	--	--
PRD affiliated governor	0.19	0.18	[0.17]	--	--
Majority of Neighbors PAN	0.13	0.16	[0.79]	0.06	[0.62]
Majority of Neighbors PRI	0.77	0.77	[0.05]	0.04	[0.44]
Majority of Neighbors PRD	0.10	0.07	[1.11]	-0.09	[1.47]
PAN affiliated incumbent	0.22	0.29	[1.31]	0.04	[0.39]
PRI affiliated incumbent	0.49	0.53	[0.59]	0.11	[0.99]
PRD affiliated incumbent	0.19	0.15	[0.98]	-0.06	[0.78]
Share of Local Politicians that are Men	79.40	79.86	[0.27]	0.26	[0.08]
Population Density	228	201	[0.42]	105	[0.91]
Area (km2)	19.81	19.68	[0.71]	-0.30	[0.89]
Death Rates	524	563	[2.11]**	23	[0.67]
Infant Mortality Rate	30.33	29.57	[0.92]	-1.02	[0.67]
Index of Human Development	0.71	0.72	[1.00]	0.02	[1.00]
Adult Literacy Rate	82.39	83.36	[0.68]	1.03	[0.39]
Percentage of HH with no sewage in 2005	13.51	11.04	[1.44]	-3.99	[1.27]
Percentage of HH with no electricity in 2005	5.62	4.73	[0.90]	-0.60	[0.33]
Percentage of HH with no water in 2005	17.38	15.52	[0.83]	-2.28	[0.55]
School Attendance	59.42	59.41	[0.01]	1.14	[0.82]
Observations	116	165	--	--	--

The table reports the descriptive statics for the variables used in the analysis respectively for municipalities in which the party ruling the majority of neighboring municipalities won and lost by a small margin, i.e. 5% or less (columns 1 and 2). It also reports the t-stat on the difference in the means of each variable between the two samples (column 3), the respective regression discontinuity estimates (column 4), and the corresponding t-stat (column 5). * significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 6: NON-PARAMETRIC (LOCAL LINEAR REGRESSION) RD ESTIMATES
POST-ELECTION MANDATE, DUMMY FOR HOMICIDE RATE ABOVE NATIONAL MEDIAN

Dependent variable: dummy=1 if homicide rates during mandate > national median during mandate

| | Bandwidth | | | | | |
	Optimal*	(0.5)Opt	Optimal*	(0.5)Opt	Optimal*	(0.5)Opt
Majority wins	-0.227	-0.371	-0.26	-0.372	-0.215	-0.346
	[0.092]**	[0.118]***	[0.099]***	[0.125]***	[0.087]**	[0.109]***
Controls A	Yes	Yes	Yes	Yes	Yes	Yes
Controls B			Yes	Yes	Yes	Yes
Controls C					Yes	Yes

"Majority wins" is a dummy for whether the candidate of the party that governs the majority of neighboring municipalities is elected mayor. Optimal bandwidth from Imbens and Kalyanaraman (2009). Controls A: state-level dummies, incumbent party and winning party dummies. Controls B: death rate, area, pop. density, adult literacy rate, share of households with access to sewage, electricity and water, IMR, HDI. Controls C: school attendance rate for individuals aged 6 to 24, share of local politicians that are women. Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 7: NON-PARAMETRIC (LOCAL LINEAR REGRESSION) RD ESTIMATES
PREVIOUS MANDATE, DUMMY FOR HOMICIDE RATE ABOVE NATIONAL MEDIAN

Dependent variable: dummy=1 if homicide rates previous mandate > national median in previous mandate

| | Bandwidth | | | | | |
	Optimal*	(0.5)Opt	Optimal*	(0.5)Opt	Optimal*	(0.5)Opt
Majority wins	0.052	0.137	0.067	0.118	0.076	0.062
	[0.093]	[0.125]	[0.084]	[0.114]	[0.073]	[0.103]
Controls A	Yes	Yes	Yes	Yes	Yes	Yes
Controls B			Yes	Yes	Yes	Yes
Controls C					Yes	Yes

"Majority wins" is a dummy for whether the candidate of the party that governs the majority of neighboring municipalities is elected mayor. Optimal bandwidth from Imbens and Kalyanaraman (2009). Controls A: state-level dummies, incumbent party and winning party dummies. Controls B: death rate, area, pop. density, adult literacy rate, share of households with access to sewage, electricity and water, IMR, HDI. Controls C: school attendance rate for individuals aged 6 to 24, share of local politicians that are women. Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 8: NON-PARAMETRIC (LOCAL LINEAR REGRESSION) RD ESTIMATES
POST-ELECTION MANDATE, LOG (1+ HOMICIDE RATE)

Dependent variable: Log (1 + homicide rates) during mandate

| | Bandwidth | | | | | |
	Optimal*	(0.5)Opt	Optimal*	(0.5)Opt	Optimal*	(0.5)Opt
Majority wins	-0.406	-0.663	-0.43	-0.828	-0.416	-0.753
	[0.299]	[0.388]*	[0.291]	[0.373]**	[0.280]	[0.356]**
Controls A	Yes	Yes	Yes	Yes	Yes	Yes
Controls B			Yes	Yes	Yes	Yes
Controls C					Yes	Yes

"Majority wins" is a dummy for whether the candidate of the party that governs the majority of neighboring municipalities is elected mayor. Optimal bandwidth from Imbens and Kalyanaraman (2009). Controls A: state-level dummies, incumbent party and winning party dummies. Controls B: death rate, area, pop. density, adult literacy rate, share of households with access to sewage, electricity and water, IMR, HDI. Controls C: school attendance rate for individuals aged 6 to 24, share of local politicians that are women. Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 9: NON-PARAMETRIC (LOCAL LINEAR REGRESSION) RD ESTIMATES
PREVIOUS MANDATE, LOG (1+ HOMICIDE RATE)

Dependent variable: Log of 1 + homicide rates in previous mandate

| | Bandwidth | | | | | |
	Optimal*	(0.5)Opt	Optimal*	(0.5)Opt	Optimal*	(0.5)Opt
Majority wins	-0.105	0.036	-0.067	-0.044	-0.094	-0.127
	[0.232]	[0.308]	[0.267]	[0.355]	[0.262]	[0.352]
Controls A	Yes	Yes	Yes	Yes	Yes	Yes
Controls B			Yes	Yes	Yes	Yes
Controls C					Yes	Yes

"Majority wins" is a dummy for whether the candidate of the party that governs the majority of neighboring municipalities is elected mayor. Optimal bandwidth from Imbens and Kalyanaraman (2009). Controls A: state-level dummies, incumbent party and winning party dummies. Controls B: death rate, area, pop. density, adult literacy rate, share of households with access to sewage, electricity and water, IMR, HDI. Controls C: school attendance rate for individuals aged 6 to 24, share of local politicians that are women. Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.
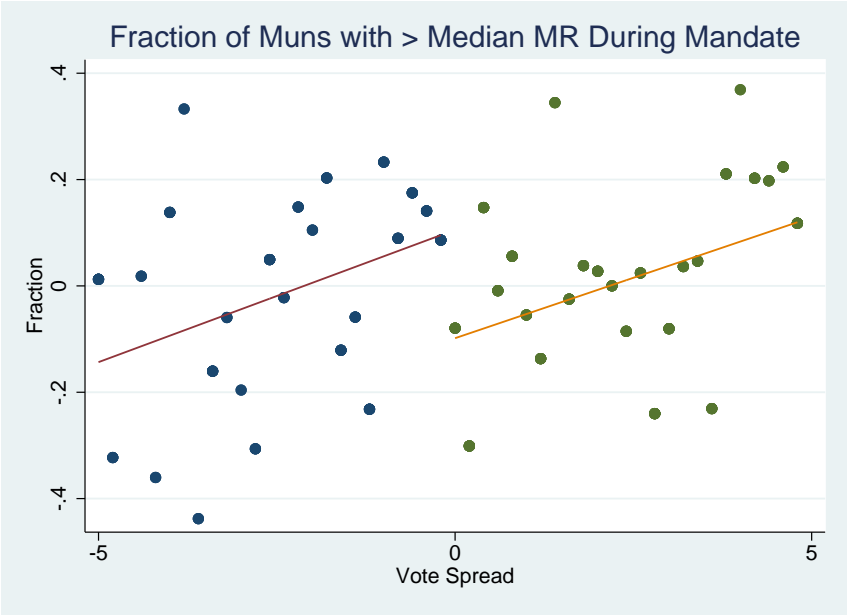
TABLE 10: PARTY ALIGNMENT AND HOMICIDES: INTERACTION TERMS (OLS RESULTS)

Dependent variable: dummy=1 if homicide rates during mandate > national median

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Majority wins	-0.618	0.126	-0.550	-0.666	-0.695	-0.989	-0.548
	[0.243]**	[0.476]	[0.270]**	[0.254]***	[0.243]***	[0.405]**	[0.258]**
Majority wins* fraction majority		-1.055					
		[0.555]*					
Majority wins* Majority governs state			-0.139				
			[0.174]				
Majority wins* Majority is incumbent				0.033			
				[0.198]			
Majority wins* Majority is PAN					0.130		
					[0.385]		
Majority wins* Majority is PRI						0.637	
						[0.577]	
Majority wins* Majority is PRD							-0.409
							[0.435]
Constant	-1.631	-1.855	-1.516	-1.724	-1.697	-1.223	-1.189
	[1.770]	[1.804]	[1.784]	[1.825]	[1.805]	[1.846]	[1.833]
Observations	281	280	281	281	281	281	281
R-squared	0.460	0.470	0.460	0.470	0.460	0.470	0.460

"Majority wins" is a dummy for whether the candidate of the party that governs the majority of neighboring municipalities is elected mayor. "Fraction majority" indicates the share of neighboring municipalities controlled by the party that governs the majority of neighboring municipalities. "Majority governs state" and "Majority is incumbent" are dummies for whether the current state governor and the incumbent mayor respectively are affiliated to the party that governs the majority of neighboring municipalities. "Majority is PAN", "Majority is PRI", and "Majority is PRD" are dummies for whether the majority of neighboring municipalities is governed by the PAN, the PRI, and the PRD, respectively. All regressions include the following controls: state-level dummies, incumbent party and winning party dummies, death rate, area, population density, adult literacy rate, share of households with access to sewage, electricity and water, IMR, HDI, school attendance rate for individuals aged 6 to 24, share of local politicians that are women. Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

FIGURE A1: RDD GRAPHICAL ANALYSIS, ADDITIONAL FITS
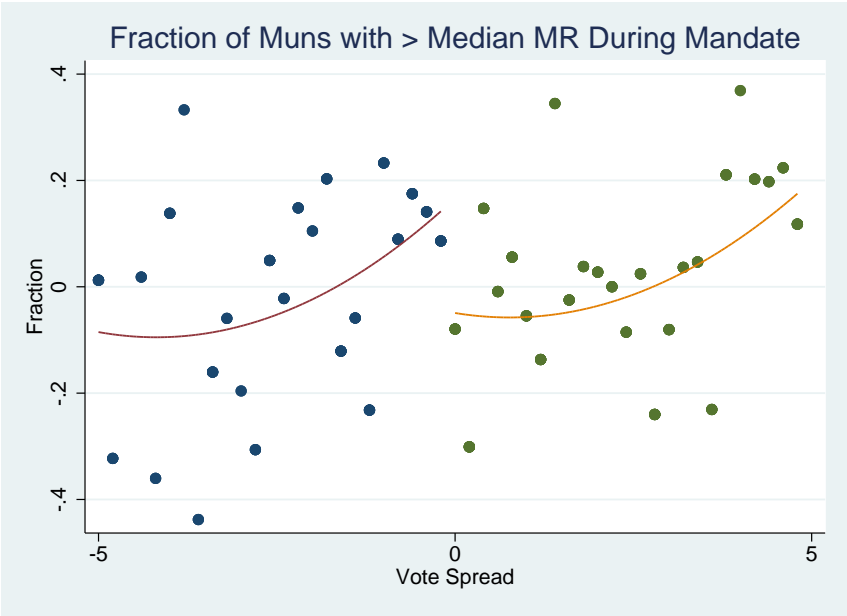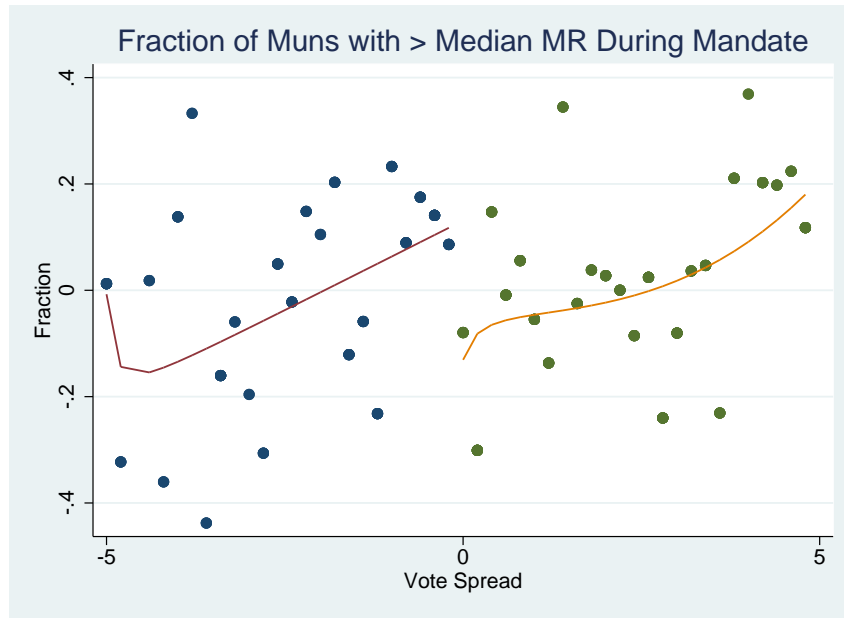
(a) Linear Fit

(b) Quadratic Fit

(c) Fractional Polynomial

Fraction of Muns with > Median MR During Mandate

(d) Local Polynomial

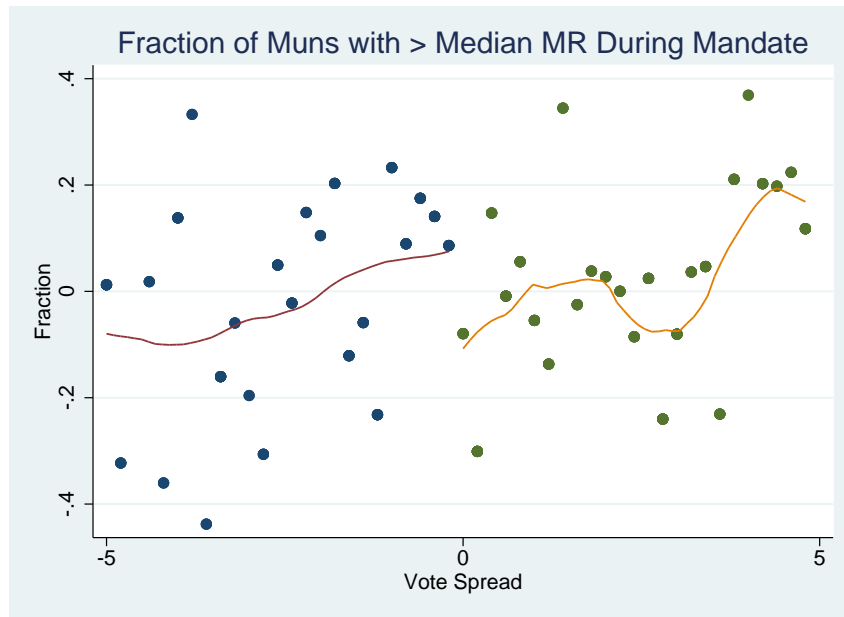Fraction of Muns with > Median MR During Mandate

FIGURE A1: RDD GRAPHICAL ANALYSIS, ADDITIONAL FITS (CONT.)

(e) Lowess