Campaign Effectiveness and Incumbency Advantage: Evidence from Mayoral Elections in Chile[*]

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PRELIMINARY AND INCOMPLETE

Abstract

This paper uses a regression discontinuity design to estimate the causal effect of incumbency status on the probability of winning a mayoral election in Chile. Moreover, it exploits a campaign reform in Chile that limited propaganda and increased public funding of campaigns to study some of the potential determinants of this electoral advantage. We find that there exist a significant incumbency advantage only after the reform implemented in 2016. For the elections in 2008 and 2012, we do not find statistically significant advantage, however in 2016 election being the incumbent increases significantly the unconditional probability of being elected by between 32-39%. These results suggest that limiting campaigning together with a campaign spending cap benefit the incumbents.

JEL-Codes: D72, K16, O54, P16.

Keywords: *Regression discontinuity, Elections, Incumbency advantage, Campaigning rules, Campaign effectiveness, Chile.*

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I Introduction

It is a well documented fact that a high number of incumbents in political positions subject to popular elections run for the same positions. These candidates running for reelection could possibly enjoy what has been called an incumbency advantage. However, it is known that a high percentage of reelection is not necessarily evidence of incumbency advantage given that elected candidates in first place might be higher quality than challengers. Nonetheless, many papers have estimated a causal effect of incumbency on electoral outcomes following a regression discontinuity design proposed in this context by Lee (2008) and documented a positive effect in congressional and mayoral elections, and under proportional and first-pass-the-post systems in developed countries such as Germany (Freier (2015), Hainmueller and Lutz (2008) and Ade et al. (2014)), Portugal (Lopes da Fonseca (2017)), US (Erikson and Titiunik (2015) and Ferreira and Gyourko (2009)), Ireland (Redmond and Regan (2015)), among others. In the case of developing countries, the results have been mixed. For example, a negative causal effect has been found for India (Uppal (2009)), Guatemala (Morales (2014)), and Brazil (Klašnja and Titiunik (2017)), whereas a positive effect is found in parlamentiary elections for Chile (Salas (2016)). The existence of an incumbency advantage can damage the equality of opportunity to access political positions and diminish the competitiveness of electoral races and political accountability (Carson et al. (2007)).

The determinants of this advantage or disadvantage have been less studied empirically, although there are many options proposed in the literature, for example: access to resources, increased media presence, name recognition, redistricting, strategic entry and exit, political benefits from economic prosperity, the role of advertisement and campaign spending, legal restrictions to campaign contributions, ballot access, political parties in power and secured pork-barrel spending in the incumbent's district. Recently some papers have also tried to explain the incumbency disadvantage previously mentioned in a theoretical principal-agent framework using the existence of corruption, weak parties and term limits (Klašnja and Titiunik (2017) and Klašnja (2016)).

This paper adds to the two previously mentioned strands of literature. First it provides a causal estimate of the incumbency advantage in mayoral elections in a developing country such as Chile. This estimate asseses the effect of holding the position on the unconditional probability of being elected again in the next election. Second, we contribute to the literature of the

determinants of the incumbency advantage by analyzing some of the potential causes by exploiting a change in the campaign rules applied in 2016, which limited some ways of advertisement, restricted private funding and increased public funding of campaigns. This was done in order to reduce the increase in spending and change the logic focused in publicity towards another focused on ideas and programmatic proposals. In addition, it adds to the literature studying the effects of advertisement on electoral outcomes (see for example da Silveira and de Mello (2011), and Goldstein and Ridout (2004)).

We find a significant incumbency advantage of 15% when estimating a model where the elections of 2008, 2012 and 2016 are pooled. However, when we estimate the effect separately for each election we find that there exist an incumbency advantage only after the reform implemented in 2016. For the elections in 2008 and 2012, we do not find statistically significant advantage, meanwhile in 2016 election being the incumbent increases significantly the unconditional probability of being elected by 39%. When we pool again the elections to estimate parametrically the change between the election in 2016 and the previous elections, we find that the change is equal to a statistically significant increase of 32%. These results suggest that the reform applied in 2016 benefited the incumbents.

The paper is organized as follows. Section II describes the institutional setting, the campaign rules reform implemented in Chile since the 2016 election and the data set. Section III presents the methodology used to identify the impact of this reform on the incumbency advantage estimated using a regression discontinuity design. Section IV reports the main results and section V provides some robustness analysis. Finally, section VI has some concluding remarks.

II Institutional Setting, Campaign Reform and Data

I Institutional Setting

In Chile, a municipality corresponds to an autonomous corporation in charge of the management of a commune (an administrative unit similar to the county in the U.S.) or a group of communes with the goal of satisfying the needs of the local community and ensure their participation in the social, economic and cultural progress of the commune. There are 345 municipalities

and 346 communes. The municipalities are led by a mayor and a municipal council constituted by between 6 to 10 members according to its population, who are elected directly for a period of 4 years and can be reelected indefinitely. The mayor is elected by first majority system, meanwhile the council is elected by a proportional system to represent all the electoral lists that are competing.

II Campaign Rules Reform

In March 2015, driven by several political-financing scandals,[1] the president of Chile created a committee of 16 members headed by the economist Eduardo Engel called "Comisión Asesora Presidencial contra los Conflictos de Interés, el Tráfico de Influencias y la Corrupción"[2] with the aim of proposing a list of administrative, legal, and ethical changes of immediate and medium term application in the field of business and public service, as well as the relationship between them.

In April 24 of 2015 the committee published a final report (see Engel et al. (2015)) with concrete proposals classified into 5 broad categories:

1. Prevention of corruption
2. Regulation of conflicts of interest
3. Political financing to strengthen the democracy
4. Confidence in markets
5. Integrity, ethics and citizen rights

This paper focuses on a group of proposals that have been adopted[3] and are included in the third category, which affects directly the mayoral elections.[4] In particular, the committee suggested to change significantly the way

[1] These political issues were not directly related to municipalities, they were associated mainly to members of the parliament.

[2] "Committee advisoral of the president against conflict of interest, traffic of influences and corruption"

[3] Most of them through a law approved by 04/11/2016. A follow-up of adopted measures can be found in `https://observatorioanticorrupcion.cl`.

[4] The first category also included some proposals that affect mayoral elections such as: limiting the number of short term contracts, ban their use within 6 months before elections, limiting the increase in publicity spending before elections and limiting reelection up to two terms. However, none of these recommendations have been adopted.

in which political campaigns were done, in order to reduce the increase in spending and change the logic focused in publicity towards another focused on ideas and programmatic proposals. This is a summary of the actions proposed and implemented:

With the goal of promoting equity in electoral competition:

- Double the ex ante refund given to political parties and independent candidates, keeping the computation based on the votes casted in the previous election. This public support was increased from 0.01 to 0.02 U.F.[5] The refund at the end of a campaign was increased from 0.03 to 0.04 U.F.

- Reduce the limits of donations by natural persons to political campaigns, so a particular person cannot donate more than a small amount to a given candidate in relationship with the limit of spending allowed for that campaign. The donation cannot be larger than 10% of the campaign spending limit of the county and higher than 250 U.F. All donations are now public, except for those of less than 15 U.F. (10 U.F. in the case of councils) if the donor ask for the information to be non-public. However, no more than 20% of the campaign spending limit could be received without publicity.

- Establish a limit over the total donation that a natural person can make to different political campaigns in a electoral year to prevent the danger of political capture. The limit was defined in 1000 U.F.

- Establish the creation of technological mechanisms to facilitate massive donations by people.

- Eliminate donation from juridical persons (firms) to political campaigns.

With the goal of promoting electoral campaigns focused on ideas:

- Clarify the definition of electoral propaganda to consider any public manifestation that seeks to position the name or image of a candidate or political party. Electoral propaganda now considers "any event or

[5]U.F. corresponds to a unit of measure indexed to inflation which is widely used in Chile. 1 U.F. is equivalent to $40 U.S. dollars approximately in July, 2017.

public manifestation and the publicity through radio stations, written, in images, other audiovisual support or analog devices, if they promote one or more persons or political parties constituted or in formation, with electoral goals." To this effect, it does not matter whether they called to vote or not.

- Permit the campaign to begin 60 days before the election in radio stations, written media and volunteers with flags in public space, meanwhile propaganda in public and private spaces is allowed since 30 days before the election.

- Propaganda could be installed only in public spaces allowed by the Electoral Service, the size of posters was restricted to 2 square meters in public spaces and 6 square meters in private spaces.[6]

With the goal of increasing transparency and ability of control by the people:

- Establish ways in which citizens could denounce propaganda located in non-allowed places to the Electoral Service.

- The cost of taking propaganda out from non-allowed places would be discounted from the refund for campaign spending of candidates.

Finally, the Electoral Service was also reformed to improve its independence and institutional capacity to serve its administrative role in organizing elections and inspecting how they are being realized or financed.

We interpret these changes through the lens of a model where incumbents and challengers differ only in three components as described in Pastine and Pastine (2012). These are initial voter disposition, efficiency in fund-raising and effectiveness in campaign spending. Hence, the increase in public funding and restriction in private funding would likely benefit the challengers meanwhile the restriction in advertisement would likely benefit the incumbent.

[6]Before this change, during campaign they used to locate advertisement in many public spaces, specially some called "palomas" (pigeons) in Spanish (see for example, Figure 4 in the Appendix.).

III Data

The data set comes from the Electoral Service, it is publicly available on their web site[7] and comprises 4 mayoral elections in Chile, which correspond to the years 2004, 2008, 2012, and 2016. These elections[8] are run to decide the mayor of these local governments in one ballot and the council of the local government in a separated ballot.[9] The data set contains the names of the candidates, votes including null and blank votes, political party, and electoral list of all the candidates running for the positions.[10]

Table 1 reports some descriptive statistics about the number of votes, the share of candidates who win, the share of the total votes obtained by each candidate, and the margin of victory in different subsamples of the data set, where margin of victory is defined as the difference in the vote share with respect to the runner-up for the winner and the difference with respect to the winner for the rest of the candidates.

Table 2 shows the number of observations per election, within certain margin of victory, the number of mayors running for reelection and the number of mayors reelected. From this table, we observed that the number of incumbent mayors who run again has been stable in this period but the number of reelected mayors markedly increased in the election of 2016.

III Methodology

Using mayoral elections in the Chilean municipalities, we study how incumbency impacts the probability of being elected. In order to do so, we define the outcome $y_{i,t}^{c}$ as a dummy variable that takes a value equal to 1 if the candidate c was elected as mayor in year t for municipality i and 0 otherwise. We adopt the approach suggested by De Magalhaes (2015) where the probability of interest is the unconditional probability of being elected, in other words, we do not compute the probability conditional on running for

[7] www.servel.cl

[8] Since 2012 Chile has automatic registration and voluntary vote.

[9] Elections between 1992 and 2004 are also available but we do not consider them because they used one single ballot to choose the council and mayor.

[10] The data set comes in two separated files, one containing 2004, 2008, and 2012 election and another with 2016 election. The necessary matching was done in Stata using the user written command matchit for the names non-perfectly matched with the built-in command merge.

Table 1: Summary statistics

	Obs	**Mean**	**SD**	**Min**	**Max**
Total	.	.	.	.	.
Votes	4847.00	4738.27	8320.15	0.00	107355.00
Winner	4847.00	0.28	0.45	0.00	1.00
Share	4847.00	0.27	0.20	0.00	0.90
Margin	4847.00	-0.16	0.27	-0.82	0.90
Within 5 % margin	.	.	.	.	.
Votes	568.00	6982.76	9977.27	4.00	69106.00
Winner	568.00	0.48	0.50	0.00	1.00
Share	568.00	0.40	0.08	0.18	0.51
Margin	568.00	-0.00	0.03	-0.05	0.05
Winners	.	.	.	.	.
Votes	1380.00	8855.14	12073.48	129.00	107355.00
Share	1380.00	0.50	0.10	0.21	0.90
Margin	1380.00	0.18	0.15	0.00	0.90
Total votes	1380.00	17789.75	23248.03	248.00	149945.00

Table 2: Number of observations

	2004	**2008**	**2012**	**2016**
Total	1243	1231	1160	1213
5 % margin	140	162	133	133
4 % margin	116	126	103	109
3 % margin	85	85	77	81
2 % margin	58	54	48	49
1 % margin	20	22	20	30
Rerun	271	289	286	.
Reelected	173	174	208	.

re-election.

The treatment is denoted by a dummy variable $d_{i,t}^c \in \{0,1\}$, which is equal to 1 if the candidate c competing in the election of year t for major of the municipality i was elected in the election of the year *t-1* for the same municipality and 0 otherwise. This treatment depends of a running variable that corresponds to the vote share $s_{i,t}^c$ obtained by each candidate. If for example we consider a two parties election, the dummy $d_{i,t}^c$ takes a value equal to 1 when the share of total votes for candidate c is greater than 0.5 and 0 when is lower:

$$d_{i,t}^c = 1[s_{i,t-1}^c > 0.5] \tag{1}$$

This definition commonly used in papers studying elections in the US is not appropriate in the Chilean case because of the existence of many political parties.[11] To overcome this, we use the normalize-and-pool strategy described in Cattaneo et al. (2017) for models with multiple cutoffs. We define a variable $m_{i,t}^c$ as the difference between vote share of the winner and the runner-up when the candidate c is the highest voted candidate in municipality i but it corresponds to her vote share minus the highest vote share of the municipality i when she is not the winner. Hence we define the treatment as:

$$d_{i,t}^c = 1[m_{i,t-1}^c > 0] \tag{2}$$

This fact generates a discontinuity that can be used to identify the effect of the incumbency using a regression discontinuity design following the methodological approach first applied in this context by Lee (2008).

As described in Lee and Lemieux (2010), consider the "potential" outcomes: $y_{i,t}^c(1)$ for what would occur if candidate c is incumbent and $y_{i,t}^c(0)$ if she is not. The causal effect of the treatment is represented by the difference $y_{i,t}^c(1) - y_{i,t}^c(0)$, which is not observed. In the regression discontinuity design however, we use the average outcomes that could be denoted by $E[y_{i,t}^c(1)|m_{i,t}^c]$ and $E[y_{i,t}^c(0)|m_{i,t}^c]$, where by design $E[y_{i,t}^c(0)|m_{i,t}^c]$ is observed when $m_{i,t}^c < 0$ and $E[y_{i,t}^c(1)|m_{i,t}^c]$ observed when $m_{i,t}^c > 0$. Hence, with these observables values we try to estimate:

$$\begin{aligned} E[y_{i,t}^c(1) - y_{i,t}^c(0)|m_{i,t}^c = 0] = \\ lim_{\epsilon \downarrow 0} E[y_{i,t}^c(1)|m_{i,t}^c = 0 + \epsilon] - lim_{\epsilon \uparrow 0} E[y_{i,t}^c(0)|m_{i,t}^c = 0 - \epsilon] \end{aligned} \tag{3}$$

This will be the "average treatment effect" at the cutoff 0, following what has been called the continuity-based RD approach.

[11] Table 8 in the Appendix reports the distribution of mayor by political parties.

We can estimate this local treatment effect with a nonparametric strategy using a local polynomial approach, where the estimate is:

$$\hat{\tau} = \hat{\beta}_{+,0} - \hat{\beta}_{-,0} \tag{4}$$

where:

$$\hat{\beta}_{+} = argmin \sum_{i=1}^{n} 1(m_{t-1} > 0)(y_t - \beta_{+,0} - \beta'_{+,p} f^p(m_{t-1}))^2 K(\frac{m_{t-1}}{h})$$
$$\hat{\beta}_{-} = argmin \sum_{i=1}^{n} 1(m_{t-1} < 0)(y_t - \beta_{-,0} - \beta'_{-,p} f^p(m_{t-1}))^2 K(\frac{m_{t-1}}{h})$$

where $f^p(m_{t-1})$ is a p-vector with the polynomial of a chosen order p on m_{t-1}, $\beta_{+,p}$ and $\beta_{-,p}$ are p-vector of coefficients, $K()$ is a chosen kernel that weights the observations, and h is a chosen bandwidth. The subscripts of candidate c and municipality i were omitted for simplicity.

Alternatively, we use a parametric approach that consists on running a OLS regression with the following specification:

$$y^c_{i,t} = \alpha + \gamma_1 d^c_{i,t} + \gamma_2 p^q(m^c_{i,t-1}) + \gamma_3 p^q(m^c_{i,t-1}) d^c_{i,t} + \epsilon_{i,t} \tag{5}$$

where $p^q(m^c_{i,t-1})$ represents a polynomial of order q on the variable $m^c_{i,t-1}$.

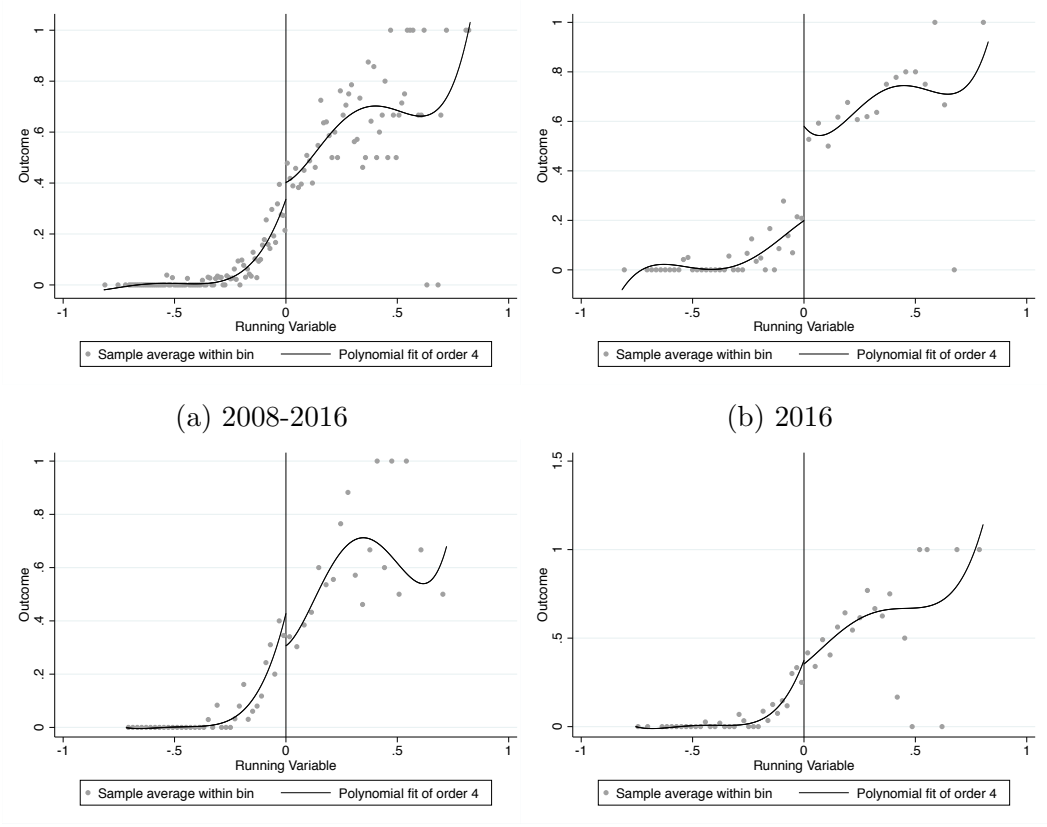
Finally, we analyze how the campaign rules reform detailed in the previous section affected the incumbency advantage in these elections using the parametric approach with the following specification:

$$\begin{aligned} y^c_{i,t} = \alpha + \beta_1 d^c_{i,t} + \beta_2 p^q(m^c_{i,t-1}) + \beta_3 p^q(m^c_{i,t-1}) d^c_{i,t} + \\ \beta_4 r_t + \beta_5 d^c_{i,t} r_t + \beta_5 p^q(m^c_{i,t-1}) r_t + \beta_6 p^q(m^c_{i,t-1}) d^c_{i,t} r_t + \epsilon_{i,t} \end{aligned} \tag{6}$$

where r_t is a dummy variable that equal 1 for observations from 2016 election and 0 otherwise, $p^q(m_{i,t-1})$ is a polynomial of degree two on the variable margin of victory $m^c_{i,t-1}$ of candidate c in the election *t-1*. Here our coefficient of interest is β_5, which captures the change in the incumbency advantage before and after the reform.

IV Results

Figure 1 shows the standard regression discontinuity design plot fitted with a polynomial of order 4. Following the recommendation of Cattaneo et al.



(a) 2008-2016

(b) 2016

(c) 2008

(d) 2012

Note: This graph is constructed using quantile-based bins.

Figure 1: Main results: Incumbency effect on the winning probability

(2017) we report the plots using data driven choices of quantile-based bins and evenly-spaced bins.[12] Figure 1a shows the plot with pooled data from the elections 2008, 2012 and 2016, it can be seen that there is a jump around the threshold of 0. The other figures show the plot using data from each election separately. In the case of 2016 election there is a clear discontinuity but in 2008 and 2012 this is less clear.

Table 3 reports the nonparametric estimation using a local polynomial of order 2, a triangular kernel and a choice of bandwidth that mimics the

[12]The latter is reported in the Appendix to save space, see Figure 3

overall variability of the raw data.[13] The first column reports an estimate pooling all the elections, we find an incumbency advantage of 15% on the unconditional probability of winning the election. However, when estimated separately we find that during the elections of 2008 and 2012 there is no statistically significant effect of the incumbency status and in 2016 election there is a significant incumbency advantage of 39%. This difference highlights the potential heterogeneity hidden in the estimate when data from different elections is pooled.[14] The column labeled Test 1 reports a statistical test with the null hypothesis that the difference between an estimate of the incumbency advantage using year 2012 and 2016 is zero, this null is rejected at 5%. Finally, Test 2 reports a similar test using an estimate pooling years 2008-2012 instead of 2012 alone, we again reject the null hypothesis.

Table 3: Main results: Non-parametric approach

	2008-16	**2008**	**2012**	**2016**	**Test 1**	**Test 2**
Coefficient	0.15	0.09	0.03	0.39	0.36	0.33
Conventional Std Error	0.08	0.16	0.12	0.12	0.17	0.15
Conventional Prob	0.05	0.56	0.81	0.00	0.04	0.03
Robust Std Error	0.08	0.16	0.12	0.12	0.17	0.15
Robust Prob	0.05	0.40	0.77	0.00	0.04	0.03

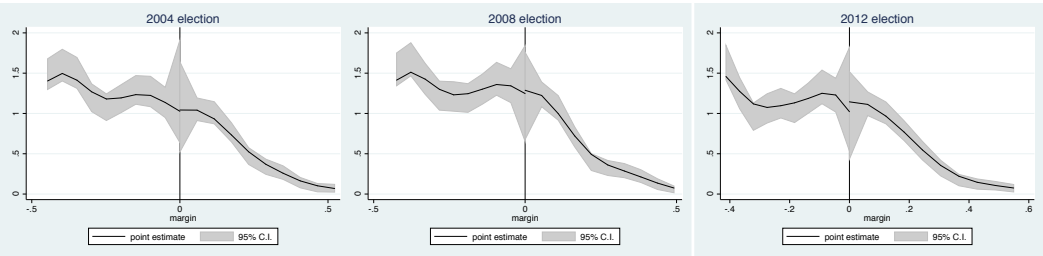
Table 4 reports the estimation using a parametric approach. The estimates are generally lower than those done with the non-parametric approach and we also find that there is no incumbency advantage in the elections before 2016 and a significant advantage in 2016 election of 32% in this case. The column labeled Reform reports the change in the incumbency advantage in 2016 election with respect to the previous two elections, which corresponds to the coefficient β_5 in equation 6 and the column labeled 2008-2016 corresponds to the average incumbency effect of the previous elections. The advantage increases the unconditional probability of winning in 32%, this effect is highly significant.

[13] All the estimation was done using the package rdrobust in Stata (see Calonico et al. (2014a)) and using robust standard errors following Calonico et al. (2014b).

[14] Sekhon and Titiunik (2012) discuss this point.

Table 4: Main results: Parametric approach

	2008-16	**2008**	**2012**	**2016**	**2008-16**	**Reform**
Coefficient	0.10	-0.08	0.06	0.32	-0.00	0.32
Standard Error	0.03	0.05	0.05	0.05	0.03	0.06
Probability	0.00	0.10	0.20	0.00	0.90	0.00



(a) 2004 (b) 2008 (c) 2012

Figure 2: Density test plot

V Robustness and Validity

In this section we do some robustness analysis and we test the validity of the assumption that assignment of incumbency status is approximately random near the threshold.

We run a density test where the null hypothesis is that the density of the running variable is continuous at the cutoff. Figure 2 reports a plot of the densities for each election separately. We do not observe clear discontinuities at the cutoff of the running variable and the null hypothesis is not rejected in all the cases.

We run a falsification test examining whether treated units are similar to control units near the cutoff in terms of observable characteristics (predetermined covariates and placebo outcomes). Placebo tests reported in Table 5 find no effect of 2016 election results on total number of candidates, vote shares and total votes in the previous election.

Table 6 reports a falsification test that consists on estimating the model using alternative cutoffs. We run the test for the 2016 election and find only one statistically significant discontinuity at the cutoff 0 at a 99% of confidence level, however there is a discontinuity at the cutoff of 1% with a

Table 5: Placebo test

	Coef.	**Conv. s.e.**	**Conv. p.v.**	**Robust p.v.**
Prob(win,t-1)	0.02	0.16	0.88	0.86
Total votes (t-1)	-2164.42	5084.39	0.67	0.79
Share of votes (t-1)	-0.01	0.05	0.77	0.69
Total Candidates (t-1)	-0.10	0.40	0.80	0.78

95% of confidence level.

Table 6: Alternative cutoffs

	Coef.	**Conv. s.e.**	**Conv. p.v.**	**Robust p.v.**
-4%	0.06	0.09	0.48	0.62
-3%	0.05	0.10	0.61	0.82
-2%	0.14	0.11	0.21	0.36
-1%	-0.01	0.12	0.93	0.69
0%	0.39	0.12	0.00	0.00
1%	0.28	0.11	0.01	0.03
2%	0.21	0.12	0.07	0.11
3%	0.11	0.11	0.33	0.44
4%	0.09	0.13	0.49	0.44

Finally, in Table 7 we report the "donut-hole" approach where we discard observations inside four alternative small margins around the cutoff value. We do not find clear evidence of manipulation near the cutoff in 2016 election.

VI Concluding Remarks

In this paper we estimate the causal effect of incumbency status on the unconditional probability of winning a mayoral election in Chile. The endogeneity problem is solved by using a regression discontinuity design that allows us to take incumbency as exogenous around the winning vote share threshold. After estimating this effect with data from elections between 2008 and 2016, we analyze the impact of a reform that changed the campaign rules in 2016

Table 7: Donut-hole approach test

	Coef.	**Conv. s.e.**	**Conv. p.v.**	**Robust p.v.**
0%	0.39	0.12	0.00	0.00
0.5%	0.38	0.13	0.00	0.01
1%	0.33	0.14	0.02	0.04
1.5%	0.32	0.16	0.05	0.08
2%	0.61	0.20	0.00	0.00

taking it as a quasi-natural experiment to identify the effects of limiting advertisement on the incumbency advantage.

We find a significant incumbency advantage of 15% when estimating the model pooling the elections of 2008, 2012 and 2016. However, when we estimate the effect separately for each election we find that there exist an incumbency advantage only after the reform implemented in 2016. For the elections of 2008 and 2012, we do not find an statistically significant advantage, meanwhile in 2016 being the incumbent increases the unconditional probability of being elected by 39%. When we pool again the elections to estimate the change between the election in 2016 and the previous elections, we find that the change is equal to a statistically significant increase of 32%. These results suggest that the reform applied in 2016 in order to make the campaign more focused on ideas and programmatic proposals ultimately benefited the incumbents. These findings are consistent with a model where the incumbents and challengers differ in three dimensions: initial voter disposition advantage, efficiency in fund-raising and effectiveness in campaign spending (see Pastine and Pastine (2012)), where the last one is affected by the restrictions to advertisement.

The result suggests that advertisement is an important tool used by challengers to overcome the advantages of the incumbent. However, these results are not easily generalizable because of the local nature of these elections. For example, in a context with a higher number of voters such as a parliamentary elections, there might be other substitutes such as national television that may help challengers to overcome this restriction (see for example, da Silveira and de Mello (2011)).

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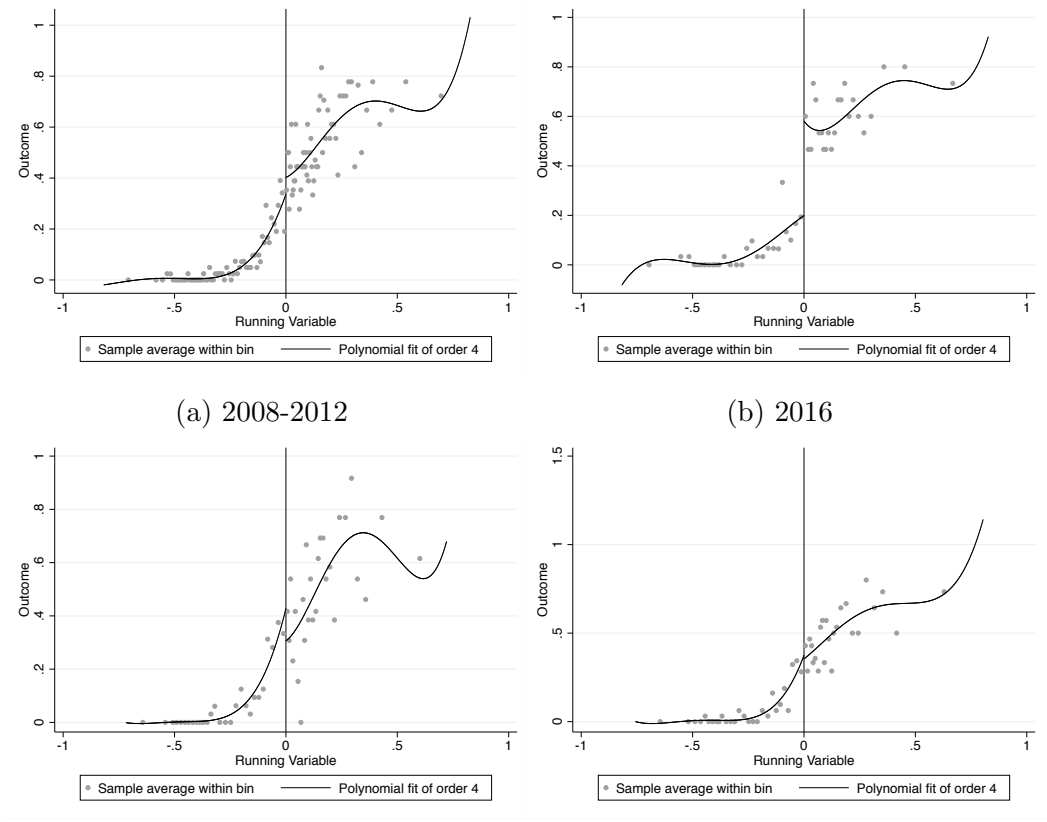
Appendix

Table 8: **Political party by election year**

	Election year				
Political party	2004	2008	2012	2016	Total
AMPLITUD	0	0	0	2	2
INDEPENDIENTE	61	91	110	132	394
MAS REGION	0	0	0	2	2
MOVIMIENTO AMPLIO SOCIAL	0	0	1	0	1
P. COMUNISTA DE CHILE	4	4	4	3	15
P. DEMOCRATA CRISTIANO	99	59	56	43	257
P. ECOLOGISTA VERDE	0	0	0	1	1
P. HUMANISTA	0	1	1	0	2
P. LIBERAL DE CHILE	0	0	0	1	1
P. POR LA DEMOCRACIA	35	35	37	26	133
P. PROGRESISTA	0	0	3	1	4
P. RADICAL SOCIALDEMOCRATA	12	10	13	9	44
P. REGIONALISTA INDEPENDIENTE	0	2	2	1	5
P. SOCIALISTA DE CHILE	45	30	30	25	130
RENOVACION NACIONAL	37	55	41	47	180
UNION DEMOCRATA INDEPENDIENTE	52	58	47	52	209
Total	345	345	345	345	1,380

Source: Own calculation.



(a) 2008-2012

(b) 2016

(c) 2008

(d) 2012

Note: This graph is constructed using evenly-spaced bins.

Figure 3: Incumbency effect of winning probability

Figure 4: Propaganda