

## Auditing local elections by comparing polling stations in every precinct finds evidence of electoral fraud in Mexico.

*Mexico's history of corrupt elections throughout the 20<sup>th</sup> century casts a long shadow. Determining whether or not voter fraud and electoral corruption are a thing of the past is not easy, as the perpetrators tend to want to keep their activities hidden. In new research, **Francisco Cantu** uses a new technique to investigate voter fraud. Taking advantage of Mexico's assignment of voters to polling stations by childhood surnames, he is able to compare differences in turnout between polling stations in electoral precincts that would be caused by voter fraud. He finds that three states had these voter irregularities during the 2010 gubernatorial elections.*



The defeat of the Institutional Revolutionary Party (PRI) in the 2000 presidential election marked a watershed moment in Mexican politics. To some extent, the outcome was the result of a series of reforms adopted in the 1990s, which prevented political parties from carrying out electoral manipulation in federal elections. The scope of these reforms, however, was uneven across Mexican sub-national governments. As such, popular distrust in the integrity of elections, as shown in the [2006](#) and [2012](#) post-electoral protests, is still quite common. The question, then, is how to evaluate the integrity of elections when perpetrators want to keep their activities hidden.

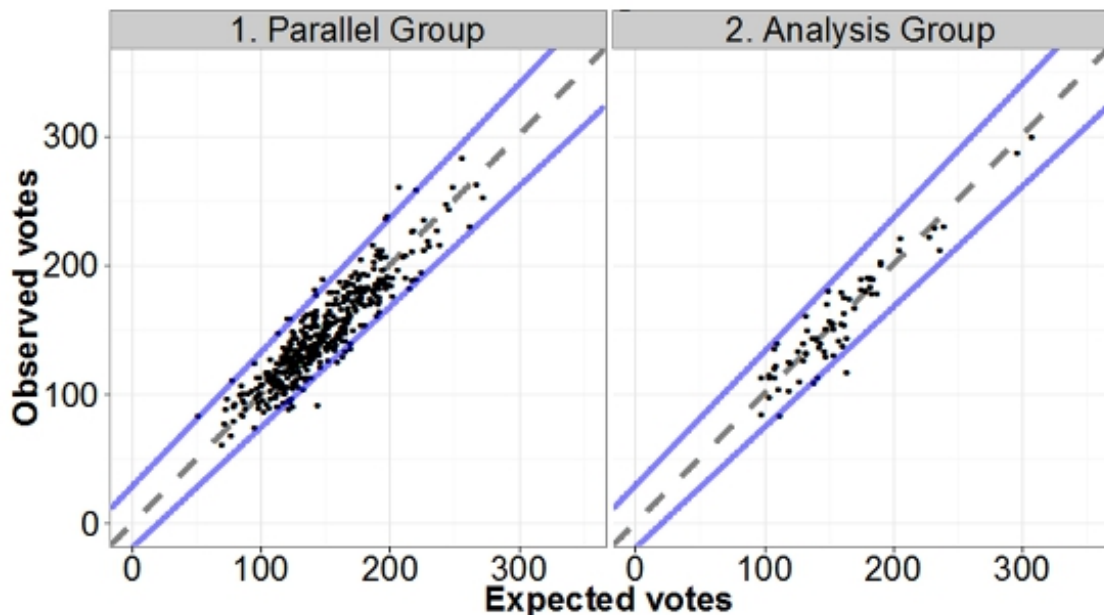
In [recent research](#), I used a new strategy to detect electoral fraud in Mexico by exploiting a feature of the country's electoral code: within each electoral precinct, voters are assigned to polling stations according to their childhood surnames. Because political preferences are seldom correlated with voters' last names, I identify fraudulent practices by finding unexpected differences in turnout levels and partisan votes across contiguous polling stations. Using this methodology I find three states with evidence of electoral irregularities during the 2010 gubernatorial elections.

To identify those suspicious polling stations, I first look for those observations with relative large turnout levels and unrepresentative rates of votes for any of the political parties when compared with other polling stations in the precinct. The methodology first separates the observations in two groups given the differences in turnout between polling stations in every precinct. The first subset contains all polling stations without significant differences among turnout levels between the precincts. I do not expect any irregularity in this subset of observations and label it as the *parallel* group. The second subset contains those precincts with values intra differences in turnout on the top 95 percent of the distribution of intra precinct differences in the state. This subset is labeled the *analysis* group.

If the turnout differences are caused by non-intentional errors during the vote counts, the consequences of these errors should affect the political parties in an unbiased way. To check for this fact, I estimate the expected number of votes for each party when no irregularities are available and compare it with the observed number of votes. If differences in turnout do not systematically affect the proportion of votes for an electoral alternative, the differences between expected and observed votes should be similar between the parallel and analysis groups.

Figure 1 shows the differences between the expected number of votes in the absence of any irregularity and the observed number of votes for the Institutional Revolutionary Party (PRI) in Hidalgo. The panel on the left shows the analysis for the observations in the *placebo* group, where there is no reason to expect any irregularity. A perfect correlation between the number of expected and observed votes would imply that the proportion of votes for any given candidate is the same across all polling stations in the same precinct, so all observations would fall over the dashed line.

**Figure 1 – Expected and observed number of votes for PRI in Hidalgo, 2010**



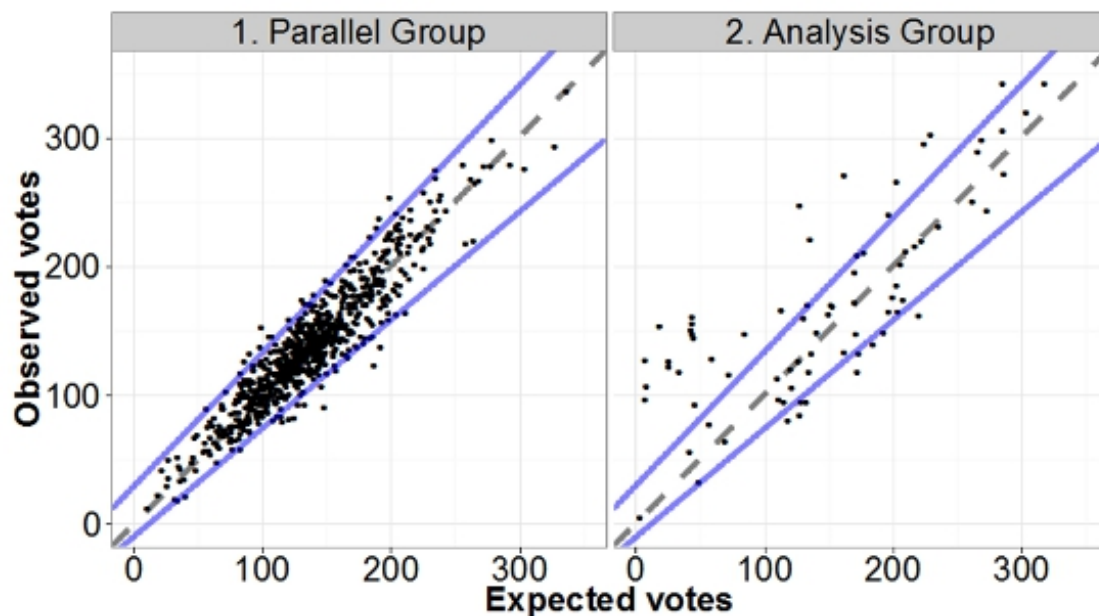
Because the measurement is subject to random events that may affect the number of votes at any polling station, estimate the bounds that should include 95 percent of the observations in this group. These bounds are the solid lines in the plot, which represent where the comparison between the expected and observed votes should be located 95 out of 100 times.

The final step is to use the bounds from the parallel group to the analysis of the treated polling stations in the analysis group—the right panel of Figure 1. If turnout differences can be explained by unintentional factors, then the proportion of votes that a party receives should correspond to the polling stations of the precinct (i.e., the observed number of votes will lie within the 95% confidence interval of the expected vote estimation). Otherwise, it is plausible that the irregularities of the turnout levels observed at the polling station disproportionately affect a particular political party.

For the particular case of Hidalgo, the number of observations outside the upper-bound is very similar for both the analysis and parallel groups. Consequently, although the election results were contested by the opposition, the evidence produced by this methodology does not support the claim of fraud.

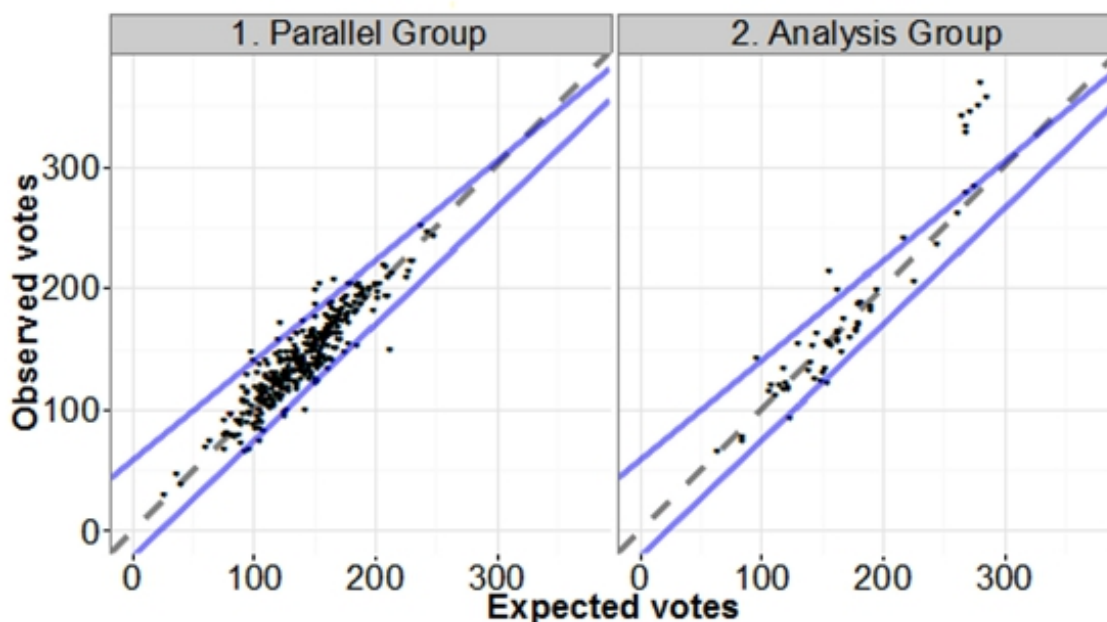
Figure 2, present the analysis for the PRI votes in the state of Oaxaca. As the panel on the right shows, the proportion of observations above the upper-bound is clearly larger in the analysis group than in the parallel group, which suggests that most of the irregularities benefitted the PRI's candidate. Some of the irregularities that the algorithm detects are in the municipality of Tututepec, where citizens filmed a meeting between people from the local electoral institution and PRI supporters, in which the latter group [received paper ballots and other electoral supplies](#).

**Figure 2 – Expected and observed number of votes for PRI in Oaxaca, 2010**



Finally, Figure 3 shows the graphical analysis for Durango, where most of the electoral irregularities have unusual voting returns for the PRI. The results identify specific events that occurred on election day. Most of the detected irregular observations in Durango occurred in the city of Gomez Palacio, where [an armed group disrupted the electoral process](#) at polling stations in precinct 447. This one event resulted in two dead policemen and caused voters and poll workers to flee the polling stations. Despite the evidence and the allegations from the challenging coalition, the local electoral court ruled against nullifying the votes in the precinct; electoral officials counted all votes from all the polling stations located in this precinct.

**Figure 3 – Expected and observed number of votes for PRI in Durango, 2010**



The implications of this research can help to uncover electoral manipulation in those places where voters are assigned to polling stations in a way that is not correlated with their electoral behavior, such as Bolivia, Jamaica, Pakistan, and Venezuela. Moreover, this methodology provides a tool to help observers and authorities evaluate the strengths and weaknesses of an electoral administration.

*This article is based on the paper 'Identifying Irregularities in Mexican Local Elections', in the American Journal of Political Science.*

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