

Partisan Poll Watchers and Electoral Manipulation*

Sergio Ascencio[†]

Miguel R. Rueda[‡]

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Abstract

How do parties respond to the electoral manipulation attempts of their competitors? To answer this question, we study the allocation of party representatives to polling stations in an electoral environment in which fraud, vote buying, and other 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 can be involved in irregularities themselves.

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[†]Graduate Student, Department of Political Science, University of Rochester. Email: sas-cenci@z.rochester.edu.

[‡]Corresponding author. Assistant Professor, Department of Political Science, Emory University. Email: miguel.rueda@emory.edu. Tarbuton Hall 315, 1555 Dickey Drive, Atlanta, GA 30322.

Political parties compete during elections on the basis of policy platforms, previous performance in office, and very frequently, by breaking the electoral rules. When breaking the electoral rules is the chosen strategy, how do other parties defend themselves from the irregularities? What actions do parties take to guard their interests during elections? Although a growing literature has helped us to 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 irregularities as they occur. In this paper, we address these issues by studying how parties respond to manipulation in an electoral environment in which fraud, vote buying, and other irregularities are common.

One challenge of studying the responses of parties to election irregularities is that, just as with the irregularities themselves, they are difficult to observe. A party that reacts to manipulation by also breaking the electoral rules wants to hide such actions to avoid potential legal challenges. Campaign finance data that reflect changes in expenses incurred when parties respond to manipulation are often not available or suffer from misreporting. Parties could also react by informing the authorities about presumed irregularities, but these reports are likely contaminated by false claims. We circumvent these challenges by focusing on a common institutional feature that allows parties to protect themselves against electoral malpractice and whose application is more accurately observed: the allocation of party representatives to polling stations.

The electoral law allows parties to send representatives to polling stations on election day in multiple countries.¹ These representatives often constitute the first, and sometimes,

¹Afghanistan, Argentina, Belize, Burkina Faso, Colombia, Ethiopia, Fiji, Guyana, Honduras, Iraq, Malawi, Mexico, India, Bahrain, Liberia, Libya, Turkey, Tunisia, and Uganda

the only line of defense against ballot stuffing, miscounting, and other election day irregularities. The importance of their role is recognized by those involved in campaigns where electoral malpractice is common. “A polling station without a representative is a stolen polling station,” repeated 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 votes.² The role of party representatives emphasized by López Obrador is clear. Along with independent observers, party representatives protect the integrity of elections by preventing manipulation.

Paradoxically, the quality of the electoral process can be compromised by these same actors. Party representatives may use their privileged position to irregularly influence the vote count in favor of their parties, or to help control voters’ actions. This dual role of representatives—as protectors and manipulators—creates an opportunity to study how parties allocate campaign resources in the face of potential irregularities. In particular, if parties know that representatives can engage in manipulation, their choice of representation at given polling stations will be influenced by the expected allocation of their rival’s representatives. When not all polling stations can be covered, do parties send their representatives where no rivals have representation, which facilitates manipulation attempts of their own, or do they try to prevent irregularities by having a presence where other parties send their own monitors?

Understanding how parties defend their interests at the polls can help us identify how to ensure the integrity of the electoral process. Political parties want to prevent actions that hurt their electoral prospects and, as such, will use their resources optimally to this

are some examples.

²<https://www.youtube.com/watch?v=H2mU6fT2Ls4> (Accessed 1/2/2016).

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. We use a rich dataset with information from Chamber of Deputies elections in Mexico from 2000 to 2012. We find that there is a robust positive correlation between the presence of party representatives and the vote share of the party. The presence of competitors' representatives is, on the other hand, negatively associated with a party's vote share.

Since the observed patterns could reflect 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 exploit the highly disaggregated nature of our data to estimate the effect of representatives on electoral outcomes while accounting for invariable confounders at the precinct level with precinct fixed effects models. 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 of representatives and electoral results explain the main findings. Finally, we find that representatives increase turnout and reduce the share of null votes, especially when their rivals' representatives are not present. These patterns are consistent with mobilization efforts and other actions taken by representatives described in conversations with activists, party representatives, and the case study literature.

Parties consider more than how their vote shares are affected by representatives when deciding on their allocation. They take into account the resources needed to guard a polling

station, alternative uses of the party's resources, and expectations about competitors' actions. To complete the analysis of representatives' allocation while accounting for these considerations, we formulate an incomplete information game of political competition and structurally estimate its parameters using the Mexican data.³

The structural estimation approach is tightly linked to our objective of determining how parties strategically respond to potential manipulation attempts. The methodology allows us to recover estimates of the best responses derived from the formal model, which describe how the expected allocation of their rival's representatives affects the party's optimal allocation. The analysis also informs us about whether parties use representatives mainly to engage in actions that are best carried out in the absence of monitors from other parties or to protect themselves against irregularities. The findings support the latter: major parties in Mexico send their representatives where they expect their rivals to send their own.

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 interest at the polls. As some of our findings are explained by the larger organizational capacity of one of the parties, the *Partido Revolucionario Institucional* (PRI-Institutional Revolutionary Party), our conclusions are more informative for developing democracies where one party enjoys an advantage in terms of organizational capability and resources. Moreover, Mexico is an interesting case as it is a country that, despite its transition to democracy and major institutional reforms, continues to endure electoral irregularities (e.g. [Magaloni 2006](#); [Cantú 2014](#); [Cantú and García-Ponce 2015](#); [Nichter and Palmer-Rubin 2015](#)).

³This 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., [Smith 1999](#); [Signorino 1999](#); [Kalandrakis and Spirling 2012](#); [Acemoglu, García-Jimeno and Robinson 2015](#)).

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).⁴ A smaller group of papers has examined the effects of electoral manipulation (Simpser 2012, 2013; Vicente 2013; Gingerich 2014; Imai, Park and Greene 2015). Our paper contributes to this literature by studying how parties fight against electoral manipulation and how those actions determine incentives to engage in irregularities.

The focus on inter-party strategic behavior also 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 Svulik 2016), or between the party 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 Svulik 2016). Other work on electoral manipulation treats the manipulator’s competitor as a relevant strategic actor (Nichter and Peress 2016; Rozenas 2016; Simpser 2013), but their empirical analysis does not focus on the parties’ efforts to counteract 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 monitor-

⁴For a review of historical work see Lehoucq (2003). Hicken (2011) and Kitschelt and Wilkinson (2007) give a survey of the literature on clientelism.

ing efforts and its consequences (Hyde 2007; Beaulieu and Hyde 2009; Ichino and Schundeln 2012; Kelley 2012; Simpson and Donno 2012; Brancati 2014; Casas, Díaz and Trindade 2014; Hyde and Marinov 2014; Cantú and García-Ponce 2015; Chernykh and Svulik 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 allocation of partisan monitors.

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, according to the electoral law, group voters into units of 1,500 people. Within each of these precincts there must be a polling station for every 750 voters. Voters are assigned to polling stations in alphabetical order by last name. All polling stations in a precinct are placed in the same building or in adjacent locations.⁵

The electoral law allows political parties to register up to two party representatives (plus a substitute) per polling station. Party representatives are allowed to be in their assigned polling stations from the moment they open until the vote count concludes. Their official responsibilities involve verifying that the electoral law is being followed and denounc-

⁵COFIPE (2008), articles 152, 155, and 239.

ing irregular activities at any stage of the process.⁶

Besides party representatives, a group of four registered voters are 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 is missing, she is replaced by one of the substitutes. Any remaining missing positions are filled by people from the line of voters of that particular polling station, based on their order in line.

We focus our analysis on the two largest parties at the national level. The PRI, which dominated Mexican politics for seventy-one years, and the *Partido Acción Nacional* (PAN-National Action Party), 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).⁷

The role of party representatives

Party representatives can influence the vote count in a variety of ways. First and foremost, they prevent the manipulation attempts of their competitors. A look at some guidelines for representatives illustrate their most important duties in this regard.⁸ Party

⁶COFIPE (2008), articles 245-251.

⁷In the online appendix, we show that the main findings regarding the impact of representatives on electoral results also hold for the PRD.

⁸For an example of an instructional video made for representatives of the *Movimiento de Regeneración Nacional* (MORENA-National Regeneration Movement) see <https://www.>

representatives are expected to be at the polling station by the time poll-workers start preparing the election material and the polls open. During the day, they report any irregularities to the president of the polling station and give a written notice describing any such incidents to the secretary. After the polls close, they verify the counts, transmit the final counts to the general representatives of their parties, ensure that the results are published near the polling station, and, along with the polling station's president, deliver all official documents (e.g., vote-count report, ballots) to the *Instituto Nacional Electoral* (INE-National Electoral Institute) office in the district (IFE 2011).

Some of the incidents that representatives seek to prevent include, among others, multiple votes cast by the same person, early polling station closures, and miscounting. The ways by which they do so vary. For example, although the voters' thumbs are supposed to be marked with indelible ink after they vote and voters have to show their thumbs before they are given a ballot, it is not unusual to find that the official ink is replaced with one that washes off easily. During the 2012 campaign, MORENA representatives were given small bottles with bleach to test whether the ink was, in fact, indelible. Flashlights and candles were also distributed to prevent early polling station closures due to power outages.

A key concern of parties is the possibility of polling stations in which all poll-workers and representatives support their rival; this concern is heightened in contested areas. 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."⁹

Parties try to gain control over the polling stations in a variety of ways. A common one is to exploit the institutional feature that allows voters to serve as poll-workers (Larreguy, Olea and Querubin 2016). To do this, party activists place supporters first in line to serve

[youtube.com/watch?v=BSKZabq1m4](https://www.youtube.com/watch?v=BSKZabq1m4) (accessed on 1/2/2016).

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

as replacements for those previously appointed poll-workers who might not show up to the assigned polling station. Once a partisan poll worker is operating as a teller, secretary, or president of the polling station, the chances of altering the results increase.

Preventing manipulation is not the only way by which representatives affect electoral outcomes. They play a critical role in mobilization efforts. Party representatives have lists of voters who are supposed to vote for their party in a particular polling station. The list includes legitimate supporters and people who have received bribes from the party brokers. These names are given to the party representatives at the polling station on election day by party activists and vote brokers. Given their unique position within the polling station, party representatives 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 would inform activists working outside the polling station to engage in turnout suppression. Starting fights, planting firecrackers, or disseminating rumors about vandalism, theft, and violence around the polling station are some of the tactics used.¹⁰

There are two important roles that representatives play facilitating regular and 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 to identify those voters who are not complying with the brokers’ instructions (Mercado 2013). In this

¹⁰Interview conducted by the authors. Mexico City, July 2015.

way, polling station representatives ameliorate the moral hazard problem that arises when unaligned brokers work for a party (Stokes et al. 2013; Larreguy, Marshall and Querubin 2016; Rundlett and Svulik 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).

These accounts reflect that party representatives are considered important by the parties, that their allocation is informed by the expected actions of rival parties, and that they not only guard against malpractice but, occasionally, engage in manipulation themselves. In the rest of the paper we provide evidence supporting these observations by statistically analysing what drives parties to have representation in certain precincts.

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 reports, including whether or not the forms recording the vote totals were signed by the representative 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 and the PRI 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

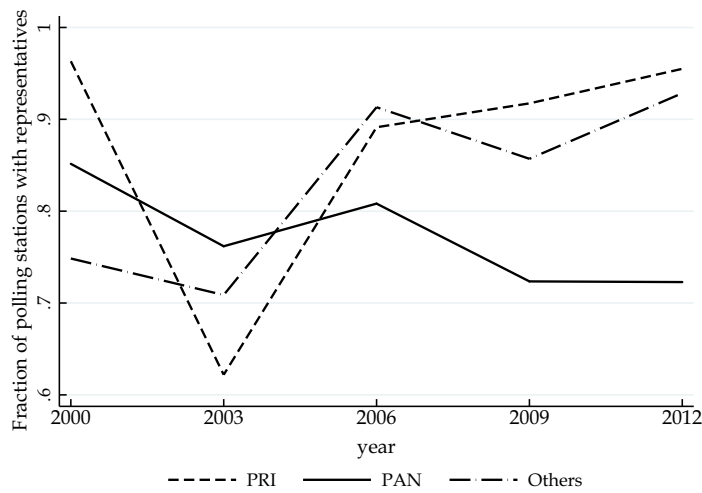


Figure 1: Fraction of Polling Stations with Representatives

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, reaching more than 90% in 2012. The dominance of the PRI is also reflected by the fact that the average precinct in the sample has 88.6% of polling stations with a PRI representative, while the PAN has 78.1% coverage.¹²

Figure 2 shows the fraction of polling stations with representatives, but we now condition on whether other parties have representatives of their own. We see that both parties

¹¹The online appendix lists the parties that are counted as members of PRI, PAN, or PRD coalitions and the years and places in which there was a coalition.

¹²Summary statistics of all the variables used in the analysis are in the online appendix.

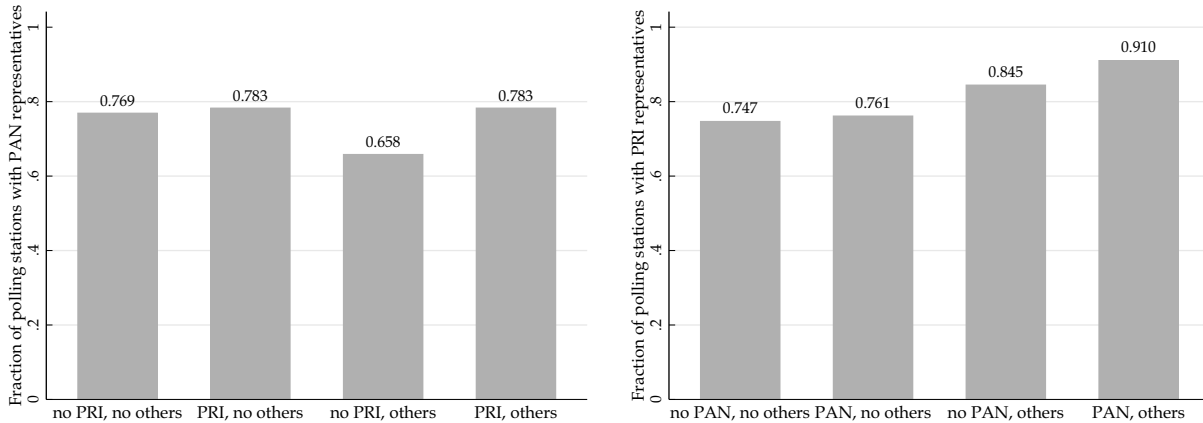


Figure 2: Representation Conditional on Rival's Presence

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 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

Polling stations of the same precinct are always located in the same building and often right next to each other, making it possible for actions of representatives in one polling station to influence the results in an adjacent polling station.¹³ Given the possibility of

¹³Parties also delegate campaign managing decisions and resources to local organizers that are responsible for groups of individual precincts. This further creates dependencies among

spillover effects across polling stations in the same precinct, our analysis is carried out at the precinct level.¹⁴

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

$$(1) \quad v_{p,t}^i = r_{p,t}^i \gamma_i + r_{p,t}^{-i} \gamma_{-i} + r_{p,t}^{\text{others}} \gamma_{\text{others}} + \mathbf{z}_{p,t}^{i'} \zeta + \delta_p + \eta_t + \varepsilon_{p,t},$$

where $v_{p,t}^i$ is the vote share of party $i \in \{\text{PAN}, \text{PRI}\}$ in precinct p in election t , $r_{p,t}^i$ is the fraction of polling stations in the precinct where party i has a representative, and $r_{p,t}^{\text{others}}$ is the fraction of polling stations in the precinct where at least other party different from the PRI and PAN has a representative. The major party whose vote share is not the dependent variable is denoted by $-i$. The vector $\mathbf{z}_{p,t}^i$ includes as controls 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 .¹⁵ In addition, the δ_p 's denote a full set of precinct fixed effects and the η_t 's capture common shocks to all precincts in a given election. The error term, $\varepsilon_{p,t}$, includes all other factors affecting electoral outcomes. We also estimate models that allow for the partial effects of representatives to vary with the presence of representatives from a rival party. 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'

the allocation of representatives within polling stations of the same precinct.

¹⁴We also estimate models using the polling station level data while accounting for the spillovers. The results are consistent with the main substantive findings (see online appendix).

¹⁵The schooling and population variables come from a cubic spline interpolation that uses information from the 2000, 2005, and 2010 censuses.

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 just 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 smaller parties are present in the precinct. Increasing the fraction of PAN representatives by one standard deviation is associated with a reduction of 1% ($\approx -0.028 \times 0.37$) in the vote share of the PRI. We also see that having a higher fraction of representatives in a precinct is associated with a higher vote share for the PAN. An increase of one standard deviation in the fraction of PAN representatives is associated with a 1.55% ($\approx 0.042 \times 0.37$) increase in its vote share. The PRI vote share model also has a positive coefficient on its representatives, but it is smaller and not precisely estimated. Below, we show that in specifications that allow for the effects of representatives to vary with the presence of other representatives, the coefficient on PRI representatives becomes positive and significant as well.

Even though the magnitudes of these associations seem small, it should be noted that in all five elections considered here, 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 or less.

The main challenge in interpreting the previous estimates as causal effects is the potential presence of omitted confounders 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 previous models include precinct fixed effects which would rule out that possibility if the group of 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 had voted there recently. Nevertheless, campaign-specific factors not included in our controls could induce shifts in the support of the candidates and in the availability of representatives over time, biasing the previous estimates.

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' perceived valence, resources allocated to the race by the parties, and quality of the campaign management would be accounted for in these models. We find, as before, that representatives are positively associated with their party's vote shares and negatively with that of their rival with coefficients of similar magnitudes (see online appendix). 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 in this specification, we still see a positive effect of representatives on their own shares and a negative one of other parties' representatives for both parties as expected (see online appendix).

The last and perhaps most robust strategy is to control for the fraction of registered party representatives in a polling station before the election while still including precinct and year fixed effects. We follow this approach in all the other models of Table 1. Unlike the district-year fixed effects strategy, controlling for registered representatives accounts for unobserved sources of heterogeneity within the district. These regressions compare the same precinct in different elections in which the same fraction of representatives of a party were

supposed to be present, but where the actual level of representation differed. By doing so, we are, in fact, indirectly accounting for all determinants of intended allocation that could also explain electoral outcomes. Information given by previous elections' results and local knowledge regarding voters' mobilization capacity are some examples of these potential confounders. We find in the models in columns 2 and 5 of Table 1 that the magnitudes and significance of the coefficients of interest remain almost unchanged.¹⁶

The models in columns 3 and 6 add an interaction term between the representatives of the PAN and the PRI to the previous models. If there are representatives from different parties, it is possible that they would attempt to neutralize any irregular action 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 notices that all her rival's supporters have already voted in the polling station, she could warn her party's own activists outside the station of the possibility of turnout suppression tactics from their rival. 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.¹⁷

The models in columns 7 and 8 give us information about the ways in which repre-

¹⁶The online appendix shows results of PRD vote share models. As expected, the PRD representatives are associated with higher PRD vote shares, while the presence of other parties' representatives reduces PRD vote shares.

¹⁷The differences in results across parties could be explained if the PRI is more likely than the PAN to use its representatives for irregular practices that are counteracted by the rival's monitor. 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 manipulation (Cornelius and Craig 1991; Magaloni 2006) are in line with this interpretation.

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 either major party in the absence of the other party's representative, turnout would increase by 1%. However, this marginal effect becomes very close to zero whenever their main rival has full representation as well. In the case of the PAN, for example, it becomes 0.004 ($\approx .011 - .007$).¹⁸

Column 8 shows that the presence of representatives of either the PAN or the PRI decreases the share of null votes, but that these effects are weakened by the presence of their rival's representatives. This is consistent with efforts taken by representatives to obtain votes for their party from the ballots that are not clearly marked. Such actions would be more easily counteracted by representatives of the rival party who could also try to influence the poll-workers' decisions.

¹⁸The null of zero marginal effect of the fraction of PAN representatives is still rejected at a 10% significance level.

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)		
PAN's representatives	0.042*** (0.003)	0.042*** (0.003)	0.045*** (0.005)	-0.028*** (0.003)	-0.029*** (0.003)	-0.011** (0.005)	0.012* (0.006)	-0.004** (0.002)
PRI's representatives	-0.012** (0.005)	-0.014*** (0.005)	-0.012*** (0.005)	0.007 (0.005)	0.005 (0.005)	0.021*** (0.005)	0.013** (0.006)	-0.009*** (0.002)
PAN's representatives × PRI's representatives			-0.003 (0.006)			-0.021*** (0.005)	-0.007 (0.006)	0.005** (0.002)
Others' representatives	-0.028*** (0.004)	-0.029*** (0.003)	-0.029*** (0.003)	-0.023*** (0.003)	-0.022*** (0.003)	-0.022*** (0.003)	-0.006*** (0.002)	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	241,174	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 PAN, PRI, and smaller parties had registered. Standard errors clustered at the district level are in parentheses.

The previous findings are also robust to regressions that use polling station level data. These more disaggregated data allow us to control for polling station fixed effects which might further account for potential time invariant confounders that are linked to the group of voters that vote in the same polling station (i.e. differences in political preferences of voters within the precinct that brokers with local knowledge exploit in mobilization efforts).¹⁹ A concern with these models is that the presence of representatives might affect outcomes and even the allocation of other representatives in different polling stations in the same precinct. The online appendix presents regression results that take spillovers into account. We do 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 and presence of representatives are consistent with the precinct-level analysis.

Finally, we estimate models in which the dependent variable is a measure of particularly high turnout and vote share for one of the parties. More specifically, we use the number of polling stations in the precinct that had a vote share and turnout above their 95th percentile in the district in that election as dependent variable.²⁰ We find that representatives of the PRI are not significantly associated with particularly high measures of turnout and vote share of the PAN. Although there is an statistically significant relationship between the fraction of PAN representatives and the number of polling stations with high turnout and vote share of the PRI, the magnitudes of the estimated coefficients on representatives are very close to zero.

¹⁹The online appendix explains how we relabel polling stations to account for the fact that small changes in the number of registered voters can induce large changes in the allocation of voters assigned to polling stations given the rule that caps polling station sizes.

²⁰Results are similar if we use the 90th percentile threshold.

The results show that vote shares are affected by the presence of party representatives. The estimates from turnout models are consistent with mobilization efforts taken by these representatives or by a greater willingness of voters to vote in places where the representatives are preventing manipulation. On the other hand, small coefficients on representatives presence in null vote shares and abnormal results models suggest a more limited prevention (or involvement) of representatives in direct fraud or miscounting.²¹ It is important to note, however, that there are multiple ways irregularities occur that can be prevented by representatives that are not easily captured by turnout, null vote shares, or indicators of abnormal voting patterns. Two examples are irregular closings of polling stations and schemes to directly enforce vote buying transactions (e.g. taking pictures of the ballots, bringing a pre-marked ballot to the polls while extracting a blank ballot to be given to another voter, sending small kids with voters to verify voting choices).

Allocation of polling station representatives

Local party officials have an incentive to avoid leaving polling stations with only representatives from its main competitor. Having representatives present at the polls allows them to prevent irregularities that the rivals' representatives might engage in. However, sending representatives to a polling station that is not guarded by the competition might be in the interest of the parties as well, as this facilitates their own mobilization efforts. A crude representation of these considerations could be given by the simple game in Figure 3. The payoffs come from the expected vote shares predicted by the models in Table 1 (columns 3

²¹Our findings regarding the presence of partisan monitors and changes in electoral outcomes are also in line with evidence from Argentina. Unlike the Mexican case, the mechanisms that drives this association in Argentina is the role of partisan monitors in the disappearance of ballot papers (Casas, Díaz and Trindade 2014).

and 6).²² Here, it is implicitly assumed that representation choices are only determined by their impact on electoral returns.

		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

Note that regardless of what the PRI chooses, the PAN is better off by having full representation in the precinct, but the PRI only has full coverage as a clear choice when the PAN is not present. When the PAN is present, sending representatives is not effective since the PAN’s representatives neutralize their actions, leaving the PRI indifferent between its choices.

While this game gives us some information about the parties’ incentives to cover certain polling stations, its assumption that allocation choices are exclusively driven by the expected electoral gains of representation might be too strong. The costs of placing representatives are important as well. Representatives need to be paid for their work and resources are spent finding good representatives. Payments to a representative 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 beneficial to spend those resources on other campaigns activities.²³ Moreover, strategic considerations could

²²We set all controls to zero and ignore intercepts. It should be clear that 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.

²³Below, we show evidence consistent with this type of substitution. In states where there are concurrent state elections, parties have to decide whether to cover polling stations for

also affect the costs of representation. A resource-rich party that is willing to give a better salary to their representatives puts pressure on its rival to do the same, especially in areas with many uncommitted voters.

Whether parties choose to mimic the allocation of their rivals, or instead avoid sending representatives where they expect their rivals to do so is a question that requires accounting not only for the electoral benefits—as the game in Figure 3 does—but also potential costs of representation. We address this question by formulating and estimating the parameters of a formal model that captures these benefits and costs and whose informational setting more closely resembles the one that local party organizers face in Mexico. Our goal is to estimate the best responses of the game, which give us the optimal representation levels for expected actions of the rival party. 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. We index parties by i , and precincts by $s = 1, \dots, S$. We first describe the parties' interaction in one precinct and, in the online 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. We assume that parties take one of three actions: low representation (L), medium representation (M), and high representation (H). We say that a party has low representation if its representatives cover less than 20% of the precinct's polling stations. A party has medium representation if the share of polling stations with representatives from the party is greater than or equal to 20% or less than 80%,

federal elections or for the local elections. Having concurrent local elections leaves parties with fewer resources for federal races, which is reflected by the lower probability of federal election polling station coverage.

and it has high representation if the party coverage is 80% or higher.²⁴ 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

$$\pi_i(a_i = k, a_{-i}, \mathbf{x}_i, \epsilon_i) = g_{i,k}(a_{-i}, \mathbf{x}_i) + \epsilon_i(k),$$

with $k \in \{L, M, H\}$. These payoffs capture the votes received by the party as well as the costs of running a campaign in the area (e.g. finding brokers, representatives, or advertising). The function $g_{i,k}$ tells us how the rival's actions and characteristics of the electoral environment and the party, \mathbf{x}_i , affect the party's payoffs.²⁵ Additionally, 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, f .

We opt for a linear specification of the function $g_{i,k}$

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

where $1\{\cdot\}$ is an indicator function. Our goal is to estimate the parameters of $g_{i,k}$, which then are used to learn about the optimal reaction of the parties given their rival's actions.

²⁴The decision to discretize the action space in this way is informed by the observed distribution of the fraction of polling stations with representatives (see the online appendix).

²⁵We include 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 top two closest most populated city in the state to the precinct.

We use the fact that the payoff function's parameters are player specific to examine the differences across parties in these best responses.

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 level of representation of the party for a given set of payoff-relevant characteristics and private shocks. Given such strategies, the expected payoffs can be computed as

$$\tilde{\pi}_i(a_i = k, \mathbf{x}_i, \epsilon_i, \mathbf{p}_{-i}) = \sum_{a_{-i} \in \{L, M, H\}} g_{i,k}(a_{-i}, \mathbf{x}_i) p_{-i}(a_{-i}) + \epsilon_i(k).$$

Here, $p_{-i}(a_{-i})$ gives the other party's ex-ante probability of taking a given action. We denote the vector of equilibrium probabilities of both parties by $\mathbf{p} = (\mathbf{p}_{\text{PAN}}, \mathbf{p}_{\text{PRI}})$.

In equilibrium, parties will choose the action that maximizes their payoffs and so

$$(2) \quad p_i(a_i) = Pr \{ \tilde{\pi}_i(a_i, \mathbf{x}_i, \epsilon_i, \mathbf{p}_{-i}) \geq \tilde{\pi}_i(a'_i, \mathbf{x}_i, \epsilon_i, \mathbf{p}_{-i}) \text{ for all } a'_i \neq a_i \}.$$

Letting θ be a vector that includes all parameters, we write the system of equations implied by (2) compactly as

$$(3) \quad \mathbf{p} = \Psi(\mathbf{p}, \mathbf{x}; \theta).$$

Estimation

In the online appendix, we use expression (2) and the known distribution of the private shocks to write the likelihood function of the model. To estimate θ , we follow a methodology proposed by [Hotz and Miller \(1993\)](#). It consists of estimating in a first stage

the action probabilities, $\hat{\mathbf{p}}$, and substituting them in the likelihood function. Then, in the second stage, we estimate the structural parameters by maximizing the likelihood.

One immediate challenge for estimation is that there could be several probability vectors that satisfy (3). Without taking the multiplicity of equilibria into account in the estimation, the procedure would generate inconsistent estimates of θ (see, e.g. [de Paula 2013](#)). Consistency of the structural estimates 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.²⁶

We also need to satisfy exclusion restrictions to identify the effects of expectations of 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 without entering the payoff equation of its rival. Using geo-referenced locations of both parties' headquarters in each district, we compute the distance from each of them to the precinct to satisfy this restriction.²⁷ More distant precincts impose greater logistical challenges on the party, which include an increased difficulty of finding representatives. After controlling for demographics and the distance to the most populous cities in the state, the distance from the precinct to a party headquarter should only indirectly affect the payoff of the other player through equilibrium actions.

Given that the distance to the party's offices is computed using their location in early

²⁶Below, we partially relax this assumption, finding similar results.

²⁷We 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.

2015, we include in our estimation the most recent elections, the 2009 and 2012 elections.²⁸ Finally, we bootstrap across districts to account for the uncertainty introduced in the first stage when computing the standard errors.²⁹

Strategic model results

Table 2 presents the estimated structural parameters. The estimates should be interpreted as the coefficients of a multinomial model where the base category is low representation.³⁰ We see that both parties are more likely to choose medium and 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 when it expects the PRI to have only medium representation.

To illustrate the magnitude of the reaction of the parties to the rival's expected actions, Figure 4 presents the predicted probabilities of choosing high and medium representation for both parties as functions of the probability of their rivals' actions.³¹ We see that the PRI is not very responsive to expected changes in the PAN's actions (the best response functions are almost flat). If anything, the PRI revises its levels of representation upwards when it expects full coverage of a precinct by the PAN. The PAN, on the other hand, responds more directly to the the PRI's actions by mimicking the placements of its rival. It is more likely to choose high representation when it expects high representation

²⁸Substantive results are robust to using only the 2012 election.

²⁹The bootstrap uses 500 replications.

³⁰A coefficient represents the change in the log odds for choosing medium (or high) representation relative to low representation when an explanatory variable changes one unit. The online appendix explains how the parameters are linked to equilibrium actions.

³¹For these predictions all other explanatory variables are set at their mean (or modes for dummy variables).

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

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

from the PRI and medium representation when medium is the PRI's more likely option. This contrasts with the conclusions from the analysis that only took into account electoral benefits of allocation (Figure 3), where it was a dominant strategy for the PAN to have full representation.

The previous differences across parties are consistent with the PRI having a more established network of activists and brokers. Because the PRI is already present in most polling stations, we do not see significant allocation changes to the PAN's expected actions. On the other hand, the PAN only bears the costs of more extensive monitoring where it expects the PRI to do the same.

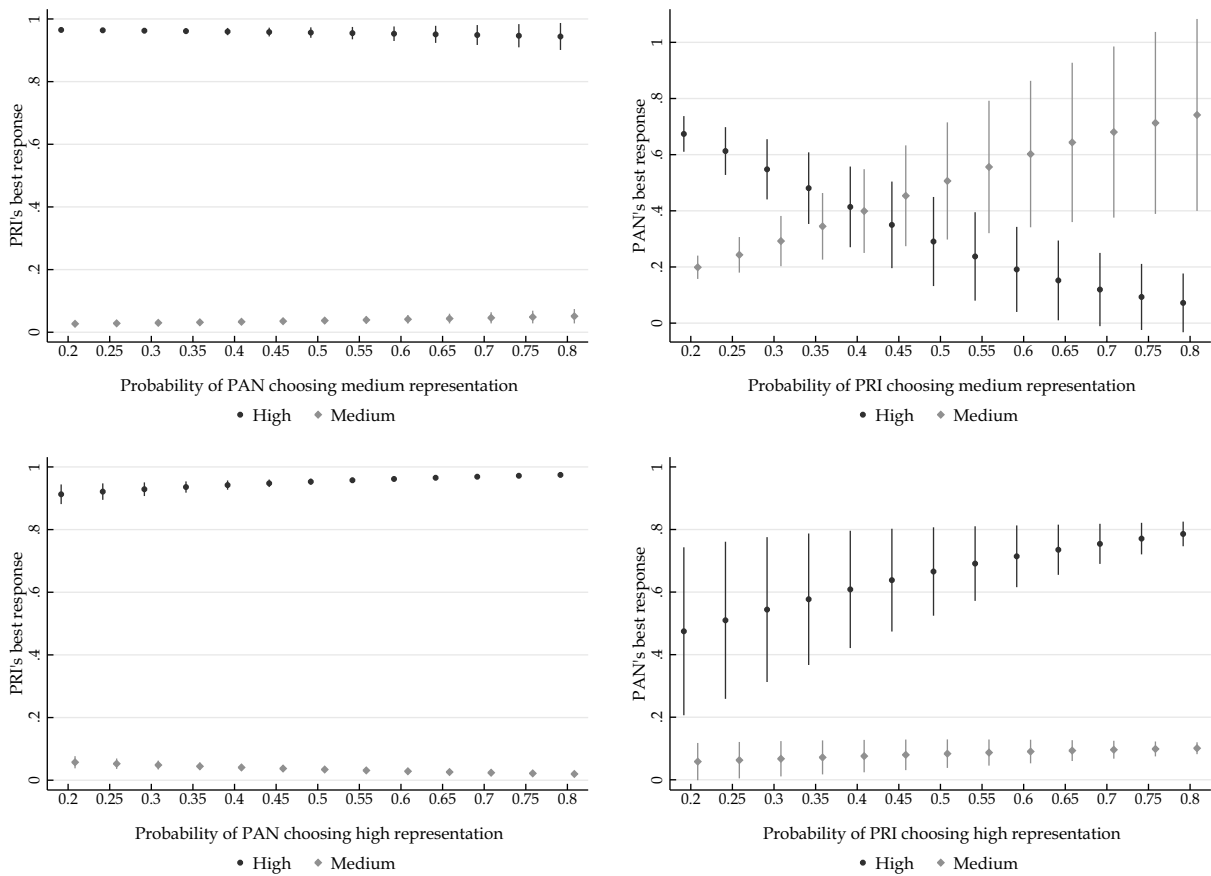


Figure 4: Best Responses to Expected Rival's Representation

Results regarding the presence of third parties in Table 2 also show that the PAN reacts differently to the actions of other parties. 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. These findings are again consistent with the PRI's superior organizational capacity.

There is no strong evidence that parties send their representatives to more competitive areas. Although the coefficients on the margin of victory are negative for both parties, they are not significant. A similar result is found with the vote share difference between the PRI and the PAN, which captures local competitiveness.

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 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 pattern is that the PAN concentrates efforts to monitor precincts where there were successful mobilization efforts by the PRI in the past. 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. This is explained by the fact that in Mexico, federal and state elections have their own polling stations, which increases the number of polling stations that require coverage in those years.

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.³² As a second robustness test, we used an alternative two-step estimator proposed by [Pesendorfer and Schmidt-Dengler \(2008\)](#), that minimizes the distance from actions to best responses obtaining substantively similar results (see online appendix). The online 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 (3) that is not imposed by the estimation procedure.

Finally, we estimate the model using data on registered representatives rather than on actual representation (see the online appendix). Once again we find that the PRI is more likely to have representation when expecting a high level of representation from its rival and that the PAN avoids sending representatives to precincts where third parties were present previously. A difference with the previous results is that the PAN appears to be more likely to choose medium representation (rather than high) when the PRI chooses high representation. This still reflects a relative disadvantage of the PAN in terms of resources needed to cover places dominated by the PRI.

Conclusion

This paper presents the first empirical study of how parties protect their interests in potentially fraudulent elections. Our empirical approach deviates from work on electoral manipulation that gives a passive role to the parties that are victims of the irregularities and it

³²We 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, however, is not feasible given the small number of elections per precinct.

directly accounts for the inherently strategic considerations of parties in these environments. We focus on the allocation of party representatives to polling stations. The decision to place representatives in a polling station depends on the electoral benefits and campaign costs of doing so. These benefits and costs are in turn affected by the rivals' actions and by whether the representatives engage in irregular practices or play a protective role. We find that parties have a higher vote share and turnout in precincts where their representatives are present, and a smaller vote share where their rivals have representation. We also find that the PRI and the PAN place their monitors where they expect their rivals to concentrate their own.

The fact that parties prefer to follow their rivals' expected allocation of representatives 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.³³ This can facilitate the job of independent monitors, who can concentrate their efforts in the polling stations where only one party is present.

Leveling the electoral playing field is particularly important in countries like Mexico where one party has a superior organizational capacity during the campaign. Our findings suggest that in such environments, smaller parties are forced to delegate the watchdog role to other parties' representatives. Independent monitors could try to help these parties cover locations where they have some support, but where it is not possible for them to have coverage of most polling stations in a precinct. An analysis similar to the one presented here but that incorporates independent monitors as strategic actors could further inform us about the benefits of similar proposals.³⁴

³³Non-strategic factors can explain why there are still a large number of polling stations that are covered by only one party.

³⁴Currently we do not have data on the location of independent monitors.

The positive association between representatives' presence and turnout is in line with descriptions of the representatives' role in mobilization efforts given by the literature (Mercado 2013; Ugalde and Rivera 2014; Larreguy, Marshall and Querubin 2016). While it is difficult to rule out that this association is explained by voters turning out to vote encouraged by the presence of representatives and the improvement in the quality of elections that it might bring, it is still important to address the normative implications of representatives not playing exclusively a protective role. Should party representatives be allowed to engage in actions that are not directly linked to protecting their parties from manipulation? Even when the representatives are not directly helping parties enforce strategies like turnout buying, their cooperation in controlling the electorates' behavior goes against common rules that promote a free voting environment.³⁵ Future work should explore in depth the relative incidence of representatives' actions that satisfy objectives other than a protective role.

³⁵Some countries prohibit polling some time before the elections or place restrictions on campaigning near the polling stations. For a list of countries with blackout periods see <http://aceproject.org/epic-en/CDMap?question=ME062>.

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