Partisan Poll Watchers and Electoral Manipulation[*]

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Abstract

How do parties protect themselves from electoral manipulation? To answer this question, we study the allocation of party representatives to polling stations in an electoral environment in which irregularities are common. Using election data from the Mexican Chamber of Deputies, we find a robust positive correlation between the presence of party representatives and that party's vote share. The evidence suggests that this correlation can be attributed to party representatives influencing the electoral results. We also formulate a game theoretic model of party representative allocation and structurally estimate its parameters. We find that parties send their representatives where they expect their opponents to send their own. The finding is consistent with representatives playing a primarily protective role, even when they are often involved in irregularities themselves such as the enforcement of turnout buying.

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Political parties compete during elections on the basis of policy platforms, their records of past performance in office, and very frequently, by engaging in electoral irregularities. When engaging in irregularities is the chosen strategy, how do other parties defend themselves from such actions? What are the parties' tools to guard their interests during elections? Although a growing literature has helped us understand how electoral manipulation occurs, we still do not have answers to these basic questions. The study of electoral manipulation has focused on the decisions made by the party that engages in the irregularities, while giving only a passive role to its competitors. This overlooks the fact that the party that is the victim of manipulation is the actor most interested in preventing and offsetting such actions as they occur. In this paper, we address these issues by studying the competitive allocation of resources by parties that seek to prevent electoral irregularities.

We focus on the allocation of party representatives to polling stations. In many countries, these representatives constitute the first, and sometimes, the only line of defense against ballot stuffing, tampering with ballots, multiple voting, and other election-day irregularities. The importance of their role is recognized by those involved in campaigns where malpractice is common. "A polling station without a representative is a stolen polling station," declared Andrés Manuel López Obrador, Mexican presidential candidate, in front of a crowd of followers during the 2012 campaign. "We don't want to repeat 2006, when we were robbed because we didn't have representatives and many polling stations were not guarded," he continued, alluding to the disputed 2006 election in which he lost by 0.58% of the vote.[1] The role of party representatives emphasized by López Obrador is clear. Along with independent observers, party representatives protect the integrity of elections.

Paradoxically, the quality of the electoral process can be compromised by these same actors. Party representatives can use their position to harass voters at the polling station, to enforce turnout buying transactions by keeping track of who has shown up to vote, or even

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[1] https://www.youtube.com/watch?v=H2mU6fT2Ls4 (accessed 1/2/2016).

participate in the disappearance of election materials.[2] This dual role of representatives—as protectors and potential manipulators—creates an opportunity to study how parties allocate campaign resources in the face of potential irregularities. In particular, if parties fear that rivals' representatives may engage in electoral malpractice, their choice of representation at a given polling station will be influenced by the expected allocation of their rivals' representatives. Do parties increase their representation when they expect no monitoring from their rivals, which might facilitate manipulation attempts of their own, or do they try to prevent actions against their interests by having a presence where other parties have their own monitors?

Answering these questions will help us identify how to ensure the integrity of the electoral process. Political parties want to prevent actions that hurt their electoral prospects and will use their resources optimally to this end. Domestic and international independent election monitors face a similar problem when they choose how to allocate their delegates. Knowing what induces parties to cover certain polling stations and how important representatives are in influencing election results can inform independent monitors about where they are most needed.

Our analysis begins by illustrating how party representatives influence electoral outcomes in Mexico, a country that, despite its transition to democracy and major reforms, continues to endure electoral irregularities (e.g., Magaloni 2006; Cantú 2014; Cantú and García-Ponce 2015; Nichter and Palmer-Rubin 2015). We use a rich dataset with information from elections to the Chamber of Deputies focusing on the two largest parties at the

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[2]Changes in electoral administration rules have been proposed to deal with partisan poll watchers harassing voters in the U.S. https://www.politico.com/magazine/story/2016/08/poll-election-monitor-challengers-vote-laws-watchers-214189 (accessed 1/18/2018). For evidence linking representatives with the disappearance of ballot papers (see Casas, Díaz and Trindade 2014).

national level, the *Partido Acción Nacional* (PAN-National Action Party) and the *Partido Revolucionario Institucional* (PRI-Institutional Revolutionary Party).[3] We find that there is a robust positive correlation between the presence of party representatives and the vote share of their party. The presence of competitors' representatives is, on the other hand, negatively associated with a party's vote share. We also see that representatives increase turnout and reduce the share of null votes, especially when their rivals' representatives are not present. These findings are closely aligned with the case study literature and our own conversations with party activists that describe how representatives play key roles enforcing turnout buying, coordinating turnout suppression efforts, and preventing tampering with ballots.

Since an alternative explanation for the observed patterns is that it is easier for a party to recruit representatives where the party is popular, we undertake a number of checks that suggest such an explanation is not driving the results. We first estimate the effect of representatives on electoral outcomes while accounting for invariable confounders linked to the group of voters in a precinct by including precinct fixed effects. We check the robustness of these results to specifications that account for characteristics of a given campaign by controlling for district-year fixed effects. Additionally, we gather information on the pre-election registration of party representatives, which allows us to compare precincts where registered representatives were present with those where the representatives were supposed to be present, but were not. The results rule out that time-varying unobserved determinants of the intended location and availability of representatives explain the main findings. Finally, we undertake a sensitivity analysis and under different assumptions regarding the variance of vote shares explained by unobservables, we find that selection on unobservables would always have to be larger than selection on observables to produce a null effect of representatives.

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[3]Later, we extend the analysis to include the third largest party, the *Partido de la Revolución Democrática.*

After gathering evidence on how representatives influence electoral outcomes, we turn to our main task of analyzing the strategic considerations driving the representatives' allocation. We first assume that parties' utilitites are exclusively reflected by their vote shares. Using the estimates of the representatives' effects on electoral outcomes, we find that, regardless of their rivals' representation choices, parties are at least as well off having representatives in most polling stations of a precint. We then extend this analysis to a setting in which parties not only care about vote shares, but also consider the costs of having their representatives at the polls. To do so, we exploit the observed location of representatives in the data to structurally estimate the parameters of a formal model of representative allocation.[4]

The conclusions from the estimation of the model differ from the analysis based on vote shares. We find that the PAN tries to match the representation choices of the PRI, choosing full coverage when it expects full coverage from the PRI, but is less likely to cover all polling stations if it expects the PRI to have only partial coverage. This contrasts with the PAN's implied flat best response function from the vote share analysis. We also find that the PAN delegates its watchdog role to third parties and is less likely to send representatives where smaller parties have sent theirs. The PRI—a richer party with more organizational capacity—does not have to do this and, in general, is less responsive to expected changes in actions from the PAN.

The estimation of the strategic model's parameters together with the findings from the vote share analysis allow us to conclude that even when parties would like to cover all polling stations regardless of the presence of rivals, a fixed budget forces them to prioritize those where their rivals are present. The fact that they prefer to be where their rivals are rather

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[4]This methodology follows studies in comparative politics and international relations that combine a likelihood derived from the equilibrium of a game theoretic model with data to estimate the model's parameters (e.g., Signorino 1999; Smith 1999; Kalandrakis and Spirling 2012).

than to avoid places guarded by their competitors also indicates that the representatives' main task is to prevent irregularities and not to engage in activities that are best carried out in the absence of rivals' monitoring.

Although our evidence comes from Mexico, we believe our theoretical framework and findings can be applied more broadly. Our work is particularly relevant for developing democracies where electoral manipulation is common and where parties are allowed to guard their interests at the polls. As some of our findings are explained by the difference in organizational capacity between the two major parties, our conclusions are more informative for developing democracies where one party enjoys an organizational advantage but where there is still meaningful competition.

Our work is part of the growing literature on electoral manipulation. Poverty, undereducated citizens, inequality, rural environments, small electorates, and institutions that encourage intra-party competition have been consistently linked to fraud, vote buying, and legal restrictions to free competition (Lehoucq and Molina 2002; Hicken 2007; Ziblatt 2009; Birch 2011; Stokes et al. 2013).[5] A smaller group of papers has examined the effects of electoral manipulation (Simpser 2012, 2013; Vicente 2013; Gingerich 2014; Imai, Park and Greene 2015). This paper contributes to this literature by studying how parties competitively allocate resources to prevent irregularities.

The focus on inter-party strategic behavior separates this paper from work that treats a party or political machine as the only actor engaging in irregular practices or that gives a passive role to its rivals. The "one-machine" assumption has been used to study interactions that occur within a party, such as the control of unaligned party operatives who carry out the mobilization efforts or irregularities (Szwarcberg 2012; Stokes et al. 2013; Szwarcberg 2014; Larreguy, Marshall and Querubin 2016; Rundlett and Svolik 2016), or between the party

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[5]For a review of historical work see Lehoucq (2003). Kitschelt and Wilkinson (2007) and Hicken (2011) give a survey of the literature on clientelism.

and voters, as in the case of theories of self-enforcing clientelistic strategies (Stokes 2005; Nichter 2008; Smith and Bueno de Mesquita 2012; Gans-Morse, Mazzuca and Nichter 2013; Gingerich and Medina 2013; Rueda 2015, 2017) and excessive fraud (Little 2015; Rundlett and Svolik 2016). Other work treats the manipulator's competitor as a relevant strategic actor (Simpser 2013; Nichter and Peress 2016; Rozenas 2016), but their empirical analysis does not focus on the parties' efforts to prevent irregularities. By structurally estimating the parameters of our model, we present a systematic empirical study of the interactions of parties in campaigns where manipulation occurs not present in the current literature.

Finally, this paper is also closely related to the literature that studies election monitoring efforts and its consequences (Hyde 2007; Beaulieu and Hyde 2009; Ichino and Schundeln 2012; Kelley 2012; Simpser and Donno 2012; Brancati 2014; Casas, Díaz and Trindade 2014; Hyde and Marinov 2014; Cantú and García-Ponce 2015; Chernykh and Svolik 2015). Although we present evidence of the importance of partisan monitors for electoral outcomes that is in line with previous findings, our goal is to use these estimates to inform the study of where representatives are placed. Our main contribution to this literature is to analyze the inter-party strategic considerations driving the level of monitoring chosen by the parties.

Elections in Mexico

There are a number of institutional features and characteristics of the Mexican electoral environment that inform our empirical strategy. This section briefly describes them.

The Mexican Chamber of Deputies is elected every three years through a mixed-member electoral system. Of the 500 deputies, 300 are elected in single-member districts by plurality rule, while the remaining 200 are elected by closed list proportional representation. Electoral districts are divided into precincts which typically group voters into units of 1,500 people. Within each of these precincts there must be a polling station for every 750 voters.

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Voters are assigned to polling stations in alphabetical order by last name and all polling stations in a precinct are placed in the same building.[6]

The electoral law allows parties to send up to two representatives per polling station. To do so, parties have to register the names of those representatives before the election with the *Instituto Nacional Electoral* (INE-National Electoral Institute) and this registration information is not available to the public. Party officials in a district distribute campaign resources across local party cells that are in charge of a precinct or small groups of precincts and, in particular, of the recruitment or representatives. Representatives' official responsibilities involve verifying that the electoral law is being followed and reporting irregular activities at any stage of the process.[7]

Besides party representatives, there are four registered voters, who we will call *poll-workers*, present in the polling station: a president, a secretary, and two tellers. These poll-workers and their substitutes are selected through a process that consists of sequentially and randomly restricting the universe of registered voters. On election day, if any of the appointed poll-workers are missing, they are replaced by the substitutes. Any remaining missing positions are filled by people from the line of voters at that particular polling station.

We first focus our analysis on the two largest parties at the national level. The PRI, which dominated Mexican politics for seventy-one years, and the PAN, the long-standing opposition party during the PRI's autocratic regime and the incumbent party in the period covered by this study (2000-2012). Recent research suggests that the PAN and the PRI, but not the *Partido de la Revolución Democrática* (PRD-The Party of the Democratic Revolution)—the third major Mexican party–are the main beneficiaries of irregular practices such as turnout buying (Larreguy, Marshall and Querubin 2016). We later extend the

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[6]COFIPE (2008), articles 152, 155, and 239. The COFIPE was the electoral law throughout the period we study.

[7]COFIPE (2008), articles 245-251.

analysis by including the PRD.

The role of party representatives

Party representatives can influence election results in a variety of ways. First and foremost, they protect their parties from electoral irregularities. These irregularities include, among others, multiple voting, early polling station closures, miscounting, and tampering with the ballots. The ways by which they prevent such actions vary. For example, although the voters' thumbs are supposed to be marked with indelible ink, sometimes the ink is replaced with one that washes off easily. During the 2015 campaign, MORENA representatives were given bleach to test whether the ink was, in fact, indelible. A more common way for representatives to prevent multiple voting is by checking those voters who have already cast their ballots against the *lista nominal* (list of registered voters). This is possible as poll-workers are instructed to read the names of voters out loud as they approach the polling station and party representatives are given the list of registered voters on election day.

A key concern of parties is the possibility of polling stations in which all poll-workers and representatives support their rival. Emmanuel, an activist with the PAN, explains, "if there is a polling station in which you know you might win and you don't send a representative, but there is only a representative from the other party, the party that is tied with us... then, I would be worried."[8]

Parties try to gain control over the polling stations by exploiting the rule that allows voters in line at the polling station to serve as poll-workers (Larreguy, Olea and Querubin 2016). To do this, party activists place supporters first in the line to replace the assigned poll-workers who are prevented from showing up to the polls. Once a partisan poll-worker is operating as teller, secretary, or president of the polling station, the chances of altering the

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[8]Interview conducted by the authors. Mexico City, July 2015.

results increase.

One way for a poll-worker to alter the results is to spoil ballots by adding extra marks. This tactic is easier to carry out than to mark leftover ballots, or filling the tally sheets incorrectly, as those actions generally require collusion with all other poll-workers. A party representative can prevent or inform about any of those actions. Importantly, in cases in which ballots are not clearly marked by voters, representatives are instructed to "defend the party's vote" by trying to convince poll-workers that the disputed vote counts for their party or that it is invalid for their rivals.

Preventing manipulation is not the only way by which representatives affect electoral outcomes. They play a critical role in regular and irregular mobilization efforts. Besides access to the list of registered voters at the polling stations, party representatives have lists of voters who are supposed to vote for their party. The list includes legitimate supporters and people who have previously received bribes from party brokers in exchange for their vote. Given their unique position within the polling station, party representatives can verify whether those on the list have shown up to vote. This process, known as the "bingo system" (Mercado 2013; Ugalde and Rivera 2014; Larreguy, Marshall and Querubin 2016), is described in detail by a party activist from the PRI:

> If on the list it turns out there are 100, and by 3:00pm only 30 of the 100 have voted, they [the representatives] tell the activist to keep working. [The representative tells the activist] Look, go find these 70. They said they were going to come to vote for the PRI.

He also mentioned that when all the voters on the list had voted, the representatives can instruct activists working outside the polling station to engage in turnout suppression. Starting fights, planting firecrackers, or disseminating rumors about vandalism, theft, and violence

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around the polling station are some of the tactics used.[9]

It is important to note that such turnout suppression efforts are beneficial to the initiation party when this party has information about the expected levels of support for her rival, such as when one of its representatives sees the "bingo cards" (the lists of expected supporters) of the other parties' representatives. If the rivals are not expecting many supporters to come by later in the day, reducing turnout would not significantly benefit the party. In this way, while the bingo system cannot be prevented by other parties' representatives, it can be undermined when rival representatives are also present in the polling station.

The bingo system is greatly facilitated by the fact that poll-workers are reading the name of the person casting her ballot out loud.[10] Paradoxically, doing so was conceived as a way to increase transparency by reducing the opportunities for multiple voting. As one PRI activist commented "parties have used the goal of transparency for their own strategic ends," and the reading of the names of voters out loud is another tool to irregularly control voting behavior.

There are two important roles that representatives play facilitating these irregular mobilization efforts: the representatives transmit to party higher-ups whether brokers and activists are mobilizing enough voters based on the lists and also help brokers identify those voters who are not complying with the brokers' instructions (Mercado 2013). In this way, polling station representatives ameliorate the moral hazard problem that arises when un-aligned brokers work for a party (Stokes et al. 2013; Larreguy, Marshall and Querubin 2016; Rundlett and Svolik 2016) and partially solve the commitment problems of vote and turnout buying transactions (Smith and Bueno de Mesquita 2012; Gingerich and Medina 2013; Rueda 2015, 2017).

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[9]Interview conducted by the authors. Mexico City, July 2015.

[10]Representatives expect the secretary of the polling station to read the names of voters https://www.youtube.com/watch?v=8xvE_EchhqY (accessed 12/26/2017).

These accounts reflect that party representatives are considered important by their parties and that their allocation depends on the expected actions of rivals. The representatives not only guard against malpractice but, occasionally, engage in irregularities themselves, especially through the enforcement of turnout buying or the coordination of turnout suppression efforts. In what follows, we provide evidence in line with these observations by statistically analysing the influence of representatives on election outcomes and the strategic drivers of parties' representation at the polls.

Data

Our dataset has information on electoral results and the presence of party representatives in polling stations for the Chamber of Deputies' elections during the period 2000-2012. The INE keeps records of all the information contained in official polling station tallies, including whether or not they were signed by the representatives of each party. This information is used to create indicators of the presence of representatives.

For the analysis, we take vote shares and representatives of the PAN, PRI and the PRD to include those of the coalitions in which these parties were members. For example, in 2009 the PRI and the *Partido Verde Ecologista* (Ecologist Green Party) were part of the coalition *Primero México* (Mexico First) in the state of Guanajuato in the Uriangato district; however, in other districts in the state, the PRI competed against all other parties by itself. For the precincts located in Uriangato we consider the votes and the representatives of the PRI to be those of the *Primero México* coalition. For all other districts where there was no coalition between the PRI and other parties, we use the PRI's vote shares and number of representatives.[11]

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[11]Appendix A lists the parties that are counted as members of PRI, PAN, or PRD coalitions and the years and location in which the coalition existed.
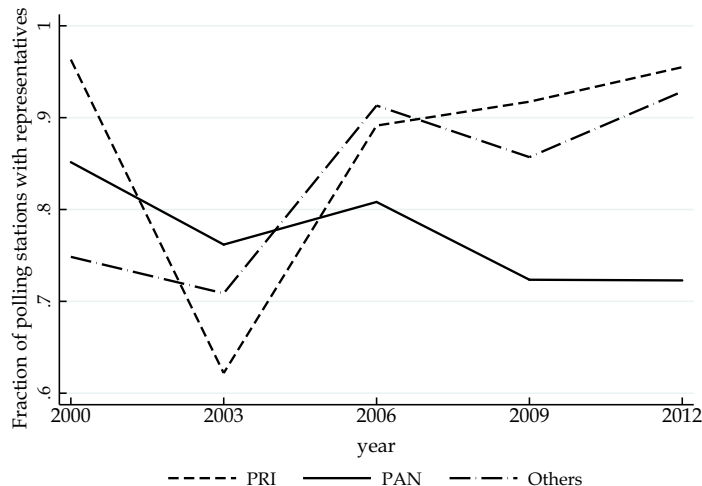
Figure 1: Fraction of Polling Stations with Representatives

Figure 1 presents the fraction of polling stations with representatives from each party by year. With the exception of the 2003 congressional elections, the PRI covers a larger fraction of polling stations than the PAN. We also see that, relative to years in which only congressional elections are held (2003 and 2009), in presidential election years (2000, 2006, and 2012), parties tend to cover a larger fraction of polling stations. The main difference between the two largest parties is that, unlike the PAN, the PRI has increased the share of polling stations that it monitors. Although these figures show a clear dominance of the PRI in terms of representation at polling stations, there is geographic variation in that coverage. In 75 districts the PRI has a coverage of less than 80%, with the lowest being 45%.

Figure 2 shows the fraction of polling stations with representatives, but we now condition on whether other parties have representatives of their own.[12] Both parties have the highest probability of sending representatives to polling stations in which the other major party and at least one other party also have representatives (0.783 for the PAN and 0.910

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[12]ANOVA tests confirm that all differences in means within each bargraph are significant with the exception of the one between 'PRI, others' and 'PRI, no others'.
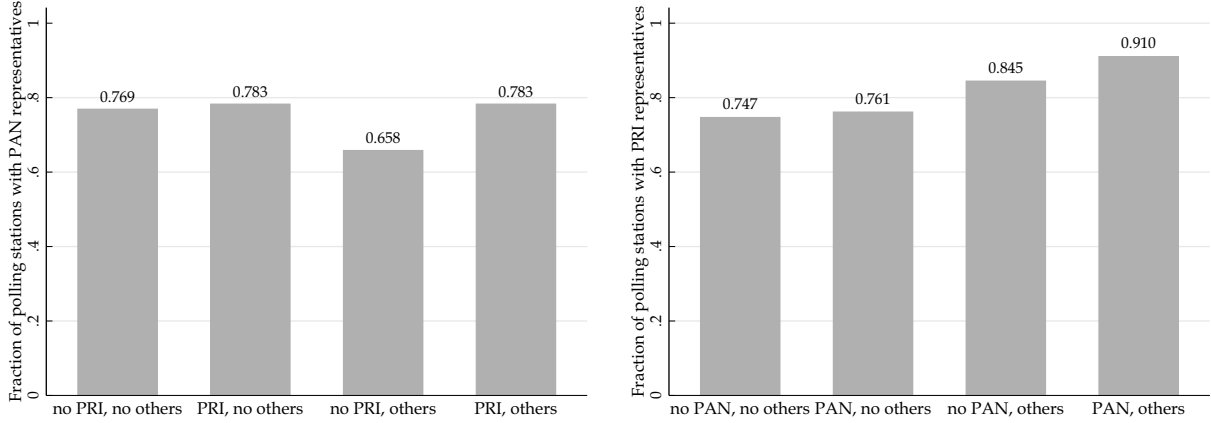
Figure 2: Representation Conditional on Rivals' Presence

for the PRI). Moreover, both major parties slightly prefer to send representatives where the other major party sends theirs regardless of the presence of other parties' representatives.

As for the differences across parties, the PAN is not very likely to send representatives to stations in which there are no PRI representatives, but where at least one other party has representation (the probability is 0.658). The PRI on the other hand, has a high probability of sending representatives to stations in which the PAN is not represented, but where at least one of the smaller parties has a representative (0.845).

Party representatives and electoral outcomes

To look for evidence of party representatives influencing electoral outcomes, we estimate equations of the form

$$v_{s,t}^i = r_{s,t}^i \ \gamma_i + r_{s,t}^{-i} \ \gamma_{-i} + r_{s,t}^{\text{others}} \ \gamma_{\text{others}} + \mathbf{z}_{s,t}^{i'}\zeta + \delta_s + \eta_t + \varepsilon_{s,t},$$

where $v_{s,t}^i$ is the vote share of party $i \in \{\text{PAN,PRI}\}$ in *sección* (precinct) s in election t, $r_{s,t}^i$ is the fraction of polling stations in the precinct where party i has a representative, and

$r_{s,t}^{\text{others}}$ is the fraction of polling stations in the precinct where at least one other party other than the PRI or PAN has a representative. The major party whose vote share is not the dependent variable is denoted by $-i$. The vector $\mathbf{z}_{s,t}^{i}$ includes the margin of victory in the previous election, the logged number of polling stations in the precinct, logged population, the average number of years of schooling of a person living in the municipality where the precinct is located, a dummy for whether there are concurrent regional elections, and a dummy indicating whether the governor belongs to party i.[13] In addition, the δ_s's denote precinct fixed effects and the η_t's capture common shocks to all precincts in a given election. We expect to find a positive effect of having a representative of party i on i's vote share ($\gamma_i > 0$) and a negative effect on the other parties' vote share ($\gamma_{-i} < 0$ and $\gamma_{\text{others}} < 0$).

We cluster standard errors at the district level. Because of redistricting in 2005 and the use of precinct fixed effects models, our sample includes all precincts in the years from 2006 to 2012, and those that did not change districts from 2000 and 2003 (69% of all precincts in those years). The main results are still maintained if we use all precincts from 2000 and 2003 while clustering at the precinct level or if we restrict the sample to the post-2005 elections when there is no redistricting.

Table 1 presents the results. In columns 1 and 4 we see that both parties' vote shares are lower when representatives of their main rivals or other parties are in the precinct. Increasing the fraction of PAN representatives by one standard deviation is associated with a reduction of 1 percentage point ($\approx -0.028 \times 0.37$) in the vote share of the PRI. An increase of one standard deviation in the fraction of PAN representatives, on the other hand, is associated with a 1.55 percentage points ($\approx 0.042 \times 0.37$) increase in its vote share. The coefficient on the PRI's representatives in its vote share model is small and not significant.

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[13]The schooling and population variables come from a cubic spline interpolation that uses information from the 2000, 2005, and 2010 censuses. Summary statistics of all the variables used are Appendix I.

Below, we show that when we allow for the effects of representatives to vary with the presence of other representatives, this coefficient is larger and precisely estimated, suggesting that conditional on the PAN representatives not being present, the PRI's representatives have a positive effect on its vote shares.

The magnitudes of the estimated coefficients are substantively important. In all five elections in the sample, the margin of victory has been less than two percentage points in at least 20 races, and less than three percentage points in at least 30. In some districts, elections are so competitive that it is common to find elections decided by just a few hundred votes. Moreover, because our indicators of party representatives' presence come from their signatures on the final tally sheets, it is possible that our measures indicate that no representative was present even when they were there only for a fraction of the day. This would tend to understate the true effects of representatives in all of our regressions.

A separate challenge in interpreting the previous estimates as causal effects is the potential presence of omitted variables like partisan preferences. In particular, in an area where a party expects to do well, it is easier for that party to recruit representatives. The precinct fixed effects specification would rule out that possibility if the voters who vote in a particular precinct have stable political preferences. Mexico has characteristics that make this assumption more plausible: it has a relatively well institutionalized party system and most of the voters in a precinct are the same as those who have voted there before. Nevertheless, campaign-specific factors not controlled for could influence the parties' support and the availability of representatives over time.

Table 1: Party Representatives and Electoral Outcomes (Precinct Level)

Dependent variable:	PAN's vote share			PRI's vote share			Turnout	Null share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PAN's representatives	0.042***	0.042***	0.045***	-0.028***	-0.029***	-0.011**	0.012*	-0.004**
	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)	(0.006)	(0.002)
PRI's representatives	-0.012**	-0.014***	-0.012***	0.007	0.005	0.021***	0.013**	-0.009***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.002)
PAN's representatives × PRI's representatives			-0.003			-0.021***	-0.007	0.005**
			(0.006)			(0.005)	(0.006)	(0.002)
Others' representatives	-0.028***	-0.029***	-0.029***	-0.023***	-0.022***	-0.022***	-0.006***	0.002**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.001)
Registered representatives	no	yes	yes	no	yes	yes	yes	yes
Precincts	64,653	64,345	64,345	64,653	64,345	64,345	64,345	64,345
Observations	267,984	241,152	241,152	267,984	241,152	241174	241,324	241,154

All models include precinct and election year fixed effects. Additional controls are: logged number of polling stations, margin of victory in the previous election, a dummy for whether the governor belongs to the same party, a dummy for whether there is a local election, logged population in the municipality where the precinct is located, and average number of years in school of a person in the municipality. "Registered representatives" denotes specifications that control for the fraction of polling stations in the precinct where representatives of the PAN, PRI, and smaller parties had been registered. Standard errors clustered at the district level are in parentheses.

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We adopt three different strategies to address this concern. We first examine district-year fixed effects models. These regressions exploit variation across precincts in the same district in a given election and therefore hold constant all characteristics of a particular campaign. Potential confounders like candidates' characteristics, or the quality of the campaign management would be accounted for in these models. We find that representatives are positively associated with their party's vote shares and negatively with that of their rival with coefficients of similar magnitudes. We also estimate models that control for the lag of the dependent variable to account for the possibility that in places where the party did better in the past, it is easier to find representatives. Although the negative coefficient on the PAN's representatives in the PRI's vote share model is not significant, we still see a positive effect of representatives on their own vote shares and a negative one of other parties' representatives for both parties as expected.[14]

The third, and perhaps most robust strategy, is to control for the fraction of party representatives of each party that were registered in a polling station before the election while still including precinct fixed effects. The rest of models in Table 1 have this specification. These regressions compare the same precinct in different periods in which the same fraction of representatives were supposed to be present, but where the actual level of representation differed. Since parties can not have representatives at the polls without registering them first, the inclusion of registered representatives allows us to indirectly control for all unobservable factors related to the availability of party representatives as well as those that determine the willingness of parties to have representation. Unobserved levels of public support is one such factor. Thus the coefficient of interest in these regressions should capture the influence of representatives on the results and not the party's ability to have the representatives there. Columns 2 and 5 of Table 1 show that the magnitudes and significance of the coefficients of

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[14]Results are in Appendix D and those of district-year fixed effects models are in Appendix I.

interest change little when we add the registration controls.

The models in columns 3 and 6 include an interaction term between the representatives of the PAN and the PRI. If there are representatives from both parties, it is possible that they would attempt to neutralize actions against their own party taken by the rival's representatives. Take for example the practice of monitoring the lists of supporters who have voted in a polling station. If one representative is not expecting large turnout by her party's supporters but knows that her rival's representatives are (perhaps because she saw the bingo card of the opponent), she could call for turnout suppression efforts. We see that the coefficient on the interaction is negative for both parties' vote share models but the one in the PRI's model is much larger and precisely estimated. The results show that the positive effect of the PRI representatives on its own vote share is offset by the presence of PAN representatives. The differences in results across parties could be explained if the PRI is more likely than the PAN to use its representatives for practices that are harder to carry out in the presence of rivals' representatives. The fact that, according to surveys, the PRI is the party that engages in the most vote buying (Mercado 2013) and the PRI's long history of electoral irregularities (Cornelius and Craig 1991; Magaloni 2006) are in line with this interpretation.

The models in columns 7 and 8 give us information about how representatives are influencing the results. In column 7, we see that the estimated coefficients on representatives in a turnout model are positive and the one on the interaction term has a smaller magnitude and is negative. If all the polling stations in a precinct had representation from one major party in the absence of the other party's representative, turnout would increase by about 1 percentage point. However, this marginal effect becomes close to zero whenever their main rival has full representation as well. When both parties cover all polling stations, the turnout of the precinct will be 1.8 percentage points higher.[15]

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[15] $\approx 0.012 + 0.013 - 0.007$ with a standard error of 0.0056.

Column 8 shows that the presence of representatives of either the PAN or the PRI slightly decreases the share of null votes, but that these effects are weakened by the presence of their rival's representatives. These patterns would be observed if representatives are preventing poll-workers from tampering with the ballots or if they are influencing poll-workers' decisions when ballots are not clearly marked. In the latter case, convincing poll-workers to count a disputed ballot in favor of the party is much easier when other parties' representatives are not present.

To gather more evidence on whether representatives influence results by counteracting actions carried out by partisan poll-workers, we examine models in which we include the presence of poll-workers from the line of voters (those that replaced the officially assigned ones) as an explanatory variable. Consistent with the idea of representatives defending their vote from poll-workers' malpractice, we find that the share of null votes increases by about one percent when there are poll workers from the line in the absence of representatives from a major party. However, this association almost disappears when representatives of both parties completely cover the precinct. We also find a negative association between turnout and the presence of poll-workers from the line that is weakened by having representatives of both parties. Poll-workers are more likely to come from the line where polling stations are less accessible and where officially assigned poll-workers will not show up. This is precisely where parties need to enforce turnout buying the most.[16]

We also estimate models in which the dependent variable is a measure of particularly high turnout and vote shares for one of the parties. We use the number of polling stations in the precinct that had both a vote share and turnout above their 95th percentile in the district as the dependent variable.[17] We find that representatives of the PRI are not significantly associated with particularly high measures of turnout and vote share of the PAN. Although

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[16]Appendix E presents the results.

[17]See Appendix I. Results are similar if we use the 90th percentile threshold.

there is a statistically significant negative relationship between the fraction of PAN representatives and the measure of unusual results for the PRI, the magnitude of the estimated coefficient on representatives is very close to zero.

Robustness

In addition to the precinct-level analysis, we explored models that use polling-station-level data to further account for potential confounders. We first estimate models with precinct-year fixed effects. This specification exploits the fact that voters in a precinct are assigned alphabetically to polling stations, which makes the exogeneity of the representatives indicators more plausible. We find that the sign of the estimated coefficients on representatives are in line with expectations in vote share and turnout models. These coefficients are statistically significant for PAN representatives in vote and turnout models and for PRI representatives in turnout models, but the magnitudes are very close to zero. This is not surprising, however, given the possibility of spillover effects. In Appendix C, we show through Monte Carlo experiments that if there are spillovers across polling stations in the same precinct, the estimates from the precinct-year fixed effects specifications can be severely biased towards zero.

Such spillovers can occur given that the polling stations within a precinct are (by law) in the same building and, in practice, are often right next to each other.[18] This, together with the fact that poll-workers are reading the name of the person casting her ballot out loud, facilitate turnout buying enforcement by representatives in contiguous polling stations. Moreover, if a representative instructs party operatives outside the polling station to engage in turnout suppression other polling stations in the precinct are likely to be affected.

Besides aggregating the data to the precinct level, an alternative to account for

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[18]Appendix I includes pictures of polling stations illustrating the point.

spillovers while still using polling-station-level data is to control for representation in the other polling stations in the precinct. In these regressions, we also control for polling station fixed effects and registered representatives in the polling station of interest and contiguous ones in the same precinct. Given the rule capping the sizes of polling stations to 750 voters, however, it is possible that the voters voting in a polling station in a given election are not the same as those who voted there previously. To address this problem, we treat as a new polling station one that comes from the division of a larger one that reached the 750 cap by assigning it a new polling station identifier.[19] Consistent with the existence of spillovers, we find that the presence of PAN representatives in adjacent polling stations is associated with larger PAN vote shares and smaller PRI vote shares. Also, we see that the presence of PRI representatives in adjacent polling stations increases turnout. The main findings regarding the relationship between vote shares, turnout, null shares, and presence of representatives are consistent with the precinct-level analysis.[20]

Despite our previous efforts, it is still difficult to say that the attendance of representatives at polling stations is as-if-random. Consider one precinct for which a party has the same fraction of representatives registered in two different elections. The party could have more resources available in one of these periods, improving mobilization efforts and, because the party can pay more, increasing the chances that registered representatives are actually at the precinct. To see whether these concerns are important in practice, we carry out a sensitivity analysis based on coefficient stability (Oster 2016). We find that in order to produce

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[19]If a precinct has 750 registered voters in 2000, 740 voters in 2003, and 800 in 2006, all voters would vote in a polling station with the same identifier in 2000 and 2003. In 2006, the voters would be divided in two stations. We assign to both of these polling stations a different identifier from the one that the original polling station had. We repeat the process if the rule is applied later to any of the "new" polling stations.

[20]See Appendix B.

a null effect of PAN representatives on PAN's vote shares, selection on unobservables would have to be 4.5 times larger than selection on observables, while to produce a null finding for the PRI, selection on unobservables would have to be 5.5 times larger than selection on observables. This sensitivity analysis critically depends on assumptions about how much of the variance in vote shares is explained by observed and unobserved confounders (R^{max}). We follow Oster by setting this R-squared to $1.3\widetilde{R}$, where $\tilde{R}$ is the R-squared from the regression of vote shares on our full set of controls.[21] We also found found that selection on unobservables would have to be as large as selection on observed controls to explain away the effects of representatives using more stringent assumptions on the R^{max}.

Allocation of polling station representatives

We now turn to the task of studying the strategic drivers or representation. Consider the decision of local party officials in a given precinct. The party officials would want to avoid leaving the precinct unmonitored if they believe their representatives can prevent the rivals' representatives from harming their interest. Similarly, if representatives can take actions in favor of their parties that are more easily carried out in the absence of the parties' rivals, the party officials should send representatives to a precinct if it is not guarded by the competition. These observations suggest that, under such expectations, parties should monitor the precinct regardless of their rivals' representation choices. Figure 3 presents the payoffs of a simple representation game that is aligned with these expectations.[22] These

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[21]The $1.3\widetilde{R}$ is the quantity that would allow 90% of results in a sample of papers that used randomized treatments published in five top economics journals to survive after the adjustment on observables procedure (Oster 2016, p. 28). See Appendix F for results.

[22]Informed by how campaigns are organized in Mexico, we model the allocation decision at each precinct and not the more centralized decision of how to distribute campaign resources

payoffs come from the expected vote shares predicted by the models in Table 1 (columns 3 and 6).[23]

		PRI	
		Full Coverage	No Coverage
PAN	Full Coverage	$0.03, -0.011$	$0.045, -0.011$
	No Coverage	$-0.012, 0.021$	$0, 0$

Figure 3: Allocation Based on Electoral Outcomes

In this game regardless of what the PRI chooses, the PAN is better off having full representation, but the PRI only has full coverage as a clear choice when the PAN does not cover all polling stations.[24] When the PAN is fully present, sending representatives is not effective for the PRI since the PAN's representatives neutralize the effects of the PRI's representatives. Given this, the PAN has a flat best response function, always choosing full representation. Full representation is also the PRI's unique best response for all levels of the PAN's representation except 100%, where not having representatives is also optimal.

This first approximation to exploring the strategic determinants of representation assumes that representation choices are exclusively determined by their impact on electoral returns. The conclusion of this analysis is that parties would either both choose to cover all polling stations in a precinct, or that the PAN would be fully present while the PRI abstains from monitoring the precinct. As we will see, the optimal responses of parties and these conclusions change once we account for the electoral benefits of representation and overall

across different precincts, which could be captured by a Blotto-style game.

[23]We set all controls to zero and ignore intercepts. This game is equivalent to one where the covariates take other values. All non-zero payoffs are significantly different from zero. We can also reject the null of equality of payoffs across choices fixing the action of the other party—the exception is the PRI's choice when the PAN has full coverage.

[24]We discretize the action space to facilitate the exposition. An analysis with continuous actions that takes vote shares as the payoffs would give the same substantive conclusions.

costs.

Accounting for the costs of representation is key to understand how parties protect themselves. Representatives' wages fall in the range of 150 to 300 pesos per day (7-15 US dollars) and there are also bonuses for good performance (Mercado 2013). The local party officials might find it more cost-effective to spend those resources on other activities.

Even without detailed information on campaign costs at the precinct level, we can still examine the nature of the strategic interaction accounting for the costs of representation by using the observed variation in representatives' location. This is possible since the observed location of representatives reflects the optimal decision of a party that simultaneously considers costs and benefits. In what follows, we formulate and estimate the parameters of a formal model of representation giving a precise structure for the parties' optimization problem. Our modelling framework follows Bajari et al. (2010), who provide a general setup for estimation of static games with discrete actions.

Strategic model

Suppose that the PRI and the PAN compete in a district that contains S electoral precincts. Here, we describe the parties' interaction in one precinct, and in the appendix we generalize the model to include data from multiple precincts. Parties decide what fraction of polling stations within a precinct to which they want to send representatives. Given the observed distribution of representation, we assume that parties take one of three actions: low representation (L), medium representation (M), or high representation (H). A party has low representation if its representatives cover less than 20% of the precinct's polling stations, medium representation if the share of covered polling stations is greater than or equal to 20% or less than 80%, and high representation if the party's coverage is 80% or higher. We further assume that at the time these actions are taken, parties do not know the representation levels of their competitors. The action taken by party i will be denoted by a_i.

Parties maximize precinct-level payoffs by choosing their representation level. The payoffs of party i are given by

$$\pi_i(a_i = k, a_{-i}, \mathbf{x}_i, \epsilon_i) = \mathbf{x}_i' \beta_{i,k} + 1\{a_{-i} = M\}\alpha_{i,k,M} + 1\{a_{-i} = H\}\alpha_{i,k,H} + \epsilon_i(k),$$

with $k \in \{L, M, H\}$ and $1\{.\}$ denoting the indicator function. These payoffs capture the electoral benefits as well as the costs of running a campaign in the area (e.g., finding brokers, representatives, or advertising). The α parameters tell us how the rival's actions affect the party's payoffs while $\beta_{i,k}$ captures the impact of contextual variables.[25]

Finally, there are action-specific shocks to the payoffs, $\epsilon_i(k)$. We assume these shocks are private information and are also not observed by the econometrician. Furthermore, they are i.i.d. across parties and across actions and drawn from a Type I Extreme Value distribution. The previous assumptions make this a game of incomplete information with simultaneous moves and the equilibrium concept we use is Bayesian Nash Equilibrium. A strategy in this game is a function that gives the party's level of representation for a given set of payoff-relevant characteristics and private shocks.[26]

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[25]We include in $\mathbf{x}_i$ all controls used in the vote share models. In addition, we include previous turnout, the vote share difference in the precinct between the PRI and the PAN in the previous election, the distance from party i's closest headquarters to the precinct, and the distance from the nearest city of the two most populated ones in the state to the precinct.

[26]We focus on symmetric strategies. Given the strategy, r, the ex-ante probability that one party chooses action k is then

$$p_i(a_i = k) = \int 1\{r_i(\mathbf{x}_i, \epsilon_i(k)) = k\}f(\epsilon_i(k))d\epsilon_i(k),$$

In equilibrium, parties will choose the action that maximizes their expected payoffs so the probability of i choosing a_i is

(1) $$p_i(a_i) = Pr\left\{\widetilde{\pi}_i(a_i, \mathbf{x}_i, \epsilon_i, \mathbf{p}_{-i}) \geq \widetilde{\pi}_i(a_i', \mathbf{x}_i, \epsilon_i, \mathbf{p}_{-i}) \text{ for all } a_i' \neq a_i\right\},$$

where we denote the expected payoffs of party i by $\widetilde{\pi}_i$ and $\mathbf{p}_{-i}$ gives the other party's ex-ante probabilities for each action. The vector of equilibrium probabilities of both parties' actions is denoted by $\mathbf{p} = (\mathbf{p}_{\text{PAN}}, \mathbf{p}_{\text{PRI}})$ and θ is a vector that includes all parameters. We write the system of equations implied by (1) compactly as

(2) $$\mathbf{p} = \Psi(\mathbf{p}, \mathbf{x}; \theta).$$

Given expression (1) and the known distribution of the private shocks, we can write the likelihood function of the model and estimate θ using the Mexican data.[27]

Estimation

Following Hotz and Miller (1993), we estimate in a first stage the action probabilities that enter the likelihood, $\widehat{\mathbf{p}}$, using a multinomial logit with a flexible specification that only includes exogenous variables.[28] Then, in the second stage, we estimate the structural

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where f is the distribution of shocks.

[27]Appendix H presents the full derivation of the likelihood.

[28]We include in the first stage pairwise interactions of all explanatory variables, the variables themselves, and the square terms of all continuous variables. A flexible specification is needed, as first stage estimates of equilibrium probabilitites need to be consistent even when we do not know how exactly exogenous variables affect them.

parameters, θ, by maximizing the likelihood derived from equilibrium conditions.

One immediate challenge for estimation is that there could be several probability vectors that satisfy the fixed point equation (2). Without taking the multiplicity of equilibria into account, the two-stage estimation procedure would generate inconsistent estimates (see, e.g., de Paula 2013). Consistency can be achieved, however, if only one equilibrium is played in the data. That is, given the same observables in a group of precincts where there are multiple equilibria, parties would play the same equilibrium in all of these precincts. This assumption is sensible in settings in which the same players interact with each other over time under the same set of rules, as in the case of Mexico.

We also need to satisfy exclusion restrictions to identify the effects of expectations about other players' actions and state variables on observed players' choices (Bajari et al. 2010). In particular, we need to include in $\mathbf{x}_i$ a continuous variable that affects each party's payoff directly but that is excluded from the payoff equation of its rival.[29] Using geo-referenced locations of the parties' headquarters in each district, we compute the distance from each of them to the precinct.[30] In this way, the distance from a PRI (PAN) headquarter to the precinct is an explanatory variable in the first stage when estimating the PRI's (PAN's) action probabilitites, but it is not included in the set of variables that affect the PAN's (PRI's) utility in the second stage.

More distant precincts impose greater logistical challenges on the party that could make representation less likely. The distance of the rival's headquarter could, however, potentially affect the party's own payoff. For example, a larger distance from a PAN headquarter

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[29]Appendix H describes the intuition for why this exclusion restriction allows us to estimate the strategic component of the payoffs.

[30]We first search for the party headquarter that is located in the same district as the polling station. If no party headquarter is in the district, the search continues to the neighboring districts until a party headquarter is found.

is correlated with how rural the precinct is, which directly changes the composition of the electorate. For this reason, we control for demographics, previous election characteristics, and the distance to the nearest city out of the top two most populous ones in the state. With these controls, the distance from the precinct to a party headquarter of a rival party should only affect the payoff of a player through this rival's equilibrium actions. The results of the first stage confirm that distance to a party headquarter is negatively related to the chances of that party choosing medium or high representation (relative to low) after controlling for all explanatory variables, their pairwise interactions, and square terms of continuous variables.[31]

Given that the distances to the parties' headquarters are computed based on their 2015 location, we use the two most recent elections in our sample for estimation.[32] Finally, we bootstrap across districts to account for the uncertainty introduced in the first stage when computing the standard errors.[33]

Strategic model results

Table 2 presents the estimated parameters. A coefficient can be interpreted as the change in the log odds for choosing medium (or high) representation relative to low representation when an explanatory variable changes by one unit. We see that both parties are more likely to choose high representation over low when they expect their rival to cover most polling stations in the precinct. However, the PAN is less likely to choose high representation

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[31]The coefficient on the logged distance in the PRI's medium representation equation is -0.127 and the one in the PRI's high representation equation is -0.242. Similarly, for the PAN are -0.054 (medium) and -0.046 (high). They are all significant at the 99% level and Wald tests of these coefficient being zero across equations are easily rejected.

[32]By excluding 2003, we focus on a period in which all parties had a stable coverage.

[33]The bootstrap uses 500 replications.

Table 2: Representative Allocation Model Estimates

Dependent variable:	PRI's choice		PAN's choice	
	Medium	High	Medium	High
Strategic allocation:				
Rival's high representation	1.064**	2.935***	3.278**	3.201***
	(0.414)	(0.515)	(1.091)	(0.892)
Rival's medium representation	1.933	0.829	1.556	-4.36***
	(1.608)	(1.719)	(1.55)	(1.345)
Electoral environment:				
ln(Polling stations)	2.383***	1.525**	2.42***	0.878***
	(0.501)	(0.517)	(0.138)	(0.141)
L. Margin	-0.778	-1.02	-0.682	-0.688
	(0.88)	(1.11)	(0.548)	(0.646)
L. Others' representatives	0.078	0.165**	-0.097**	-0.141**
	(0.065)	(0.07)	(0.043)	(0.059)
L. Precinct's difference PAN-PRI	-0.272	0.066	0.278	-0.056
	(0.357)	(0.423)	(0.234)	(0.253)
L. Turnout	-1.314**	-3.199***	1.551***	2.139***
	(0.58)	(0.688)	(0.28)	(0.31)
State election	-0.47**	-0.892***	-0.756***	-1.366***
	(0.2)	(0.239)	(0.102)	(0.151)
Other controls:				
Governor	0.452**	1.891***	1.277***	2.286***
	(0.191)	(0.238)	(0.155)	(0.209)
ln(Distance city)	-0.121	-0.048	0.08*	0.088
	(0.075)	(0.092)	(0.045)	(0.059)
ln(Distance to party's headquarter)	-0.166*	-0.274**	-0.069**	0.002
	(0.085)	(0.098)	(0.034)	(0.044)
ln(Population)	0.013	0.054	-0.088	-0.171**
	(0.067)	(0.084)	(0.059)	(0.083)
Schooling	-0.156**	-0.306***	0.244***	0.263***
	(0.066)	(0.082)	(0.048)	(0.06)

This table presents maximum likelihood estimates of the parameters of the representative allocation game. Lags are denoted by 'L.' Bootstrapped standard errors clustered at the district level are in parentheses.

when it expects the PRI to have only medium representation.

Figure 4 presents the parties' best responses.[34] Although both parties try to cover all polling stations when they expect full representation from their rivals, the PAN's response is stronger than the PRI's. A second difference between the parties is how they react to expected medium levels of representation. The PRI decreases the probability of choosing high representation much less when it expects partial coverage from the PAN.

The previous findings contrast with the conclusions from the vote share analysis (Figure 3). There, it was a dominant strategy for the PAN to have full representation. Although the PAN would like to have full representation in precincts with and without representation of the PRI, as reflected by the representatives' impact on vote shares, this is expensive, and it cannot be done everywhere. The PAN is forced to be more selective in deciding where to send its representatives and it only bears the costs of more extensive monitoring where it expects the PRI to do the same. The PRI, on the other hand, has more resources nationally as well as an established network of activists and brokers. This is consistent with the PRI not mimicking the PAN's choices to the same degree as its rival regarding medium representation. Even with more resources and a large coverage of polling stations, the PRI significantly increases representation when it expects the PAN to have full representation.

Results regarding the presence of third parties in Table 2 show that the PAN avoids sending representatives where third parties have sent theirs in previous elections. This could indicate that the PAN relies on smaller parties to play the watchdog role in precincts where it is difficult to send its own representatives. The PRI, on the other hand, is more likely to fully cover the precinct where third parties sent their representatives in the previous election.

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[34]These predictions are made for a scenario in which all continuous explanatory variables are kept at their mean, the governor of the state does not belong to the party, and where there are concurrent local elections.
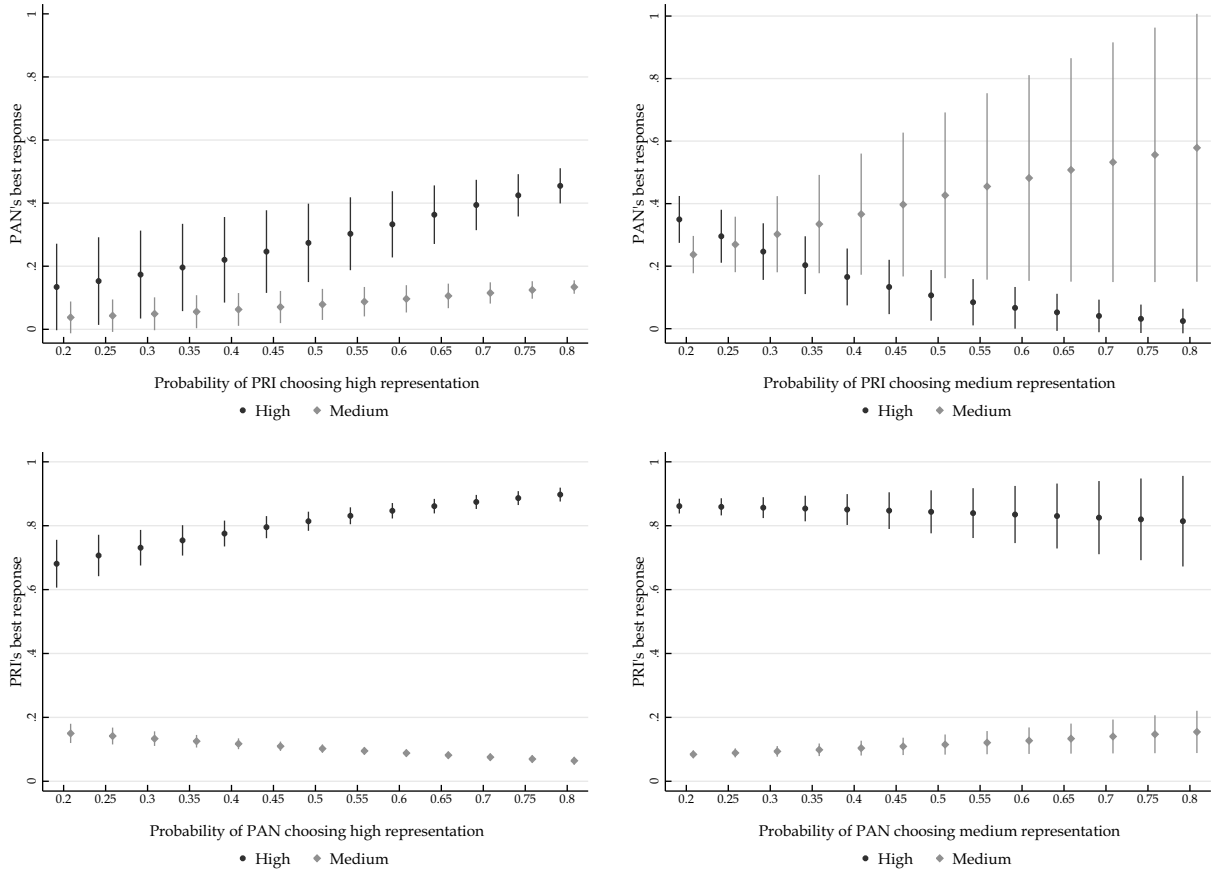
Figure 4: Best Responses to Rivals' Expected Representation

These findings are again consistent with the PRI's superior organizational capacity.

There is weak evidence that representatives concentrate in more competitive areas. Although the coefficients on the margin of victory are negative, they are not significant. A similar result is found with the vote share difference between the PRI and the PAN, which captures local competitiveness.[35]

Intuitively, we see that the parties are more likely to cover precincts with more polling stations, where a governor of their own party is in power, and in places that are closer to their headquarter in the district. The coefficients on schooling suggest that parties have representation in their natural constituencies, as higher income and more educated voters traditionally support the PAN.

The PAN is also more likely to cover precincts where turnout was higher in the previous election, while the PRI reduces its representation in these places. One interpretation for this finding is that the PAN concentrates efforts to monitor precincts where there were successful mobilization efforts by the PRI. Finally, we see that parties are less likely to cover precincts in states where the federal and state elections are held on the same day. In those states the number of polling stations increases as federal and regional elections have their own polling stations. This makes it harder for parties to find enough representatives.

The previous estimations rely on the assumption that, if the allocation game has multiple equilibria, only one of them is played in the data. We partially relax this assumption and allow different equilibria to be played in precincts with the same observed characteristics that are in different states.[36] As a second robustness test, we use an alternative two-step

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[35]We run the model for the year 2009 for which we have data on pre-electoral polls. The coefficients on the competitiveness variable built with this information are also not significant.

[36]We do this by estimating the first stage action probabilities state by state. Ideally, we would like to allow for one equilibrium to be played in each precinct, which would further rule out multiplicity problems. This is not feasible given the small number of elections per

estimator proposed by Pesendorfer and Schmidt-Dengler (2008) that minimizes the distance from actions to best responses, obtaining substantively similar results.[37] The patterns observed in Figure 4 also hold when we add indicators of whether there where poll-workers from the line of voters and the number of polling stations in the precinct where results were recounted in the previous election.[38] The appendix also shows that the estimated equilibrium-action probabilities from the first stage are similar to those computed with the best response functions. Reassuringly, this diagnostic shows that our results are compatible with the equilibrium condition (2) that is not imposed by the estimation procedure.

The PRD as a strategic actor

So far we have focused on the strategic choices of the two main parties at the national level. The third largest party, the PRD, however, has played an important role in national politics, even recently disputing the presidency in close elections. Unlike the PRI and the PAN, the PRD has consistently campaigned against electoral manipulation and recent evidence supports the view that the PRD does not benefit from practices like turnout buying (Larreguy, Marshall and Querubin 2016). Incorporating the PRD in the analysis allows us to see how the PRI and the PAN adapt their strategies to the presence of a rival that is not know to be effective when attempting irregularities.

An analysis of the strategic choice of representation based on linear vote share models indicates that full representation is a weakly dominant strategy for the PRI and strictly

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precinct.

[37]See Appendix H.

[38]Information on recounts was available for 2009. Where poll-workers from the line were present before, the PRI is less likely to cover precincts. Also the PRI is less eager to cover precincts where results were recounted before.

dominant one for the PAN and the PRD.[39] These conclusions change, however, once we account for both the costs and benefits of representation by estimating an extension of the incomplete information game with the PRD as an additional player.

Although Vuong tests and Bayesian information criterion support the more parsimonious two-player model, there are some interesting findings regarding the PRD.[40] Figure 5 presents the best responses of all parties. The results indicate that the PRD's main competitors do not seem to fear the PRD choosing full representation, as they either do not react to increases in the probability of the PRD filling all polling stations (the PRI) or actually decrease their own representation levels as a response (the PAN). Moreover, the PRD seems aware of the disadvantages of not having a presence in precincts where both of its rivals are and tries to reach representation levels that match but not exceed that of its rivals. These patterns coincide with the image of the PRD as a party who battles two richer challengers that are known to engage in more irregularities. Interestingly, the only party for which simultaneously both of its rivals increase medium and high representation reacting to its higher probability of full coverage is the PRI. This again supports the qualitative accounts that place the PRI as the party that, in relative terms, is expected to engage in more irregularities.

These findings once again differ from those reached from the electoral outcomes analysis. For the PAN and the PRD, limited resources do not allow them to have representation regardless of the expected actions of their rivals. They choose high representation when they expect the rivals who are known to cheat to be fully present.

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[39]The analysis follows a similar derivation as that of Figure 3. See Appendix H.

[40]The BIC for the two-player model is $244,648$, and that of the three-player model is $435,530$. The Vuong test is easily rejected in favor of the two-player model (test statistic 433.1).
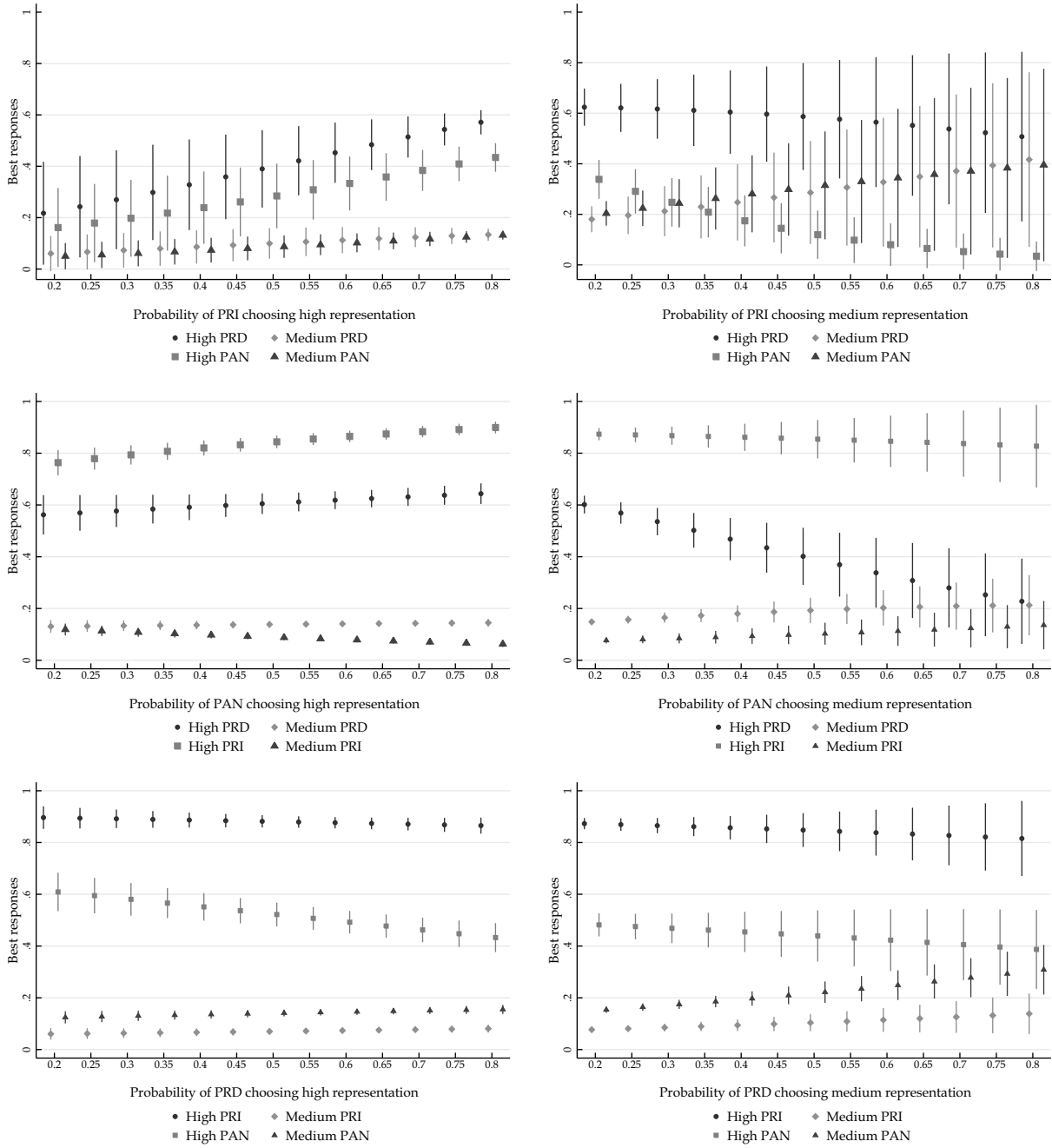
34

Figure 5: Best Responses to Expected Rival's Representation (Three player game)

Conclusion

This paper presents the first empirical study of how parties competitively allocate resources seeking to prevent electoral irregularities. Our empirical approach deviates from work on electoral manipulation that gives a passive role to the parties that are victims of irregularities and it accounts for the inherently strategic considerations of parties in these environments. We focus on the allocation of party representatives to polling stations. We find that although parties would like to have representation regardless of their rivals' allocation choices, they have to be more selective, choosing full representation when a rival that is known to cheat chooses full representation as well.

Methodologically, the estimation of the formal model allows us to take into account the costs of representation when characterising its strategic drivers in the absence of accurate and disaggregated campaign-costs data. Without this approach, a simpler analysis based purely on estimates of the effects of representatives on electoral outcomes would generate inaccurate predictions about when precincts are monitored. The electoral outcomes analysis, however, allows us to see the importance for representatives on electoral results, the representation choices parties would make in the absence of costs constraints, and the channels by which representatives affect vote shares.

We find that precincts with representatives have higher votes shares for their parties, lower ones for their opponents, higher turnout, and lower null vote shares. We also see a weaker positive association between poll-workers from the line of voters and null shares when representatives are present, and that the increase in turnout produced by representatives is smaller when rivals are also monitoring. These patterns are consistent with qualitative accounts of representatives enforcing turnout buying transactions and preventing tampering with ballots by partisan poll-workers.

The fact that parties tend to follow their rivals' expected allocation of representatives

rather than avoiding them, however, indicates that the main role of representatives is to protect the interest of their parties and not to engage in actions that can more easily be carried out in the absence of competitors' monitors. It also implies that there is a tendency towards having fewer polling stations where only one major party is represented. This can facilitate the job of independent monitors, who can concentrate their efforts in the polling stations where only one party is present.

The paper also highlights some difficulties when it comes to the design of reforms of electoral administration rules. While reading the names of voters who approach a polling station out loud inhibits multiple voting, it facilitates the control of voting behavior as carried out by party representatives in Mexico. Similarly, allowing voters from the line to serve as poll-workers guarantees the continuation of the electoral process when official poll-workers are not present at the polls, but it opens the door to party agents to be directly in charge of the vote count. More work should be done to assess whether the costs of parties exploiting these rules to their advantage outweigh the benefits sought with their initial application.

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