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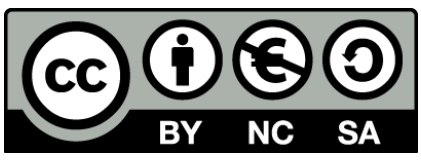


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# Incumbency Effect in Competitive Autocracies: evidence from Venezuela*

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**Abstract**

We document the presence of a strong incumbency disadvantage in local elections in a competitive autocracy: Venezuela. Using newly coded data on municipal election outcomes, we find that municipalities having experienced a narrow victory by the pro-regime party (PSUV) are 24 percentage points less likely to re-elect a pro-regime mayor in subsequent elections compared to those with marginal opposition victories. This disadvantage is primarily influenced by voter turnout, as participation rates increase on average by 6 percentage points in municipalities where the pro-regime party narrowly won. The incumbency disadvantage is driven precisely by those elections leading to a low future abstention rate. Overall, we stress the important role of voters' mobilization even in the context of autocratic regimes.

**Keywords**: Non-democratic politics, Regression-discontinuty-design, populism
**JEL Classification**: D71 D72 D78 D79

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†Collegio Carlo Alberto, during a traineeship at the ECB. This work is an independent academic effort and does not represent the views, positions, or policies of the European Central Bank (ECB). The findings, interpretations, and conclusions expressed herein are solely those of the author and do not reflect those of the ECB or any affiliated institutions.

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# 1 Introduction

Free, fair and competitive democratic elections can be a powerful tool to ensure accountability and to select better candidates (Besley, 2006). Sometimes, even less- or non-democratic regimes implement relatively free local elections, as they are also interested in ensuring an appropriate level of accountability for the local officials, and in extracting information about voters' true preferences and concerns (Martinez-Bravo et al., 2022).

An "exogenous" electoral advantage for incumbents, however, may reduce the level of accountability that elections are able to guarantee. Its existence, in democratic settings, has been for a long time a central question in Economics and Political Science. Besides many studies showing a sizeable incumbency advantage, especially in the United States and in other "western" democracies (Lee, 2008; Fowler and Hall, 2014; Dano et al., 2022), there is also evidence of incumbency disadvantage in several other contexts, such as Latin America, Eastern Europe, India and Zambia (see Klašnja (2015) for a review). The explanation relies on very strict term limits and weak partisan control (for Brazil), voters information and poor economic conditions (in Zambia) or on corruption (in Romania).

Much less is known about electoral processes in non democracies, or not fully democratic regimes (Egorov and Sonin, 2020), despite the fact that, according to (FreedomHouse, 2022), only 20% of the world population lives in a full democracy and that "hybrid" regimes, mixing "democratic with autocratic features" (Fearon and Laitin, 2003), are becoming increasingly common. In this paper, we study the local-level "incumbency effect", for the pro-regime party, in Venezuela, which is commonly considered a competitive autocracy (The V-dem Combined Polity Score (Coppedge et al., 2022) considers it an anocracy since 2006). We find evidence of a strong and significant incumbency disadvantage.

If the same logic that applies to democracies is at work in hybrid regimes, we should probably expect the opposite result. The incumbency advantage should work for the same reasons it works in democracies (pork barrel spending, name recognition, discouraging effect on competitors, media exposure...), and also for additional reasons: local officials, particularly if they are pro-regime, have more means (stronger control on the media, as in Guriev and Treisman (2020), on the local police etc.) and more incentives (in term of career in government) to mobilise local voters in favour of their party. Furthermore, pro-regime parties are certainly not weak, hence the leading explanation for the observed incumbency disadvantage in Brazil does not apply in those

cases. Our results, instead, point toward a more nuanced reality, with an important role for voters' participation. Using a regression discontinuity design in close elections (Cattaneo et al., 2019; Cattaneo and Titiunik, 2022) for identification purposes, we compare the probability of a pro-regime mayoral victory in municipalities where the candidate mayor of the pro-regime party barely won or barely lost on the previous municipal election. We find that a (marginal) mayoral election victory causes a drop of more than 25 percentage points in the pro-regime party probability of future victory, compared with a marginal victory of an opposition candidate. This effect is very stable and robust to the inclusion of controls and fixed-effects.

Our rich dataset allows us to explore different potential mechanisms. We use data from nigh-light intensity and from a big public building project (Vivienda Venezuela) to show that marginally-elected pro-regime mayors do not seem to perform worse than their counterpart. We also explore, as an alternative mechanism, the effect of a narrwo victory on voters turnout. We measure the percentage of voters abstaining in mayoral elections following a narrow victory or a narrow defeat for the pro-regime party. We find a robust negative effect of around 6 percentage points, meaning that a narrow victory for the pro-regime party seems to motivate opposition voters to show up at the polls on the next occasion. This seems to be important in explaining the incumbency disadvantage that we find: the effect is driven by municipalities whose abstention level, in the following election, is below the median, while there is no significant incumbency disadvantage in municipalities where the (future) abstention level is above the median. This is consistent with a "populist disappointment" phenomenon, as highlighted by Herrera and Trombetta (2024): voters' expectations on the effectiveness of the pro-regime, populist mayor are deluded, and they mobilize and vote for the opposition candidate in the following election.

Our paper makes three contributions. First, we document a previously unknown incumbency disadvantage in a competitive autocracy. To the best of our knowledge, this is the first paper that identifies this effect in a non-fully democratic context. Second, we highlight one possible mechanism for this result, i.e. electoral participation. This stresses the importance of beliefs and self-fulfilling expectations in autocracies: a weak local pro-regime mayor motivates voters to go to the poll, massively reducing its chances of future survival. Third, we present newly coded data on local political results in Venezuela.

**Related literature** We contribute to three strands of the literature. First, there is a well developed literature on incumbency-effect at municipality level in democracies, with mixed

results. Freier (2015) finds a positive effect in Germany, Liang (2013) in Sweden. On the opposite side, De Magalhaes (2015) and Klašnja and Titiunik (2017) find a sizeable negative effect in Brazil; Macdonald (2014) finds evidence of incumbency disadvantage in Zambian local elections; Klašnja (2015) in Romanian local elections. Moving beyond the municipality level, the available evidence points toward a positive incumbency effect in the United States and in most of the western world (Lee, 2008; Katz and King, 1999; Ade et al., 2014; Kendall and Rekkas, 2012; Horiuchi and Leigh, 2009; Fowler and Hall, 2014; Ade and Freier, 2013; Dano et al., 2022; Ansolabehere et al., 2007; Eggers and Spirling, 2017; Fiva and Røhr, 2018) and negative outside (Duraisamy et al., 2014; Roh, 2017). Examples of incumbency disadvantage, in democratic parliamentary settings, are Golden and Picci (2015) (Italy), Ariga (2015) (Japan), Roberts (2008) (Eastern Europe), Aidt et al. (2011) and Uppal (2009) (India). Our paper complements those contributions studying how incumbency effects in local elections work in an hybrid regime.

Second, we contribute to the expanding literature on the political economy of Venezuela. Handlin (2016) studies the role of mass organization, Knight and Tribin (2019), Kronick and Marshall (2018) and De Anda Casas (2023) study the role of propaganda and opposition media; Fajardo (2020) and Kronick et al. (2021) focus on the rise of chavismo and the current regime; Morales-Arilla (2020) studies the electoral returns of presidential visits; Morales-Arilla (2021) shows that the government tends to favour aligned regions in power-rationing. We study the role of local level victories on local electoral performance, suggesting a channel that passes through mobilization.

Finally, we contribute to the analysis of authoritarian regimes and elections (Denisenko, 2022; Guriev and Treisman, 2015; Magaloni, 2010; Koenig, 2019; Martinez-Bravo et al., 2022), showing that voters' mobilization can be an effective tool to boost opposition candidates' electoral fortunes, but also that this mobilization is endogenous to whether a victory is perceived to be within reach.

# 2 Institutional background

## 2.1 Venezuela's territorial power structure

The political system of Venezuela is determined by the Constitution of Venezuela (*Constitución de la República Bolivariana de Venezuela*), approved by a national constituent assembly

in 1999 and promoted by the elected president Hugo Chavez Frias. It replaced the Constitution of 1961. The Constitution prescribes the election of public offices at 3 territorial levels. At the national level it involves the election of a President (*Poder Ejecutivo*), who represents and manages the executive power (*Poder Público Nacional*), and the members of the National Assembly, who hold the legislative power (*Poder Legislativo*). Besides the national level there are a regional (*Poder Público Estadal*) and a local power (*Poder Público Municipal*), at the head of which there are governors (*Gobernadores*) and mayors (*Alcaldes*), respectively. As for local power, Venezuela has 335 municipalities (the main unit of analysis for this work), each of them being administered by a mayor who is elected every four years through universal, direct, and secret votes within a FPTP system and without term limits. Importantly, the removal of term limits was established in 2009 after a reform promoted by President Chavez, applying to all governors, mayors, and the President. Before this, there was a two terms limit.

The current Venezuelan Constitution grants significant powers and autonomy to regions and municipalities. Regional competencies include organizing public authority, managing municipal structure and resources, collecting taxes, and overseeing non-metallic mineral resources and state public services.

The main competencies of the mayors are to uphold and enforce the law, ensuring effectiveness and efficiency in providing public services within their jurisdiction, and to represent the Municipality; to execute, direct, and inspect municipal services and works; and to exercise the highest authority in personnel administration.

Regarding public finance, the regions are mainly financed through direct transfers from the central government while municipalities are financed both from direct transfers and local taxes fixed by the local authority. Both regions and municipalities can benefit from extraordinary transfers from the central national authority.

## 2.2 Political and electoral history

Since 1999, the year when Hugo Chavez became President, the political parties have been divided between pro-government and opposition. Both forces went through a homogenization and aggregation process within a context of open and increasingly mutual electoral confrontation. From 1999 up to 2022 there have been five presidential elections, five parliamentary elections, nine local elections and seven regional elections.[1]

[1]Data from Consejo Nacional Electoral (CNE).

Hugo Chavez's first political movement, *Movimiento V República* (MVR), founded in 1997, won the 1998 election. This movement had roots in Chavez's failed 1992 military coup attempt against the government of Carlos Andres Perez (Lucca, 2013). From 1999 to 2006, the MVR served as the pro-government electoral organization at all levels. In late 2006, Chavez replaced the MVR with a new organization, *El Partido Socialista Unido de Venezuela* (PSUV), aiming to consolidate pro-government and left-wing groups into a single party under his control.

Opposition forces in Venezuela have a more fragmented history. Since democracy began in 1958,[2] the political landscape was dominated by two major parties: Acción Democrática (a social-democratic party) and COPEI (a social-Catholic party) (Lucca, 2013). By the late 20th century, amid political crises, the old two-party system collapsed, and new parties emerged (McCoy, 1999). After Chavez's 1999 election, opposition parties began unifying to counter the MVR and its successor, the PSUV. The first coalition, La Coordinadora Democrática (2002–2004), evolved into the Mesa de la Unidad Democrática (MUD), which has achieved historic electoral successes, most notably in the 2015 parliamentary elections (Jiménez, 2021; Aveledo, 2021).

After the 2015 defeat, the PSUV leveraged its control over the state apparatus, built during Hugo Chavez's years (Brewer Carías, 2010), to prevent further electoral losses (Corrales, 2020).[3] In 2017, following four months of anti-government protests sparked by a Supreme Court ruling that blocked the legislative authority of the National Assembly,[4] the electoral authority banned several opposition parties, making opposition coordination much more difficult. The MUD, Venezuela's most popular political organization, was declared illegal and barred from elections.[5] Other major opposition parties were suspended (such as *Voluntad Popular* and *Primero Justicia*)[6] or had their leadership transferred to pro-government politicians (e.g., *Acción Democrática* and COPEI).[7] This fragmentation diluted opposition votes in subsequent elections, preventing a repeat of the 2015 outcome.

From 2018 to 2021, the opposition pursued political strategies outside the electoral arena, most notably forming an interim government within the 2015 National Assembly, led by Juan Guaidó in January 2019, in response to the "illegitimate" 2018 presidential election (Rosales

[2]The Venezuelan democracy started in 1958 after the end of Marcos Pérez Jiménez's government (Lucca, 2013).

[3]The opposition (MUD) won 109 seats (qualified majority), while pro-government forces (PSUV) won 55.

[4]See: https://www.dw.com/en/venezuela-supreme-court-takes-over-legislative-powers-from-national-assembly/a-38214811.

[5]See National Supreme Court sentence: Sentencia N° 0053-2018.

[6]See National Supreme Court sentences: Sentencia N° 0072-2020 and N° 0077-2020

[7]See National Supreme Court sentence: Sentencia N° 0071-2020.

and Jiménez, 2021; Boersner, 2020). At the end of 2021, opposition forces chose to participate separately in local elections. In 2024, the opposition, led by María Corina Machado with Edmundo González Urrutia as their candidate, joined the presidential election. Although official results declared Nicolás Maduro the winner, opposition leaders claimed fraud, citing ballot evidence showing González Urrutia as the victor.

### 2.3 Venezuela as a competitive autocracy and data validation

Since the arrival of President Chavez and then President Maduro to power, Venezuela has transitioned from a democracy to an authoritarian (competitive) regime. Venezuela is classified as an anocracy since 2006 by the Combined Polity Score provided by V-Dem (Coppedge et al., 2022). Following this source, we consider Venezuela a competitive autocracy since 2006 (hence, in the full period of our sample), with a stronger grip of the Government on civil society after 2016. As defined by Levitsky and Loxton (2013), competitive authoritarian regimes are "hybrid regimes in which formal democratic institutions are viewed as the primary means of gaining power, but in which incumbent abuse skews the playing field to such an extent that the opposition's ability to compete is seriously compromised." Venezuela seems to fit into this definition, since the government exerts control over the entire state apparatus and leverages it for its own benefit. Although political opposition exists, both legally and illegally, it faces constant pressure and political persecution. Additionally, the government appears to exercise intense control over national elections, such as those for the Presidency and the National Assembly, while permitting competition in local and regional elections.[8]

If we consider Venezuela a non-fully democratic regime, why are we using election data as if it were valid for empirical analysis and scientific conclusions? As mentioned, elections in Venezuela were generally competitive (although with a "skewed playing field") at least until the end of 2016. Indeed, in late 2015, the opposition won the National Assembly. Even after that, a certain degree of competition has been allowed, at least in local elections. In this study, because of the mechanics of our identification strategy, that relies on close election results between government and opposition candidates, we always rely on elections with some degree of competition, where the participation of opposition-aligned political parties and candidates was allowed and their victory was possible. In principle, even those results could have been manipulated. But, according to the McCrary test (appendix A.7), no local election present

[8] For example, in the 2021 local elections, the divided opposition won 125 out of 335 mayor's offices.

evidence of manipulation, except for those in 2021. Our results are robust to their exclusion from the sample (and they are never included in the running variable).

# 3 Empirical strategy

## 3.1 Identification strategy: Regression Discontinuity Design

In order to identify the causal effect of controlling a local office on the pro-regime party subsequent local electoral performance, we adopt a standard regression discontinuity design (RDD) in closed elections (Calonico et al., 2019; Cattaneo et al., 2019; Cattaneo and Titiunik, 2022). The institutional framework is well suited for this exercise, as mayors are elected with a first-past-the-post system and they have very relevant powers on the local administration (local police, school, local infrastructures etc). Our unit of analysis is municipality x election year, and we estimate the following model on the sample of local elections where the PSUV candidate was first or second:

$$Psuv_{i,t+1} = \ _0 + \ _1 MV_{i,t} + \ _0 Psuv_{i,t} + \ _1 Psuv_{i,t} \cdot MV_{i,t} + \ _{i,t}$$

where $MV_{i,t}$ is the PSUV margin of victory in municipality $i$, election year $t$ (negative if PSUV comes second); $Psuv_{i,t}$ is a dummy =1 if the PSUV mayoral candidate wins in municipality $i$ at time $t$ and $_{i,t}$ is the error term. In a nutshell, ours is a standard municipality level "incumbency advantage" regression (unconditional on the same person re-running). If everything else is continuous at the relevant threshold of the running variable (0, in this case), $_0$ captures the causal effect of marginally electing a PSUV mayor (*vis-à-vis* an opposition one) on future electoral outcomes at local level. We cluster standard errors at the municipality level and we estimate the regression using MSE optimal bandwidth, local linear regression, triangular kernel. Following Marshall (2022), our "treament" is not just the election of a pro-regime mayor, but also the fact that elections were close.

## 3.2 Data

We manually collected data on mayoral elections for the 335 Venezuelan municipalities for the period 2008-2021. Those include 4 municipal elections (2008, 2013, 2017, 2021). We have information on the partisan affiliation and the vote share of the winner and of the second-placed

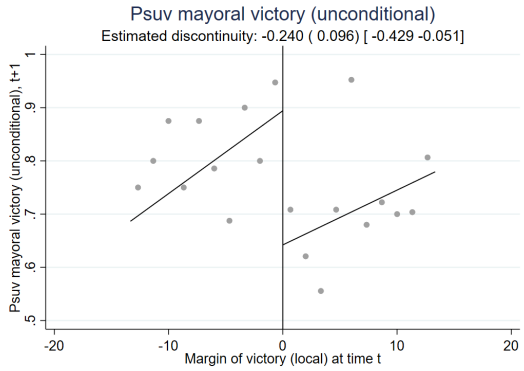
candidate, and also on the percentage of voters abstaining. We complement this dataset with a number of important socio-economic and political variables, taken from Handlin (2016) (share of public employees, total number of workers, pre-2008 national elections results, presence of a "communal council") and from the last two rounds of the census (share of poor people, number of families, population, surface, health establishments, share of urban population and of males, share of indigenous inhabitants). Finally, we have harmonized night-light data from Li et al. (2020) and new data we coded on municipalities receiving buildings from the "Grand Mision Vivenda Venezuela", a large public building project funded by the central Government. Table A1 provides summary statistics, distinguishing between observations lying within the optimal bandwidth ("close elections") and those outside.

# 4 Analysis

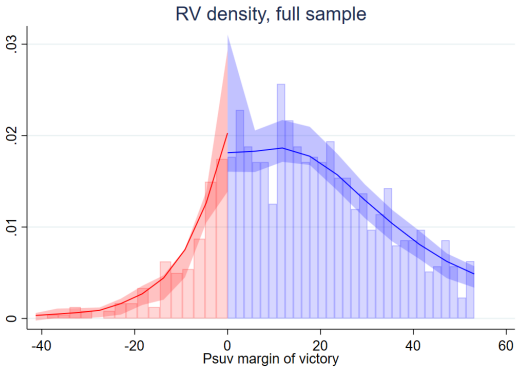
## 4.1 Results

Figure 1a provides graphical evidence of the main local incumbency effect. We plot binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. The outcome variable is a dummy equal 1 if the winner of mayoral elections at time $t + 1$ is a PSUV candidate. The negative jump is clearly visible and its size is economically meaningful: a marginal Psuv victory reduces the probability of a future Psuv victory by 24 percentage points. It is important to notice that, as we do not have information on the candidate, this probability is calculated unconditional on whether the same candidate is running, and so it is measured at party-level. To assess the credibility of our identification strategy, we show that there is no evidence of sorting at the threshold (Figure 1b)[9] and the continuity of our pre-determined (or almost pre determined) control variables and pre-2008 electoral results (Figure A1) at the threshold. Coefficients are reported in tables A2, A3, A4, A5. Only population density exhibits a jump in the dependent variable, but its inclusion in the RDD regressions as a control variable does not change the results. Both the lagged treatment dummy and the lagged running variable are also continuous at the threshold (appendix A.3).

[9] We show year-by-year McCrary tests in Appendix A.7. There is evidence of manipulation for 2021 elections. However, their exclusion from our sample does not affect the results, as shown in Table A10.




(a) Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Robust coefficients, standard errors and 95% confidence intervals are displayed.




(b) McCray test

Figure 1: Evidence of incumbency disadvantage and absence of manipulation at the threshold.

Table 1 shows the regression coefficients (conventional, bias corrected and robust). Columns (2)-(5) show that results are robust to the inclusion of controls, election-year fixed effects and region fixed effects.

Table 1: RDD, local incumbency advantage

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | -0.252 | -0.278 | -0.261 | -0.262 | -0.311 |
| | [0.082] | [0.086] | [0.068] | [0.078] | [0.070] |
| Bias-corrected | -0.240 | -0.276 | -0.269 | -0.249 | -0.313 |
| | [0.082] | [0.086] | [0.068] | [0.078] | [0.070] |
| Robust | -0.240 | -0.276 | -0.269 | -0.249 | -0.313 |
| | [0.096] | [0.102] | [0.080] | [0.092] | [0.082] |
| Robust 95% CI | [-.429 ; -.051] | [-.476 ; -.075] | [-.425 ; -.112] | [-.429 ; -.069] | [-.473 ; -.153] |
| Observations | 991 | 910 | 991 | 991 | 910 |
| Conventional p-value | 0.002 | 0.001 | 0.000 | 0.001 | 0.000 |
| Robust p-value | 0.013 | 0.007 | 0.001 | 0.007 | 0.000 |
| MSE-BW | 13.341 | 11.585 | 15.535 | 11.988 | 11.274 |
| Obs. left | 131 | 118 | 140 | 123 | 117 |
| Obs. right | 246 | 194 | 296 | 215 | 186 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: $t+1$ Psuv victory. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

### 4.2 Robustness and reliability

Our results are robust to different choices in terms of bandwidths (appendix A.4), the usage of uniform kernel (appendix A.5), region-level clustering (appendix A.11) and polynomial of second (appendices A.8 and third order A.9). Those results are reported in Appendix A. Finally, the effect is robust to "donut RDD" (appendix A.6).

Since we are using data from a hybrid regime, it is natural to ask whether our measures of electoral performance are reliable. The fact that there is no evidence of sorting at the threshold is reassuring. On top of this, table A1 shows that close elections (i.e. those included in the optimal bandwidth) are not different from those outside the bandwidth in terms of observables. The sole significant difference is in turnout, consistently with the hypothesis that close elections should increase participation. Finally, there are good reasons to believe that local elections, in an autocratic regime, are relatively more free than national elections. As pointed out by Martinez-Bravo et al. (2022), they can be a tool to extract information from the voters and increase the accountability of local officials. For the autocrat, it is much cheaper to do so by allowing for some freedom in local elections, rather than risking a loss in national elections.

## 5 Mechanisms

Our data allows us to explore few potential mechanisms behind our results. First, they may be driven by a change in the composition of the electorate: a marginal victory for the pro-regime party may motivate opposition voters to show up the next time, as they learn that the municipality is contestable. We find positive evidence of this mechanism: $t+1$ abstention is substantially lower in municipalities with a marginal PSUV victory at time $t$, and our main result is driven by municipalities with below median future abstention.

Alternatively, the effect we observe may be driven by the Government investing heavily in propaganda or public work precisely where its party marginally lost, to re-gain consensus. We do not find evidence for this mechanism. We manually coded data on "Vivienda Venezuela", a big housing project decided in 2011 by the government. We show that municipalities where the PSUV marginally lost in 2008 or 2013 are not disproportionately more likely to receive publicly-funded buildings than those where the PSUV marginally won. In other words, municipalities with close elections are treated in the same way by the central Government.

Finally, it may be that PSUV mayors perform significantly worse than opposition mayors.

It is obviously challenging to have local measures of performance in an autocracy, but we use variation in night-light intensity to show that it does not seem to be the case. If anything, the effect of a marginal PSUV victory is positive, but not very robust.

The next subsections present the results separately.

### 5.1 Abstention

Figure 2 documents the effect of a marginal PSUV victory on abstention during the next local election: it decreases by around 6 percentage points.

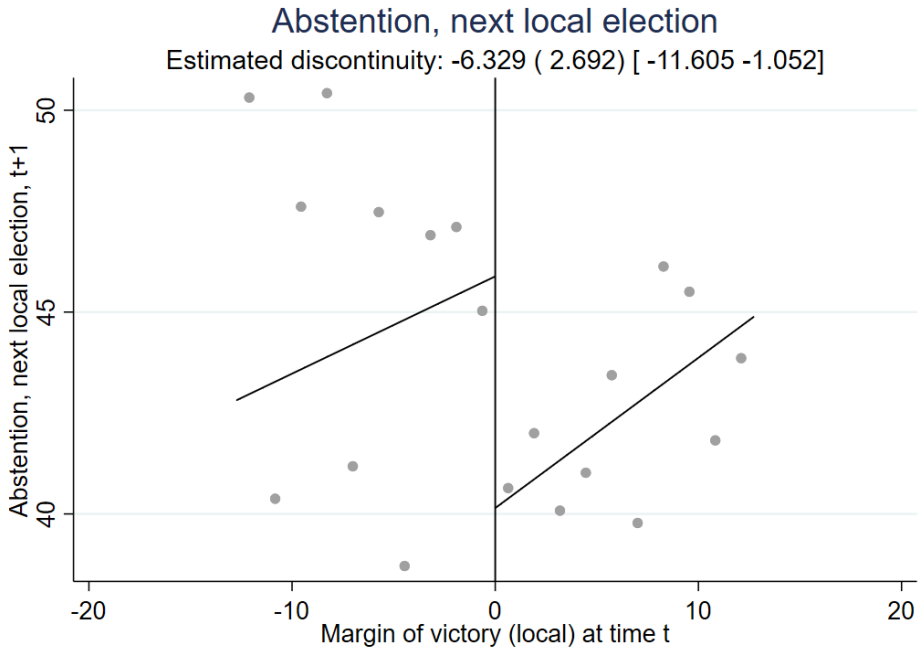
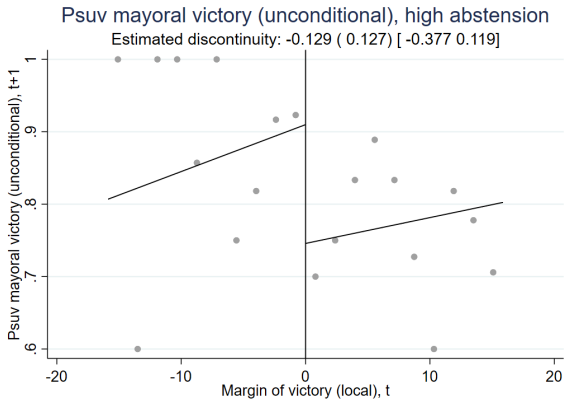


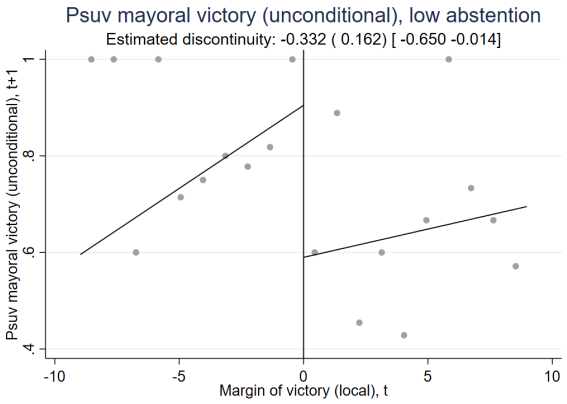

Figure 2: Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Robust coefficients, standard errors and 95% confidence intervals are displayed.

Table A11 reports the full set of coefficients for the different models we use. The negative effect remains significant and quite stable. Finally, figure 3 shows the results of our main "incumbency effect" regression when we split the sample between municipalities with above (a) and below (b) the median future abstention. The "incumbency disadvantage" in municipalities with high $t+1$ abstention is relatively small (12 percentage points) and not statistically different from 0. On the contrary, the incumbency disadvantage in municipalities with below

median future abstention is very large and statistically significant, suggesting that this group of municipalities is driving our results.




(a) Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Only elections with above-median abstention in $t+1$.




(b) Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Only elections with below-median abstention in $t+1$.

Figure 3: Comparison of binned data around the 0 threshold of the running variable for elections with high and low abstention in $t+1$. Robust coefficients, standard errors, and 95% confidence intervals are displayed.

Obviously, whether there will be high abstention or not can be also an outcome of our treatment, as it is clearly endogenous to the electoral dynamics. However, we show in Figure A16 that the probability of experiencing high future abstention does not exhibit a significant jump at the threshold of our running variable.

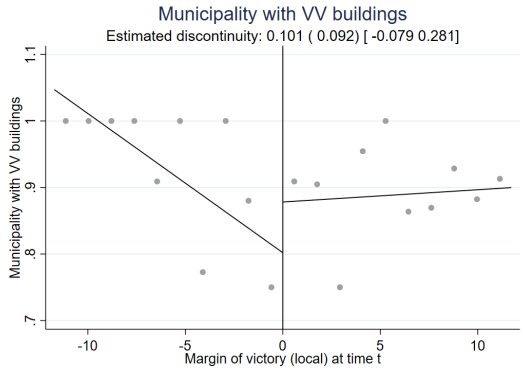
## 5.2 Housing project

The "Gran Mision Vivenda Venezuela" (GMVV) is a major public housing project started by Hugo Chavez and then continued by Maduro. The government has not released disaggregated data on municipalities receiving those State-funded buildings, but we have been able to detect them using a Government-provided map and overlapping it to a map with administrative borders. In this way, we coded a dummy variable equal to 1 if a municipality received at least one GMVV building. Unfortunately, it has been impossible to find information on the construction date so far. Using this dummy as the new outcome variable, we show that the central government does not over-invest in municipalities where the Psuv candidate mayor barely loses. If anything, it seems that municipalities with a Psuv mayor are slightly more likely to receive buildings from the GMVV. Figure 4a, reports the plot and the robust coefficient for the baseline

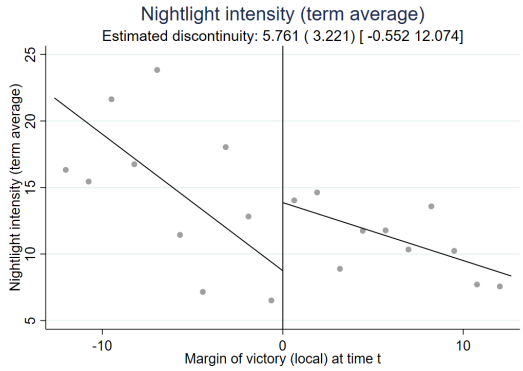
regression, while more details and all the different specifications with controls and fixed effects are in Table A12.

### 5.3 Nightlights

One proxy for economic activity at the local level is given by the night-light intensity. We use data from Li et al. (2020), that harmonised night-lights from various sources and is able to provide a consistent measure spanning from 1992 to 2018. Using a shape-file of Venezuelan administrative borders, we measure the average night-light intensity for every municipality in every year. We use years before our sample period in the balance test for covariates, showing that they are indeed balanced. In order to test whether there is disproportional economic activity in municipalities where a PSUV candidate mayor barely wins, we use the term-by-term average night-light intensity as an outcome variable for our RDD. As shown in Figure 4b, and Table A13, there is some weak evidence that municipalities where a Psuv candidate barely wins experience a higher night-light intensity. Results are very similar if we use, as outcome variables, term-by-term variation in average night-lights (Table A14) or yearly observations without aggregating by electoral terms (Table A15). Therefore, it does not seem that PSUV mayors produce systematically worse outcomes.




(a) Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Robust coefficients, standard errors, and 95% confidence intervals are displayed.




(b) Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Robust coefficients, standard errors, and 95% confidence intervals are displayed.

Figure 4: Vivenda Venezuela and Nightlights

# 6 Conclusion

We study the effect of marginal mayoral victories on subsequent performance in local elections for the pro-regime party in a competitive autocracy. We document a significant negative effect, likely driven by changes in the composition of the electorate: a marginal victory for the pro-regime parties seem to mobilize anti-regime voters more than a marginal loss.

Our results suggest further avenues of research. First, it would be important to collect candidate-level information in order to test whether there is a difference in terms of quality between pro-regime and opposition candidates. Second, further mechanisms could be tested using measures of policy outcomes at municipality level.

Overall, a deeper understanding of important features of elections in non-democratic regimes, including incumbency advantage or pro-regime bias in electoral results, is crucial, given their increasing importance on the world stage. Our paper studies their electoral dynamics showing the existence of a local incumbency disadvantage. The channel we suggest may imply that there is some fragility in autocratic regime at the local level, where voters are typically more able to express their true preferences: disillusion with populist leaders and the mobilization of opposition voters seem to play an important role in this context.

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# A Additional tables and figures

## A.1 Summary statistics

Table A1: Summary statistics by election type

| | (1) Close el. | | (2) Not close | | (3) Δ | |
|---|---|---|---|---|---|---|
| | mean | sd | mean | sd | b | t |
| Psuv mayoral victory (unconditional) | 0.751 | 0.433 | 0.756 | 0.430 | | |
| Nightlight intensity (term average) | 11.736 | 12.522 | 13.110 | 14.003 | 1.374 | (1.610) |
| Municipality with VV buildings | 0.891 | 0.312 | 0.917 | 0.276 | 0.026 | (1.333) |
| Share of public employees | 17.858 | 9.262 | 18.419 | 9.088 | 0.560 | (0.935) |
| Share of poor, 2011 | 29.217 | 12.009 | 30.080 | 12.889 | 0.863 | (1.073) |
| Number of workers | 27649.114 | 76321.555 | 23243.307 | 49682.574 | -4405.807 | (-1.001) |
| Number of families, 2011 | 22095.188 | 50260.059 | 19478.075 | 34112.730 | -2617.113 | (-0.895) |
| Population, 2007 | 89138.995 | 214654.902 | 77765.951 | 143909.370 | -11373.044 | (-0.913) |
| Surface, 2007 | 2729.846 | 7474.608 | 2688.309 | 6804.334 | -41.537 | (-0.088) |
| Population density, 2007 | 255.438 | 660.352 | 317.660 | 787.757 | 62.222 | (1.344) |
| Health Establishments per capita, 2007 | 0.001 | 0.000 | 0.001 | 0.000 | -0.000 | (-0.079) |
| Share of urban population, 2001 | 71.712 | 27.627 | 72.963 | 26.260 | 1.252 | (0.708) |
| Share of males, 2001 | 50.983 | 1.719 | 50.761 | 1.766 | -0.222 | (-1.963) |
| Share of indigenous inhab., 2001 | 2.347 | 10.584 | 2.542 | 11.695 | 0.194 | (0.264) |
| Communal Council per 1000 inhab., 2008 | 1.645 | 1.973 | 1.629 | 1.946 | -0.015 | (-0.119) |
| Abstention | 34.935 | 8.274 | 40.482 | 10.016 | 5.547 | (9.494) |
| Nightlight (avg. 1992-2008) | 9.948 | 12.662 | 11.347 | 14.744 | 1.399 | (1.593) |
| Observations | 377 | | 628 | | 1005 | |

Summary statistics. Close elections are those included in the CCT optimal bandwidth, Not Close elections are all the others.

## A.2 Balance test on covariates

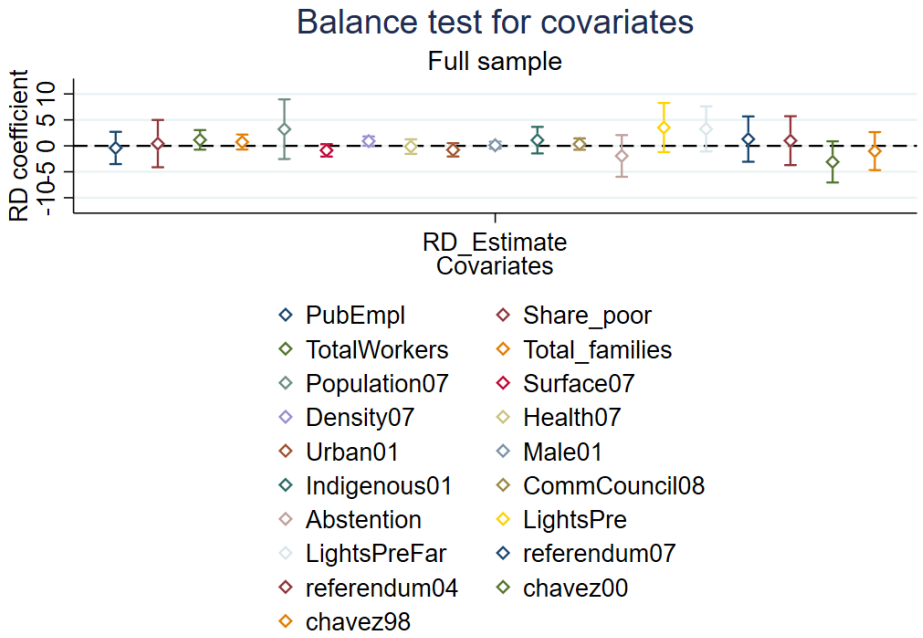


Figure A1: Balance test on covariates. No controls or FE included, clustering at municipality level. Conventional coefficients and 95% confidence intervals. Outcome variables are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008), Night-lights (average 1991-2001), share of "Yes" in 2007 referendum, share of "Yes" in 2004 referendum, vote share for Chavez in 2000, vote share for Chavez in 1998.

Table A2: Balance test

| | (1) Share of public employees | (2) Share of poor, 2011 | (3) N. of workers | (4) N. families | (5) Population |
|---|---|---|---|---|---|
| RD_Estimate | -0.410 | 0.431 | 1.150 | 0.730 | 3.201 |
| | [1.585] | [2.323] | [0.961] | [0.734] | [2.933] |
| Robust 95% CI | [-3.687 ; 3.333] | [-4.304 ; 6.253] | [-1.138 ; 3.483] | [-.991 ; 2.495] | [-3.713 ; 10.276] |
| Observations | 991 | 991 | 991 | 991 | 991 |
| Conventional p-value | 0.796 | 0.853 | 0.231 | 0.320 | 0.275 |
| Robust p-value | 0.921 | 0.717 | 0.320 | 0.398 | 0.358 |
| MSE-BW | 14.481 | 13.820 | 13.352 | 14.323 | 13.754 |
| Obs. left | 138 | 132 | 131 | 135 | 132 |
| Obs. right | 279 | 258 | 246 | 273 | 258 |

Balance test on covariates. Dependent variable: stated on each column. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. No controls or fixed effects.

Table A3: Balance test

| | (1) Surface | (2) Density | (3) Health structures p.c. | (4) Share urban pop | (5) Share of males, 2001 |
|---|---|---|---|---|---|
| RD_Estimate | -0.869 | 0.918 | -0.142 | -0.773 | 0.123 |
| | [0.609] | [0.454] | [0.717] | [0.655] | [0.342] |
| Robust 95% CI | [-2.331 ; .471] | [.153 ; 2.22] | [-1.673 ; 1.587] | [-2.497 ; .395] | [-.613 ; .949] |
| Observations | 991 | 991 | 970 | 991 | 991 |
| Conventional p-value | 0.153 | 0.043 | 0.844 | 0.238 | 0.719 |
| Robust p-value | 0.193 | 0.025 | 0.959 | 0.154 | 0.673 |
| MSE-BW | 14.093 | 8.841 | 14.400 | 10.824 | 17.116 |
| Obs. left | 134 | 108 | 135 | 119 | 143 |
| Obs. right | 265 | 164 | 272 | 189 | 318 |

Balance test on covariates. Dependent variable: stated on each column. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. No controls or fixed effects.

Table A4: Balance test

| | (1) Share of indigenous inhab., 2001 | (2) Communal Council per 1000 inhab., 2008 | (3) Abstention | (4) Nightlight (avg. 1992-2008) |
|---|---|---|---|---|
| RD_Estimate | 1.096 | 0.345 | -1.946 | 3.525 |
| | [1.307] | [0.560] | [2.050] | [2.418] |
| Robust 95% CI | [-1.631 ; 4.591] | [-.804 ; 1.8] | [-7.233 ; 2.344] | [-1.278 ; 9.848] |
| Observations | 931 | 991 | 991 | 991 |
| Conventional p-value | 0.402 | 0.538 | 0.343 | 0.145 |
| Robust p-value | 0.351 | 0.453 | 0.317 | 0.131 |
| MSE-BW | 10.101 | 11.937 | 11.538 | 11.577 |
| Obs. left | 114 | 123 | 121 | 121 |
| Obs. right | 174 | 209 | 205 | 205 |

Balance test on covariates. Dependent variable: stated on each column. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. No controls or fixed effects.

Table A5: Balance test

| | (1) Nightlight (avg. 1992-2001) | (2) Share of yes, 2007 | (3) Share of yes, 2004 | (4) Chavez vote share, 2000 | (5) Chavez vote share, 1998 |
|---|---|---|---|---|---|
| RD_Estimate | 3.254 | 1.301 | 0.999 | -3.095 | -1.023 |
| | [2.219] | [2.228] | [2.403] | [2.024] | [1.869] |
| Robust 95% CI | [-1.139 ; 9.084] | [-3.368 ; 6.871] | [-4.885 ; 6.395] | [-7.351 ; 1.937] | [-5.108 ; 3.216] |
| Observations | 991 | 977 | 991 | 991 | 991 |
| Conventional p-value | 0.142 | 0.559 | 0.678 | 0.126 | 0.584 |
| Robust p-value | 0.128 | 0.502 | 0.793 | 0.253 | 0.656 |
| MSE-BW | 11.471 | 10.195 | 11.409 | 13.038 | 16.150 |
| Obs. left | 121 | 116 | 121 | 130 | 140 |
| Obs. right | 204 | 180 | 202 | 244 | 304 |

Balance test on covariates. Dependent variable: stated on each column. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. No controls or fixed effects.

## A.3 Continuity of lagged treatment and running variable

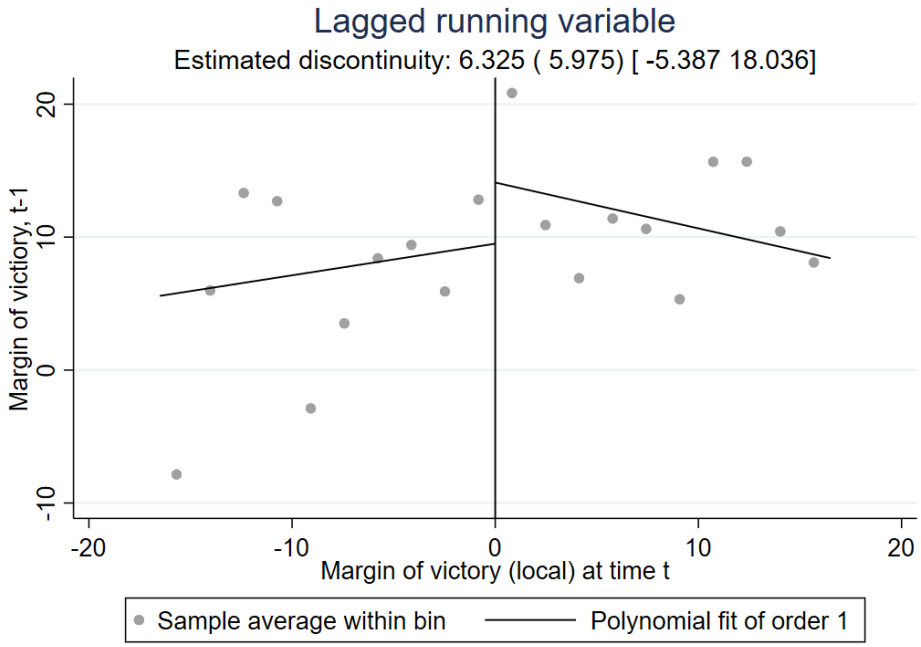


Figure A2: Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Outcome variable: lagged running variable. Robust coefficients, standard errors and 95% confidence intervals are displayed.

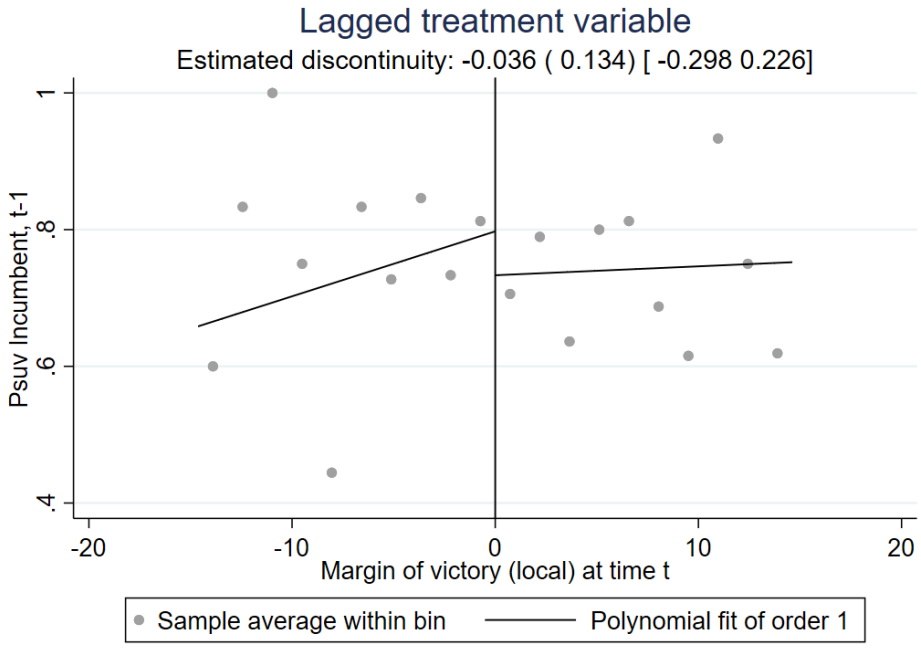


Figure A3: Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Outcome variable: lagged treatment dummy. Robust coefficients, standard errors and 95% confidence intervals are displayed.

## A.4 Robustness to different bandwidths and selection of bandwidths calculation methods

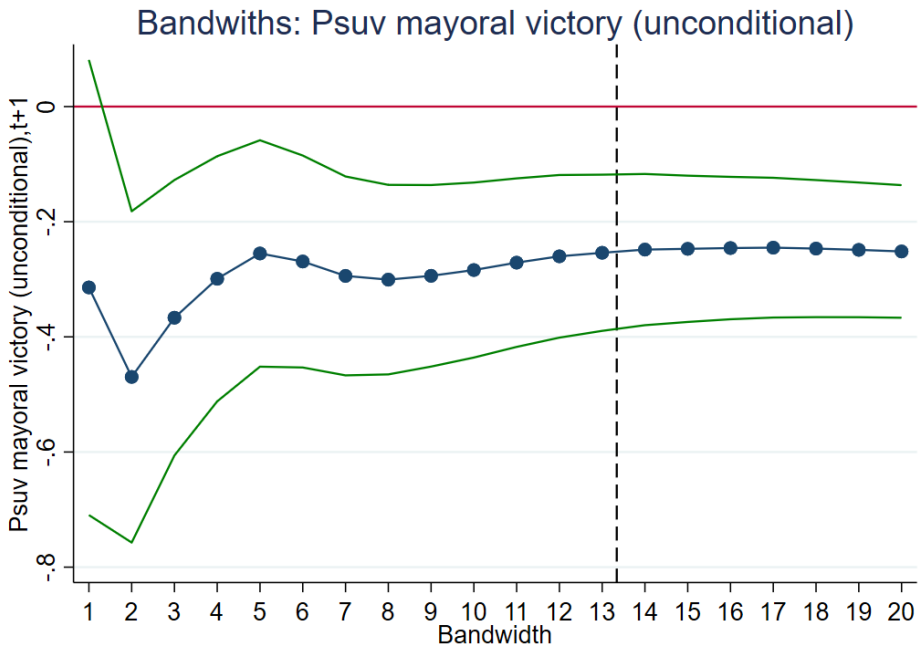


Figure A4: RD coefficient for different bandwidths. Vertical line is the MSE optimal bandwidth. Coefficients and 95% confidence intervals.

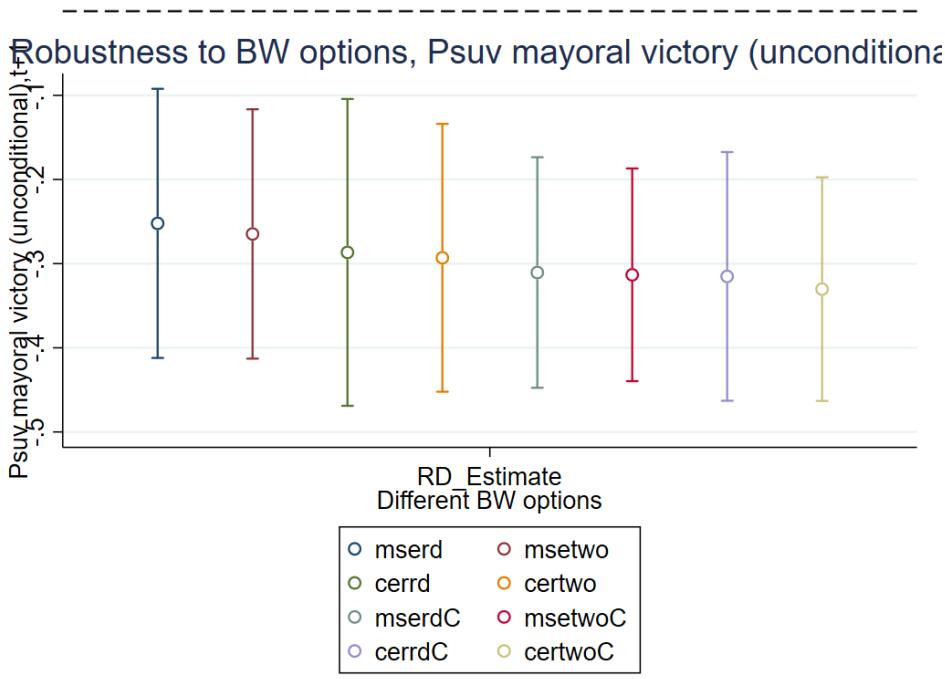


Figure A5: RD coefficient for different bandwidths calculation methods. Coefficients and 95% confidence intervals.

## A.5 Uniform kernel

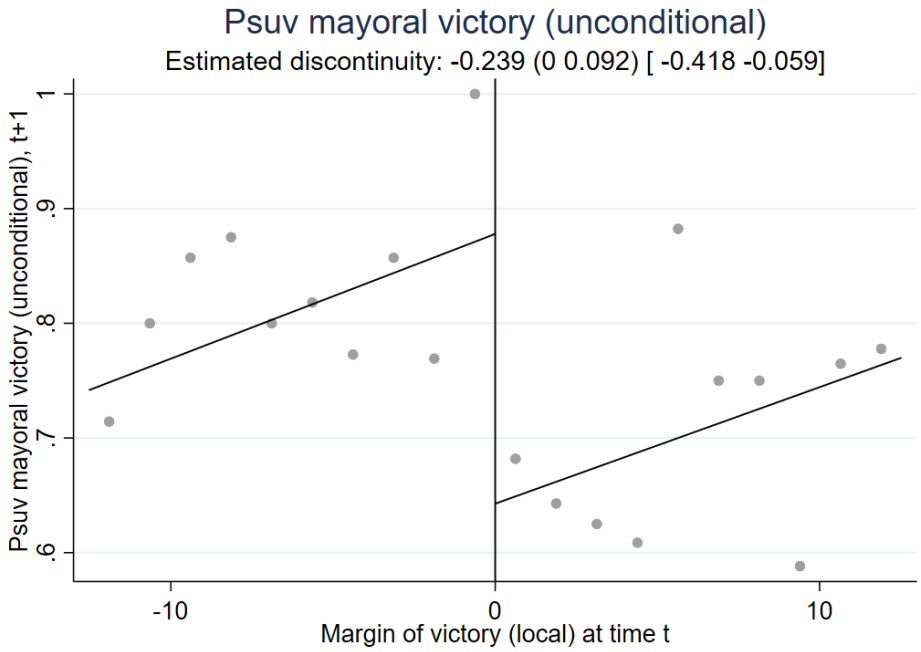


Figure A6: Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Uniform kernel. Robust coefficients, standard errors and 95% confidence intervals are displayed.

Table A6: RDD, local incumbency advantage

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | -0.235 | -0.280 | -0.266 | -0.240 | -0.312 |
| | [0.080] | [0.095] | [0.074] | [0.073] | [0.076] |
| Bias-corrected | -0.239 | -0.279 | -0.253 | -0.237 | -0.297 |
| | [0.080] | [0.095] | [0.074] | [0.073] | [0.076] |
| Robust | -0.239 | -0.279 | -0.253 | -0.237 | -0.297 |
| | [0.092] | [0.112] | [0.085] | [0.084] | [0.087] |
| Robust 95% CI | [-.418 ; -.059] | [-.498 ; -.06] | [-.42 ; -.086] | [-.401 ; -.073] | [-.467 ; -.127] |
| Observations | 991 | 910 | 991 | 991 | 910 |
| Conventional p-value | 0.003 | 0.003 | 0.000 | 0.001 | 0.000 |
| Robust p-value | 0.009 | 0.013 | 0.003 | 0.005 | 0.001 |
| MSE-BW | 12.527 | 8.365 | 11.284 | 12.382 | 9.466 |
| Obs. left | 127 | 103 | 120 | 125 | 108 |
| Obs. right | 232 | 147 | 197 | 231 | 161 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: t+1 Psuv victory. S.e. clustered at municipality level. MSE optimal bandwidth, uniform kernel, local linear regression. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

## A.6 Donut RDD

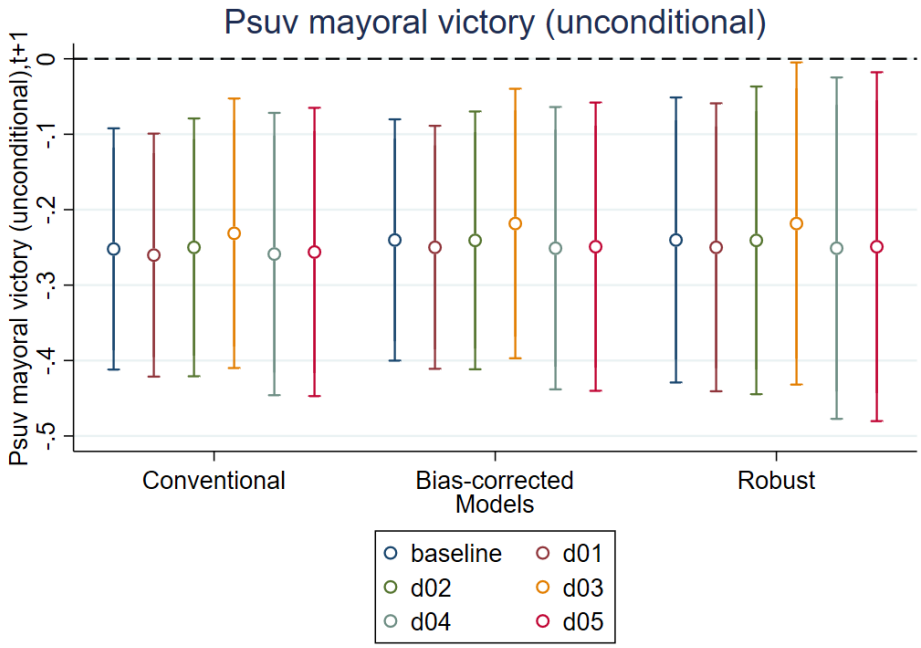


Figure A7: RD coefficient for different donut RDD. We remove observations within 0.1, 0.2, 0.3, 0.4 and 0.5 percentage points from both sides of the threshold of the running variable. Coefficients and 95% confidence intervals.

## A.7 Year by year McCrary test

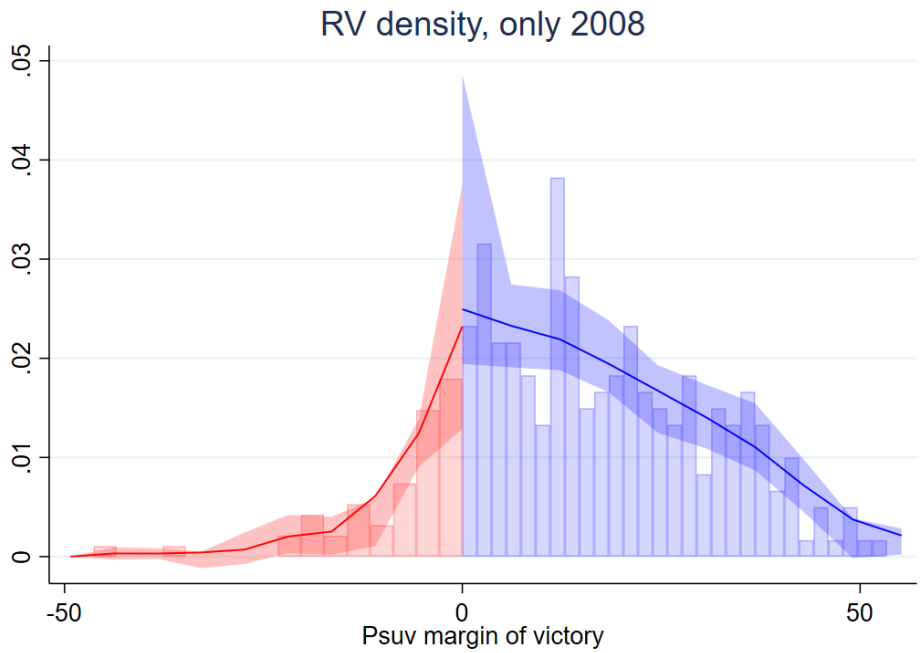


Figure A8: McCrary test, year 2008 only

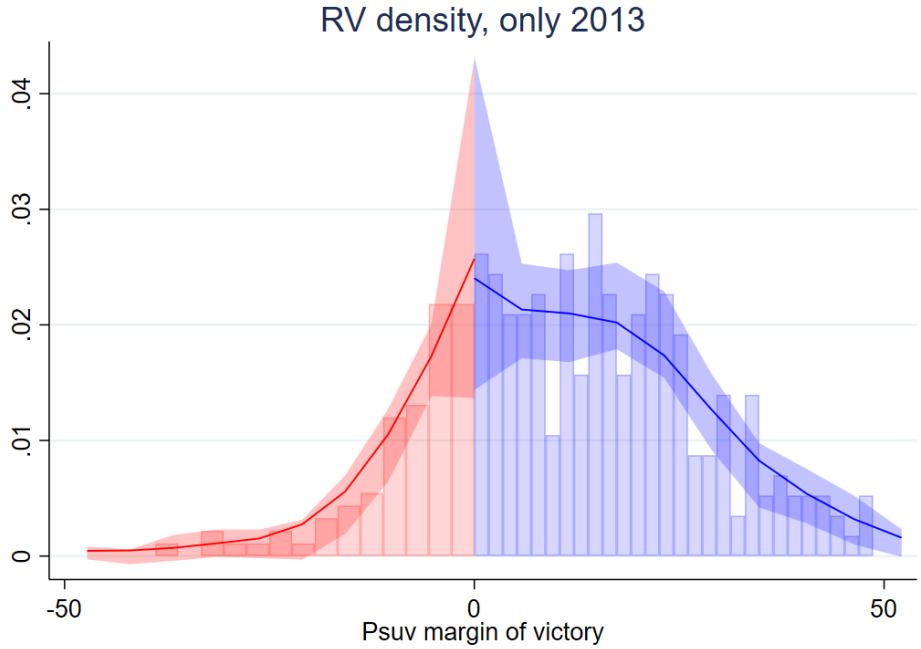


Figure A9: McCrary test, year 2013 only

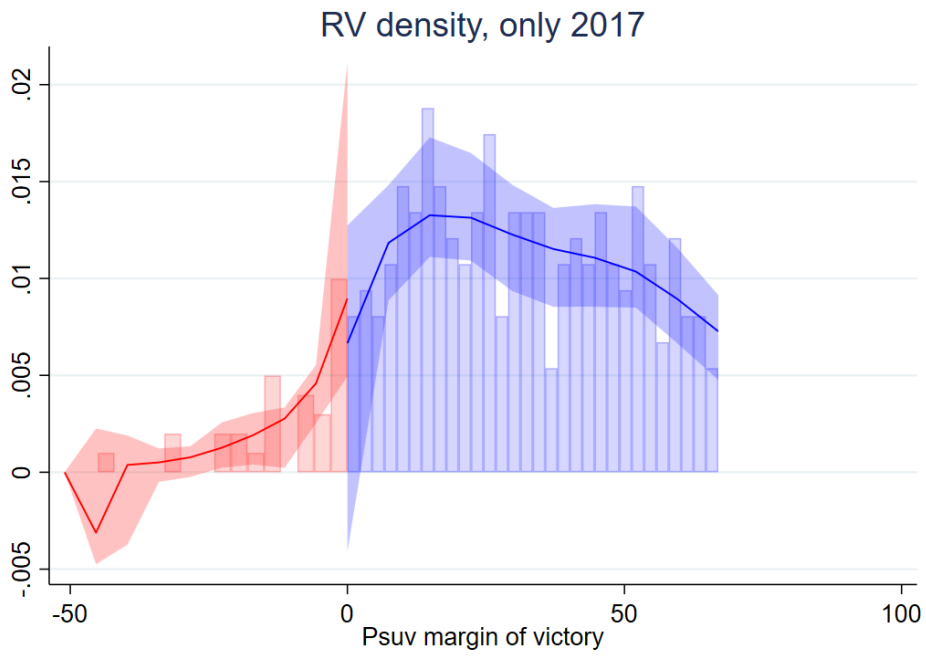


Figure A10: McCrary test, year 2017 only

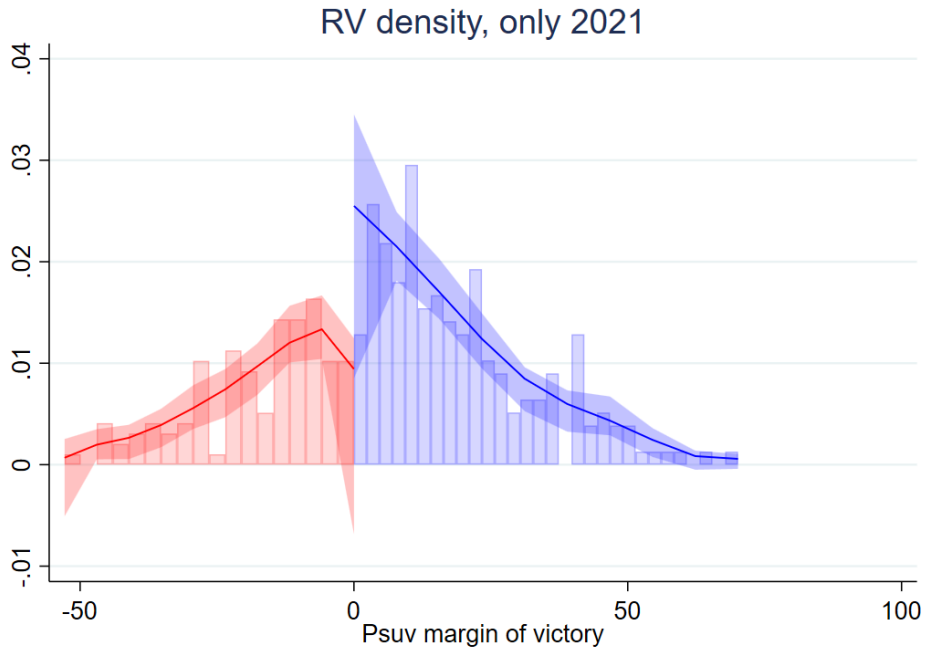


Figure A11: McCrary test, year 2021 only

## A.8 Second order polynomial

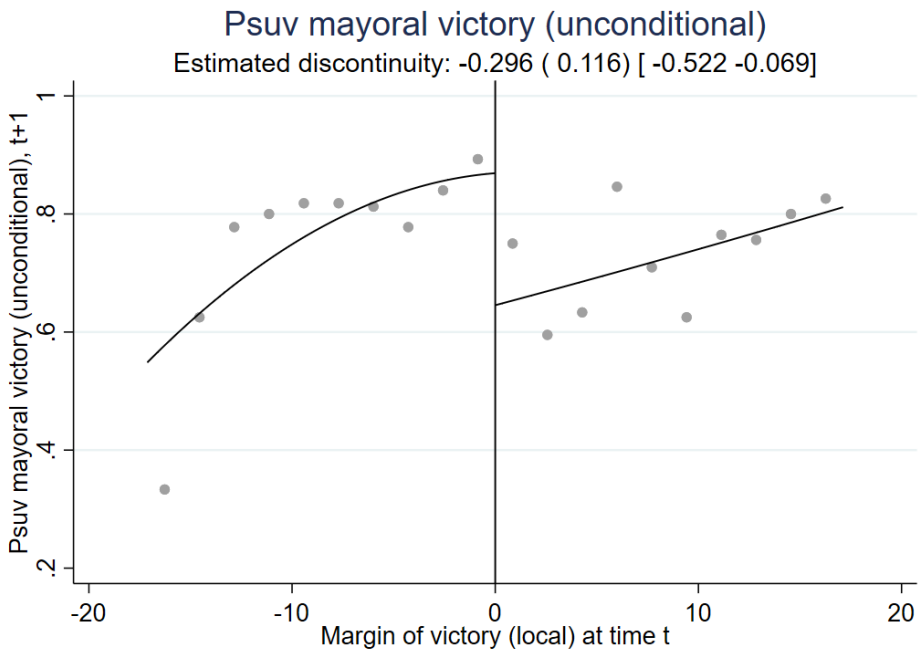


Figure A12: Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the second order polynomial fit. Robust coefficients, standard errors and 95% confidence intervals are displayed.

Table A7: RDD, local incumbency advantage

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | -0.284 | -0.318 | -0.318 | -0.267 | -0.311 |
| | [0.105] | [0.109] | [0.093] | [0.097] | [0.094] |
| Bias-corrected | -0.296 | -0.355 | -0.330 | -0.275 | -0.319 |
| | [0.105] | [0.109] | [0.093] | [0.097] | [0.094] |
| Robust | -0.296 | -0.355 | -0.330 | -0.275 | -0.319 |
| | [0.116] | [0.118] | [0.102] | [0.107] | [0.105] |
| Robust 95% CI | [-.522 ; -.069] | [-.587 ; -.122] | [-.53 ; -.129] | [-.485 ; -.065] | [-.524 ; -.114] |
| Observations | 991 | 910 | 991 | 991 | 910 |
| Conventional p-value | 0.007 | 0.003 | 0.001 | 0.006 | 0.001 |
| Robust p-value | 0.011 | 0.003 | 0.001 | 0.010 | 0.002 |
| MSE-BW | 17.125 | 14.305 | 16.698 | 16.812 | 12.141 |
| Obs. left | 143 | 129 | 142 | 142 | 120 |
| Obs. right | 319 | 261 | 312 | 314 | 207 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: $t+1$ Psuv victory. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, second order polynomial fit. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

## A.9 Third order polynomial

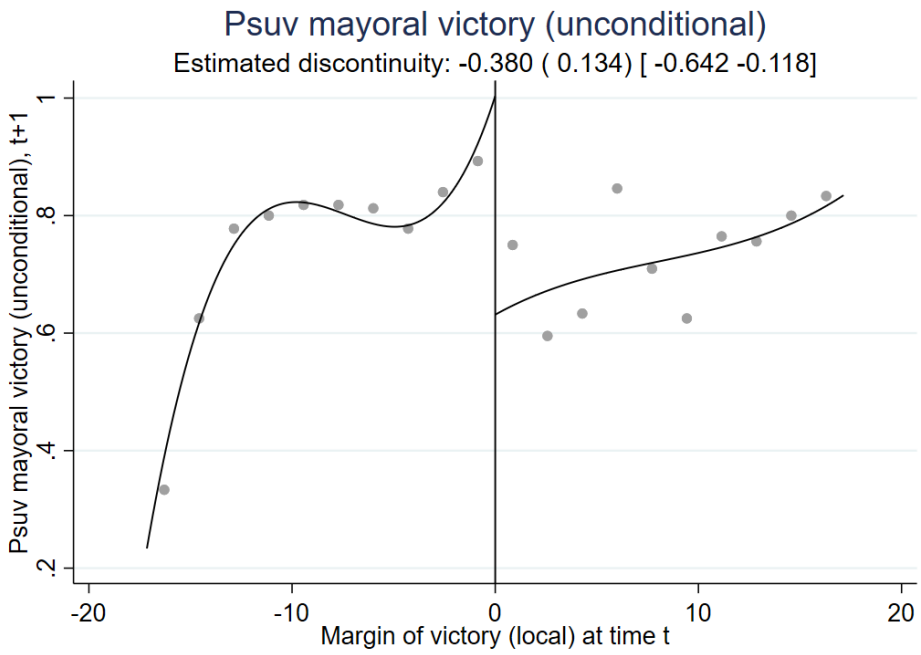


Figure A13: Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the third order polynomial fit. Robust coefficients, standard errors and 95% confidence intervals are displayed.

Table A8: RDD, local incumbency advantage

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | -0.352 | -0.305 | -0.348 | -0.298 | -0.302 |
| | [0.127] | [0.138] | [0.114] | [0.116] | [0.113] |
| Bias-corrected | -0.380 | -0.297 | -0.366 | -0.318 | -0.294 |
| | [0.127] | [0.138] | [0.114] | [0.116] | [0.113] |
| Robust | -0.380 | -0.297 | -0.366 | -0.318 | -0.294 |
| | [0.134] | [0.150] | [0.122] | [0.122] | [0.123] |
| Robust 95% CI | [-.642 ; -.118] | [-.591 ; -.003] | [-.605 ; -.126] | [-.557 ; -.078] | [-.536 ; -.053] |
| Observations | 991 | 910 | 991 | 991 | 910 |
| Conventional p-value | 0.005 | 0.027 | 0.002 | 0.010 | 0.007 |
| Robust p-value | 0.004 | 0.047 | 0.003 | 0.009 | 0.017 |
| MSE-BW | 17.146 | 14.270 | 17.250 | 17.362 | 14.281 |
| Obs. left | 143 | 129 | 144 | 144 | 129 |
| Obs. right | 320 | 259 | 322 | 324 | 259 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: $t+1$ Psuv victory. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, third order polynomial fit. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

## A.10 Arbitrary thresholds

We report the main RDD model using arbitrary thresholds on the left and on the right of 0 separately. When looking at arbitrary left (i.e. negative) thresholds we use only observations where the running variable is negative. When looking at arbitrary right (i.e. positive) thresholds we use only observations where the running variable is positive. Although the coefficient is significant in some arbitrary thresholds, there does not seem to be a consistent pattern.

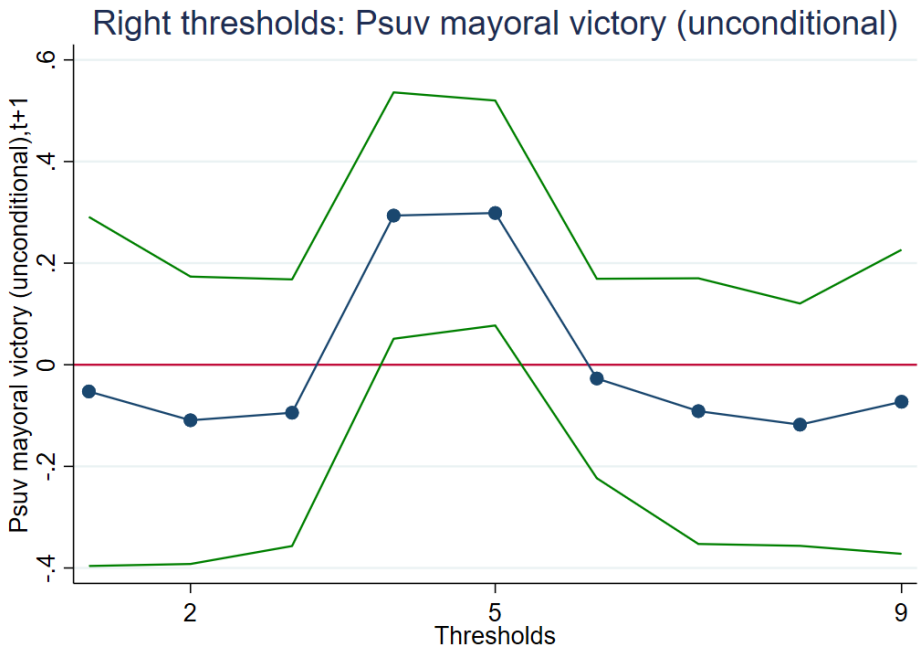


Figure A14: Plot of coefficients and 95% confidence intervals for arbitrary positive thresholds. Only observations with a positive running variable are used.

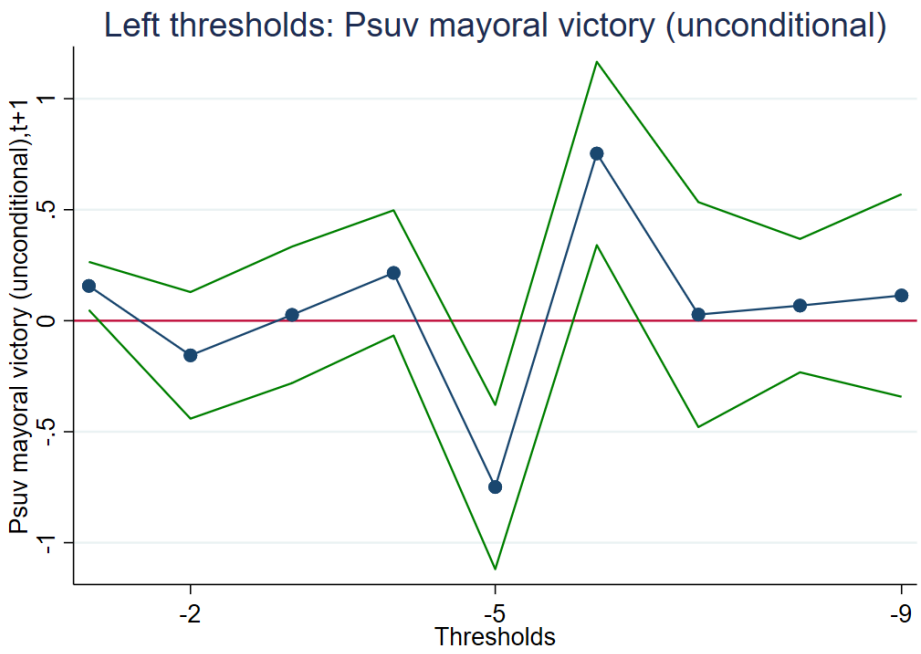


Figure A15: Plot of coefficients and 95% confidence intervals for arbitrary negative thresholds. Only observations with a negative running variable are used.

### A.11 Region-level clustering

Table A9: RDD, local incumbency advantage

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | -0.247 | -0.278 | -0.258 | -0.269 | -0.355 |
| | [0.100] | [0.086] | [0.088] | [0.065] | [0.069] |
| Bias-corrected | -0.253 | -0.276 | -0.262 | -0.263 | -0.385 |
| | [0.100] | [0.086] | [0.088] | [0.065] | [0.069] |
| Robust | -0.253 | -0.276 | -0.262 | -0.263 | -0.385 |
| | [0.112] | [0.102] | [0.102] | [0.077] | [0.078] |
| Robust 95% CI | [-.473 ; -.034] | [-.476 ; -.075] | [-.463 ; -.061] | [-.413 ; -.113] | [-.538 ; -.231] |
| Observations | 991 | 910 | 991 | 991 | 608 |
| Conventional p-value | 0.013 | 0.001 | 0.003 | 0.000 | 0.000 |
| Robust p-value | 0.023 | 0.007 | 0.010 | 0.001 | 0.000 |
| MSE-BW | 14.751 | 11.585 | 16.296 | 10.443 | 8.312 |
| Obs. left | 139 | 118 | 141 | 118 | 66 |
| Obs. right | 281 | 194 | 305 | 182 | 87 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: $t+1$ Psuv victory. S.e. clustered at regional level. MSE optimal bandwidth, triangular kernel, local linear regression. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

### A.12 No 2021 elections

We exclude 2021 elections as outcomes because of evidence of manipulation. Results are robust.

Table A10: RDD, local incumbency advantage

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | -0.222 | -0.241 | -0.218 | -0.244 | -0.258 |
| | [0.075] | [0.080] | [0.069] | [0.072] | [0.071] |
| Bias-corrected | -0.200 | -0.231 | -0.206 | -0.226 | -0.240 |
| | [0.075] | [0.080] | [0.069] | [0.072] | [0.071] |
| Robust | -0.200 | -0.231 | -0.206 | -0.226 | -0.240 |
| | [0.086] | [0.093] | [0.079] | [0.081] | [0.082] |
| Robust 95% CI | [-.368 ; -.032] | [-.415 ; -.048] | [-.361 ; -.052] | [-.385 ; -.067] | [-.4 ; -.08] |
| Observations | 657 | 604 | 657 | 657 | 604 |
| Conventional p-value | 0.003 | 0.003 | 0.002 | 0.001 | 0.000 |
| Robust p-value | 0.020 | 0.013 | 0.009 | 0.005 | 0.003 |
| MSE-BW | 13.325 | 11.489 | 14.609 | 12.935 | 11.944 |
| Obs. left | 111 | 101 | 117 | 109 | 102 |
| Obs. right | 198 | 156 | 222 | 194 | 160 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: $\mathsf{t}+1$ Psuv victory. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. 2021 elections are excluded as outcomes. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

### A.13 Details about mechanisms

Table A11: RDD, abstention in $t+1$

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | -5.739 | -3.845 | -4.649 | -4.515 | -3.395 |
| | [2.305] | [1.257] | [1.984] | [1.889] | [1.035] |
| Bias-corrected | -6.329 | -3.951 | -5.236 | -4.897 | -3.570 |
| | [2.305] | [1.257] | [1.984] | [1.889] | [1.035] |
| Robust | -6.329 | -3.951 | -5.236 | -4.897 | -3.570 |
| | [2.692] | [1.503] | [2.317] | [2.219] | [1.228] |
| Robust 95% CI | [-11.605 ; -1.052] | [-6.897 ; -1.005] | [-9.777 ; -.695] | [-9.246 ; -.548] | [-5.977 ; -1.163] |
| Observations | 991 | 910 | 991 | 991 | 910 |
| Conventional p-value | 0.013 | 0.002 | 0.019 | 0.017 | 0.001 |
| Robust p-value | 0.019 | 0.009 | 0.024 | 0.027 | 0.004 |
| MSE-BW | 12.743 | 11.773 | 12.873 | 15.160 | 11.430 |
| Obs. left | 128 | 119 | 128 | 140 | 118 |
| Obs. right | 238 | 197 | 241 | 290 | 192 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: $t+1$ abstention. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

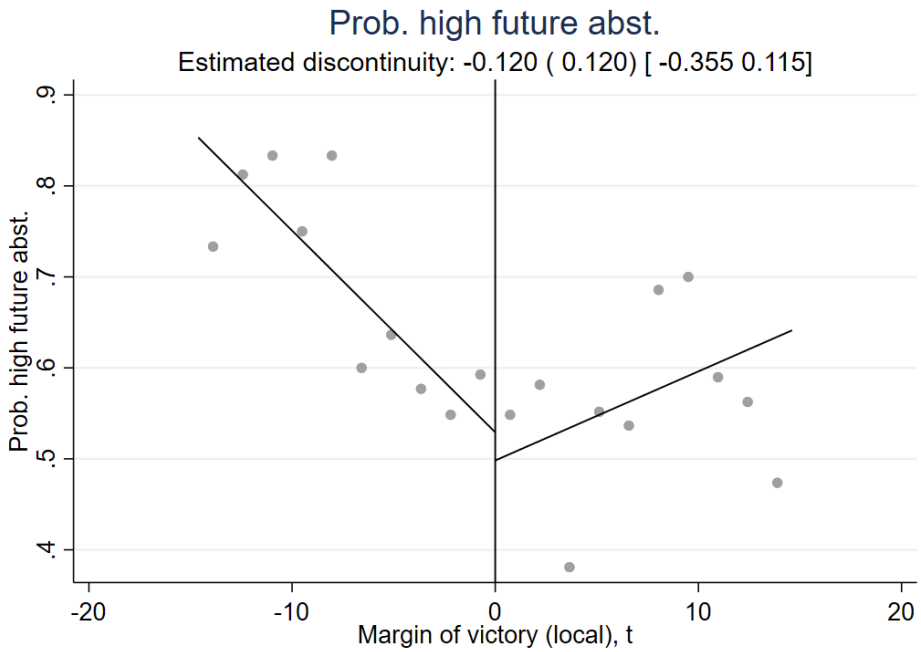


Figure A16: Plot of binned data around the 0 threshold of the running variable, limiting the sample to what is included in the optimal bandwidth and adding the linear fit. Robust coefficients, standard errors and 95% confidence intervals are displayed.

Table A12: RDD, Vivenda Venezuela

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | 0.076 | 0.116 | 0.076 | 0.066 | 0.104 |
| | [0.078] | [0.074] | [0.079] | [0.074] | [0.066] |
| Bias-corrected | 0.101 | 0.146 | 0.101 | 0.089 | 0.128 |
| | [0.078] | [0.074] | [0.079] | [0.074] | [0.066] |
| Robust | 0.101 | 0.146 | 0.101 | 0.089 | 0.128 |
| | [0.092] | [0.087] | [0.093] | [0.087] | [0.077] |
| Robust 95% CI | [-.079 ; .281] | [-.025 ; .317] | [-.081 ; .283] | [-.082 ; .259] | [-.023 ; .279] |
| Observations | 991 | 910 | 991 | 991 | 910 |
| Conventional p-value | 0.330 | 0.117 | 0.333 | 0.372 | 0.114 |
| Robust p-value | 0.272 | 0.094 | 0.275 | 0.308 | 0.096 |
| MSE-BW | 11.719 | 9.918 | 11.345 | 10.873 | 9.044 |
| Obs. left | 122 | 109 | 121 | 119 | 105 |
| Obs. right | 208 | 168 | 198 | 190 | 159 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: municipality with Vivenda Venezuela building. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

Table A13: RDD, night-light intensity

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | 5.118 | 1.694 | 4.966 | 2.801 | 1.954 |
| | [2.721] | [0.999] | [2.682] | [2.108] | [0.680] |
| Bias-corrected | 5.761 | 1.952 | 5.511 | 3.817 | 2.172 |
| | [2.721] | [0.999] | [2.682] | [2.108] | [0.680] |
| Robust | 5.761 | 1.952 | 5.511 | 3.817 | 2.172 |
| | [3.221] | [1.182] | [3.187] | [2.387] | [0.766] |
| Robust 95% CI | [-.552 ; 12.074] | [-.365 ; 4.269] | [-.736 ; 11.758] | [-.861 ; 8.495] | [.671 ; 3.674] |
| Observations | 991 | 910 | 991 | 991 | 910 |
| Conventional p-value | 0.060 | 0.090 | 0.064 | 0.184 | 0.004 |
| Robust p-value | 0.074 | 0.099 | 0.084 | 0.110 | 0.005 |
| MSE-BW | 12.663 | 16.768 | 13.150 | 10.129 | 11.666 |
| Obs. left | 127 | 137 | 131 | 117 | 119 |
| Obs. right | 237 | 298 | 244 | 180 | 194 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: night-light intensity, term average. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

Table A14: RDD, night-light, term-by-term variation

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | 0.902 | 1.113 | 0.782 | 0.840 | 1.019 |
| | [0.528] | [0.543] | [0.465] | [0.393] | [0.337] |
| Bias-corrected | 0.918 | 1.178 | 0.753 | 0.930 | 1.094 |
| | [0.528] | [0.543] | [0.465] | [0.393] | [0.337] |
| Robust | 0.918 | 1.178 | 0.753 | 0.930 | 1.094 |
| | [0.638] | [0.649] | [0.556] | [0.474] | [0.399] |
| Robust 95% CI | [-.332 ; 2.169] | [-.095 ; 2.451] | [-.336 ; 1.842] | [.001 ; 1.86] | [.312 ; 1.876] |
| Observations | 991 | 910 | 991 | 991 | 910 |
| Conventional p-value | 0.087 | 0.040 | 0.093 | 0.033 | 0.002 |
| Robust p-value | 0.150 | 0.070 | 0.175 | 0.050 | 0.006 |
| MSE-BW | 11.565 | 10.906 | 11.398 | 10.118 | 9.894 |
| Obs. left | 121 | 116 | 121 | 117 | 109 |
| Obs. right | 205 | 181 | 202 | 180 | 168 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: night-light intensity, term by term variation. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, contemporaneous abstention, Night-lights (average 1992-2008).

Table A15: RDD, night-light intensity, yearly observations

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Conventional | 5.263 | 1.833 | 5.273 | 2.074 | 1.774 |
| | [2.960] | [0.923] | [2.962] | [2.210] | [0.751] |
| Bias-corrected | 6.257 | 2.117 | 6.272 | 3.061 | 2.026 |
| | [2.960] | [0.923] | [2.962] | [2.210] | [0.751] |
| Robust | 6.257 | 2.117 | 6.272 | 3.061 | 2.026 |
| | [3.414] | [1.088] | [3.414] | [2.471] | [0.852] |
| Robust 95% CI | [-.434 ; 12.948] | [-.016 ; 4.25] | [-.421 ; 12.964] | [-1.782 ; 7.904] | [.356 ; 3.696] |
| Observations | 3623 | 3330 | 3623 | 3623 | 3330 |
| Conventional p-value | 0.075 | 0.047 | 0.075 | 0.348 | 0.018 |
| Robust p-value | 0.067 | 0.052 | 0.066 | 0.215 | 0.017 |
| MSE-BW | 11.711 | 18.029 | 11.686 | 10.034 | 10.868 |
| Obs. left | 495 | 565 | 495 | 469 | 469 |
| Obs. right | 839 | 1282 | 832 | 717 | 721 |
| Controls | N | Y | N | N | Y |
| El. Year FE | N | N | Y | N | Y |
| Region FE | N | N | N | Y | Y |

Dependent variable: night-light intensity, yearly observations. S.e. clustered at municipality level. MSE optimal bandwidth, triangular kernel, local linear regression. Controls are: share of public employees, share of poor, number of workers, number of families, population, surface, population density, health establishments per capita, share of urban population, share of males, share of indigenous inhabitants, Communal Councils per 1000 inhabitants, Night-lights (average 1992-2008).