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Kickbacks and limits on campaign donations

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How do campaign contribution limits alter the influence of donors over elected officials? We propose a model to explore this question and test its implications using data from Colombian municipalities. Using a regression discontinuity design that exploits institutional rules determining contribution limits based on population thresholds, we find that looser campaign limits reduce the number of donors per candidate and increase the average donations received by the winner of the election. Moreover, we document that donors who contributed to the winner of the election are more likely to receive contracts from the supported candidate upon taking office. These patterns suggest that looser campaign limits increase the influence of fewer individuals in campaigns. A higher influence of donors over elected officials is reflected by the fact that looser limits are associated with more kickbacks for each donor, which are awarded in a more discretionary way.

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Sobornos y límites a las donaciones de campaña

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¿Cómo alteran los límites de contribución de la campaña la influencia de los donantes sobre los funcionarios electos? Proponemos un modelo para explorar esta pregunta y probar sus implicaciones utilizando datos de municipios colombianos. Al utilizar un diseño de regresión discontinua que explota las reglas institucionales que determinan los límites de contribución según los umbrales de población, encontramos que los límites de campaña más reducidos reducen el número de donantes por candidato y aumentan el promedio de donaciones recibidas por el ganador de la elección. Además, documentamos que los donantes que contribuyeron al ganador de la elección tienen más probabilidades de recibir contratos del candidato apoyado al asumir el cargo. Estos patrones sugieren que los límites de campaña más flexibles aumentan la influencia de menos personas en las campañas. Una mayor influencia de los donantes sobre los funcionarios electos se refleja en el hecho de que los límites más flexibles se asocian con más sobornos para cada donante, que se otorgan de manera más discrecional.

1 | INTRODUCTION

The influence of donor money in politics is at the forefront of policy debates. While some citizens contribute to campaigns purely to express political preferences, others do so seeking to influence policy or to later be repaid with government contracts. There is extensive anecdotal evidence that points to politicians rewarding individuals or companies that contributed to their campaigns (Witko, 2011). For example, take the case of the mayor of Amalfi, a Colombian municipality, in 2011. One of his donors contributed to the mayor's campaign 3000 dollars, equivalent to 22% of the campaign revenue. Later, during the mayor's term, he signed 86 contracts with the municipality worth more than half a million dollars. Of these contracts, only five were awarded via competitive tender. It is no surprise that, after cases such as this one, suspicions that politicians are beholden to the interest of donor money arise. If elected officials are indeed their donors' agents, the pressure to satisfy donors can bring policies that are unaligned with the interest of the population and public contracts that are assigned in non-competitive ways. In this last case, corruption and increases in the costs of providing public goods might be an added consequence.

To address these problems, campaign funding limits have been enacted around the world. Around 30% of all countries limit the amounts that political parties may spend and over 40% limit candidate spending. Similarly, over 40% of countries have some form of limits on how much donors are allowed to contribute to electoral campaigns (IDEA, 2014).[1] Yet, we do not understand how these limits alter the influence of donors over elected officials and there is limited empirical evidence on their overall effects. In particular evidence on the effects on kickbacks is lacking. To address this, we formulate a model of how the number and the level of contributions per candidate are determined in a political campaign where limits to contributions are in place. We then examine the implications of our theory regarding the links between campaign contribution limits, kickbacks, and the quality of public contracts using data from Colombian municipalities.

We are particularly interested in studying the decision of private citizens to donate to a political campaign when they are motivated by the possibility of receiving compensation from the supported candidate upon taking office. Clearly, this is not the only goal of campaign donors, as citizens can also donate to express political preferences. Our focus on an expected payoff that is conditional on the electoral success of the supported candidate is informed by the general interest in examining how private individuals' donations influence public resource allocation.

The model captures a basic tension that determines the impact of campaign finance limits on the amounts donated and the number of donors in a campaign. On the one hand, large donations and more donors increase the probability that a candidate who receives these donations wins the election and, once in office, the supported candidate could provide kickbacks to the donor. On the other, when one candidate has many donors or has received large donations, it is difficult for her to compensate them all and, consequently, the expected payback for a given donor might be small. The model gives the conditions under which campaign contribution limits would make one of these forces stronger than the other, incentivizing more (or fewer) citizens to become donors and to adjust the amount they give to a campaign.

We empirically assess our theory's three main assumptions in the Colombian context: first, we confirm that larger donations are correlated with a higher chance of the recipient candidate to win the election. Second, using a regression discontinuity design that exploits similarities between winners and losers in close elections, we see that donors of candidates who barely won are 4.8 percentage points more likely to receive a contract from a municipal

[1] See also Scarrow (2007) for a review on political finances across the world.

government than if they donated to a candidate who barely lost. Finally, we show that the value of the public contracts received by a donor is negatively correlated with both the number of other donors to her candidate and the amount of donations these donors give.

We then examine the main implications of our theory. We find that there is a strong negative relationship between the average donation and the number of other donors of the same candidate. This result is explained by a desire to free ride on other donors' efforts as well as the fact that the expected reward of donating to a winning candidate decreases with the number of other donors.

We also examine the impact of loosening campaign limits on the size of donations and the number of donors. To this end, we exploit exogenous variation in the legal campaign finance limits which are determined by arbitrary thresholds on the number of registered voters. Using a regression discontinuity design, we find that loosening campaign limits has a negative effect on the number of donors per candidate. Candidates have almost one donor less in municipalities with looser limits that are near the threshold, relative to those with tighter limits. This result is closely tied to our theoretical expectation. In the model, as the limits increase, larger donations increase the probability of the supported candidate winning, but the expected prize given by the elected candidate to a given donor becomes smaller. If the reward is small to begin with, because there are already many donors, this could lead some of them not to find political contributions as a worthy investment. Regarding the effects of looser limits on average donations amounts, we find a positive effect for those donations going to the winner candidate.

The fact that looser contribution limits cause a reduction in the number of donors per candidate and larger average donations for the winner has a clear implication: looser campaign contribution limits can potentially increase the concentration of donations. This is particularly relevant for the winner of the election, who is in charge of assigning contracts. We see that loosening individuals' campaign contribution limits increases the Herfindahl index of contributions to the winner by 26.2 percentage points. We further examine the consequences over the allocation of public resources of donors' concentration by estimating the direct impact of looser campaign limits on the number of contracts given to donors, how they are conferred and their overall performance. We find that looser campaign limits increase the share of contracts for donors assigned without a committee reviewing the proposals and that have less days of open call for bids. Moreover, looser limits increase the share of contracts for donors that required deadline extensions and those with costs overruns.

This paper belongs to the literature on campaign finance regulations and its effects. The most recent empirical evidence of the effects of campaign finance limits is presented by Avis et al. (2017), who use data from Brazilian mayoral elections and a regression kink design to identify the causal effect of campaign spending limits on political competition, incumbency advantage, as well as campaign finances. The effects of campaign contribution and spending limits on electoral competition and reelection rates have also been studied by Stratmann et al. (2006), Lott (2006), Milligan and Rekkas (2008), and theoretically by Pastine and Pastine (2012).[2] The literature has also explored the links between limits on contributions and the levels, efficiency, and composition of campaign spending (Che and Gale, 1998; Gross et al., 2002; Kaplan and Wettstein, 2006; Stratmann, 2006; Sahuguet and Persico, 2006).[3] None of these papers study how campaign contribution limits affect the composition of the group of donors nor their average contributions and how these are linked to kickbacks.

[2] Palda and Palda (1985), provide some earlier correlational evidence from Canada.

[3] Numerous scholars have also examined the relationship between electoral spending and election outcomes. For some examples, see Jacobson (1978), Abramowitz (1988), and Levitt (1994).

2 | A SIMPLE MODEL

Consider a game in which there is candidate and M citizens who are deciding whether to make a donation to the candidate's campaign before an election. Although many citizens donate just to express a political preference, in our model, we focus on those who are seeking to obtain a material benefit from the candidate if elected. Government contracts and public employment positions for themselves or relatives are examples of this benefit, which we will call the *kickback*.

In the model, if the candidate wins, her donors will receive the kickback. However, the more donations others give to the candidate, the kickback received by each of them becomes smaller. In particular, the candidate's donor i receives $1 - b\sum_{j\neq i} d_j$ after the candidate is elected. Here, b is a parameter that reflects how sensitive the kickback is to others' donations and d_j is the donation of citizen j.[4] The kickback to any one donor decreases as others donate, due to the difficulty an elected official faces in trying to reciprocate all of her donors on a fixed budget.

We assume that the amount of donations that the candidate receives increases her probability of winning. This probability is represented by $P(\mathbf{d}) = \min\{1, \sum_{j=1}^{M} d_j\}$, where $\mathbf{d} = (d_1, d_2, ..., d_M)$. The individual donations are subject to an upper limit $l \in (0, 1/M)$ set by the electoral law.

The citizen who wants to donate to the candidate has to incur in two types of costs to do so: a fixed cost, denoted by $K > 0$ and variable costs represented by a quadratic function of the donation. Besides policy stances, candidates differ in their willingness to reciprocate their donors. The fixed cost K represents the effort incurred by the donors in finding out that the candidate was the best potential recipient of the donation. Increasing variable costs in the amount of the donation captures the difficulty in rising larger sums for the candidate. Those citizens who decide not to pay the fixed cost, do not donate and receive a payoff of zero.

The timing of the game is as follows: first, citizens decide whether they want to pay the fixed cost of getting involved in the campaign. Second, all citizens who pay the fixed cost simultaneously choose their donations to the candidate. The strategies in this game are a decision to get involved in the campaign by paying the fixed cost K and a donation function that gives the contribution for a given number of donors to the candidate.

Our model has three building blocks: donations to a candidate are positively associated with the probability of that candidate winning, those who donate to a responsive candidate get rewarded if this candidate is elected, and the size of the reward is decreasing in the number and contributions of other donors to the same candidate. Below, we verify that the Colombian data is consistent with these key assumptions. Before that, we derive our main theoretical results.

2.1 | Theoretical Results

We can make two initial observations regarding the donors' behavior. The first is that the optimal donation is non-increasing in the number of other donors. This is a direct result of having the marginal benefit of a donation, represented by the kickback, being smaller when others contribute more to the campaign. The second observation is that the donor's payoffs have an inverted U shape, seen as a function of the total number of donors. As a consequence, for a large number of donors, donor's payoffs are decreasing in the number of donors.

[4] We choose $b \in (1, 2)$. A parameter b larger than 1 is need to ensure that the candidate wins with a probability less than or equal to one. A b smaller than 2 allows us to have a positive number of donors in equilibrium.

The intuition for the second observation is as follows: with a small number of donors, the probability of the candidate winning is small, but an increase in this probability brings a large positive impact on the donor's payoffs given that the potential kickback is large. In contrast, with a large number of donors, an increase in the probability of the candidate winning only brings a modest impact in the donor's payoff as the kickback obtained is much smaller. This suggests that, for a large number of donors, increasing the number of donors has a positive effect on the payoffs due to the increased likelihood of the candidate's victory. However, this effect on payoffs is dominated by the negative one brought on by the reduction in the kickback. These observations are summarized by the following result. All proofs are in the appendix.

Lemma 1 *A larger number of donors decreases the payoffs of the donors when that number is large enough and does not increase the optimal donation.*

Although an inverted U shape relationship between the donors' payoffs and the total number of donors suggests that there is an intermediate optimal number of donors, in equilibrium, the number of donors is larger than this optimal. The equilibrium number of donors is such that the variable component of the payoffs equates the fixed cost K. To see why, note that, even if donors are better off when their numbers are fewer, if the fixed search costs are low enough, this would encourage other citizens to contribute to the candidate eroding further the expected kickback. In a political campaign, donors would want to maximize their influence over a candidate with good prospects of winning by limiting the number of other contributors who expect a kickback. However, doing so might prove difficult, not only because the law might prohibit undue influence of one donor on others, but because the candidate is still better off attracting as much contributions as possible. At the end, all of those who want to donate end up doing so.

Our previous observations apply to an interior equilibrium as well as corner solutions in which the campaign limit binds. A particularly relevant question for our empirical analysis is how changes in binding campaign limits impact donations and the number of donors in equilibrium. If limits are loosened, donors increase donations trying to reach the unconstrained optimum. As for the number of donors, the next proposition tells us that looser limits decrease the number of donors when the fixed cost is low.

Proposition 1 *When campaign limits are binding and are increased, the equilibrium number of donors decreases if the fixed search costs,* K*, are small enough.*

To understand the intuition behind this result, suppose there is an increase in the limit at which these donors are contributing. For a given number of donors, a higher limit increases the probability of the candidate winning (as now total donations go up), decreases the size of the prize received by each donor, and increases the variable cost incurred in the donation. When the costs of entry are low, there is already a large number of donors and a corresponding small kickback. This makes the impact on the payoffs of the increase in the probability of the candidate winning to become outweighed by the negative effect one of the smaller kickback. This is reinforced by the increase in variable costs of a higher limit. The overall negative effect on the payoffs encourages the exit of some contributors.

Note that we have not modeled how raising campaign limits impacts the behavior of other candidates or their donors and, in principle, it could be that the probability of the candidate receiving the donations does not change at all, or might be even smaller with such a change. The intuition behind the previous result, however, makes clear that the exit of donors of a particular candidate when limits are higher occurs despite a potential

increase in the probability of the candidate wining, but would be even more pronounced if that probability decreases or remains unchanged.

Our theory offers three main observable implications: since others' donations reduce the size of the kickback, we should see that individual donations to a given candidate decrease on the number of other donors and their contributions. Moreover, regarding the impact of looser campaign limits, there should be a negative effect of looser limits on the number of donors and an increase of donations for those who were restricted by the regulation on their contributions.

3 | COLOMBIAN INSTITUTIONS AND CAMPAIGN FINANCING

Colombia is divided into 1098 municipalities, where local elections are held every four years. In each local election, mayors are elected under a first-past-the-post system. Mayors, who are the head of the executive branch in the municipality, are in charge of executing the budget and implementing public policy. Given this role, they have the ability to directly reward donors with public contracts.

In order to limit the influence of money in politics, Colombian law establishes campaign finance limits for both total and individuals campaign contributions.[5] The National Electoral Commission sets the campaign limits for each election on the basis of the number of registered voters in the municipality. Most interestingly for our research design, these limits jump discontinuously at arbitrary registered voter cut-offs. For example at 25,000 registered voters the campaign limit increases from 58 to 110 M COP.[6] In addition, individual donors cannot give more than 10% of the total campaign limit.[7] Campaign contribution limits are announced months before the candidate registration date and violations of these limits can be punished with loss of office (if the candidate won), loss of state funding, and dissolution of the political organization.[8] Importantly for our research design, the voter registration thresholds that determine the limit contributions do not impact other policies. This allows us to avoid the estimation of a compounded treatment (Eggers et al., 2018).

Campaign in the typical Colombian mayoral race have several sources of revenue. Candidates can self-fund their campaigns, obtain personal bank loans, receive state funding, their party can organize fund-raisers, and receive donations by companies and individual citizens. On average, winner campaigns fund 19% of their budget using donors, while donor funds represent 14% of the total in losers' campaigns. In a typical campaign, most of the candidate's funding comes from their own sources (80%), followed by private donations (15%), while state and party funding represents the smallest amount of total campaign income (5%).

Most of the donations in Colombian mayoral races are concentrated between the top three candidates. Figure 1 shows that in 2011, 90% of all donations went to the the top three candidates, with the top candidate receiving 43% of the total contributions. Similarly, in the typical elections 97% of the votes are received by the top three candidates. In our analysis we focus on the top three candidates and their donors, as the incentives to donate to gain a reward highlighted by our theory are weaker when the recipient of those donations has little chance of winning. Those donors who give to unpopular candidates are likely to do so to express political preferences and not with an instrumental motive.

[5] Article 28 of Law 130 of 1994.

[6] Subsequently at 50,000 registered voters the limit jumps to 330M COP; at 100,000 registered voters the limit jumps to 659M COP; at 250,000 the limit jumps to 745M COP; at 500,000 the limit jumps to 1,318M COP. For the capital city of Bogotá, the limit is 1,646M COP.

[7] See Article 23 of Law 1475 of 2011.

[8] Articles 11 and 12 of Law 1475 of 2011.

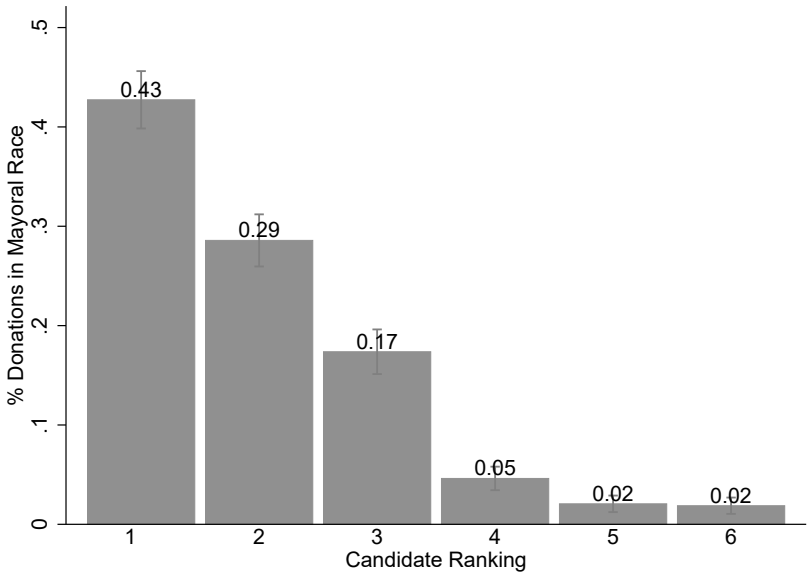

FIGURE 1 Private donations and candidate ranking

4 | DATA

We use electoral data compiled by Pachón and Sánchez (2014), gathered from the Colombian national electoral authority, the *Registraduría Nacional del Estado Civil*. These data contain the results for mayoral elections for all municipalities in Colombia for 2011. Additionally, we use data on sources of income and expenditures of political campaigns compiled by Ruiz (2017).

The campaign funding data is posted online by the official National Electoral Commission after requesting it to every candidate in the mayoral election. Campaign finance reporting is mandatory by law since 2009.[9] The National Electoral Commission fines candidates or parties that do not comply with the reporting requirements. As a result compliance is fairly high: out of 4,460 mayoral candidates in 2011, 89% reported campaign information. Based on this data, we have the number of donors per candidate, the total number of donors in the municipality, and the average donation amount per candidate.

Detailed data on contracting was obtained from *Datos Abiertos*, an online portal designed to increase transparency in public procurement. The data contains the entity in charge of contracting, the contractor (and their unique national ID), the modality of the contract, the broad sector of the economy, the size of the contract, the detailed purpose of the contract, the length of the contract, whether it was completed, and/or overruns in costs. Contracts that were assigned by the national government were excluded from our dataset and we kept contracts assigned by municipalities. Most contracts in the municipalities are service contracts[10] 58%, followed by construction contracts 10.5%, materials and machinery supplies for constructions 8.35%, municipality administrative supplies 8.17%, followed by transportation contracts 6.87%. [11]

Following the strategy used by Ruiz (2017), we match the unique ID of each donor to the unique ID of the contractors assigned in the same municipality that the candidate ran in. In

[9] Resolution 1094 of 2009.
[10] These are services provided by individuals and companies such as consultancies, accountants and cleaners
[11] The remaining sectors of the economy represent less than 5% of all contracts.

Colombia, two types of legal entities can contract with the state: individuals and companies, both with unique IDs. If an individual donates money to a candidate and then receives a contract, the same unique ID is used; when an individual gives a donation and his/her company receives a contract, we can also link them uniquely since the same number is used for the person and their company. The only link that cannot be made is between individuals and public companies or companies with multiple owners: it could be the case that one of the owners gives a donation and then the company receives the contract. However contracts assigned to multiple-owner companies represent only 9.9% of all contracts across municipalities.[12] Once these links were made, we obtain the total number of contracts, and the total value of contracts for each donor.

Information on politicians characteristics was compiled by Ruiz (2017). These data contain information on the entire history of disciplinary sanctions for politicians.[13] It also contains information on voting registration for candidates, whether the candidate was registered to vote and whether he/she had previously illegally registered to vote.[14] This can be a proxy for the underlying politicians preferences for malfeasance. Furthermore, Ruiz (2017) uses an algorithm that predicts gender, age, and race of politicians based on their ballot picture.

5 | RD DESIGN-EFFECT OF LOOSER CAMPAIGN LIMITS

A challenge we face when studying the effects of looser campaign limits on number of donors and average donation size is that these outcomes could be explained by other municipality characteristics. For example, large municipalities—those with looser contribution limits—have larger budgets, which could facilitate elected officials giving kickbacks and incentivizing more and larger contributions. Large municipalities also have more dynamic and diversified economies, which again, can increase the size of donations or the number of contributors. To address these challenges, we employ a quasi-experimental design exploiting arbitrary campaign limits in a regression discontinuity framework. We estimate the model

$$Y_i = \beta_1 \mathtt{CampaignLimit}_i + \beta_2 f(V_i) + \beta_3 \mathtt{CampaignLimit}_i \times f(V_i) + \varepsilon_i,$$

where Y_i are outcomes like the number of donors and average donation in the municipality i and $\mathtt{CampaignLimit}$ is a dummy variable taking a value of 1 if the municipality is at or over the 25,000 registered voters and 0 if it is not. Due to power restrictions, we use the threshold of 25,000 registered voters that applies to most of the municipalities in the sample. Therefore, the sample is limited to municipalities with registered voters less than 50,000, where campaign limits jump discontinuously agai.[15] The forcing variable, V_i, is the difference between the number of registered voters and 25,000.

Our main identification assumption is that the treatment (increase in contribution limits)

[12] In terms of value they represent on average 36.97 % of the value of all municipality contracts.

[13] Disciplinary sanctions can happen for a variety of reasons, for example if a mayor does not reply to a formal information request by citizens, running for office without satisfying legal requirements, contracting improperly, or any extended violation of the law.

[14] That is, the person either used a dead person's ID to vote, changed his or her registration ballot to another municipality in exchange for money, or tried to vote while underage. The most common fault is moving to another municipality to vote.

[15] We are including most municipalities in our sample. Only 96 out of 1098 municipalities have more than 50,000 registered voters

is determined by an arbitrary institutional cut-off and, in a narrow margin around 25,000 registered voters, its assignment is uncorrelated with other municipality characteristics. Previous work suggests that the design is feasible: 1) we have enough observations around the cut-off and 2) covariates are smooth around the cut-off (Ruiz, 2017). If there is no manipulation of the registered voters around the campaign limit cut-off, and if there are no other determinants of the outcomes that vary discontinuously at the arbitrary cut-off, the RDD allows us to estimate the causal effect of looser campaign limits. In order to account for the trade-off between efficiency and bias in the selection of the bandwidth, we employ the optimal bandwidth, bias correction, and robust standard errors proposed by Calonico et al. (2014) in addition to reporting conventional estimates.[16]

We also undertake an RDD analysis to estimate the effect of electoral victory on the probability of assigning a contract to donors of the candidate. For this purpose we employ a standard close elections comparison between close mayoral election winners and runner-ups, and check if donors of winners are more likely to receive contracts. This RDD allows us to estimate the causal effect of electing a politician on the probability of donors obtaining a contract under the assumption that other determinants of contract assignment including personal politician characteristics behave smoothly at the discontinuity cut-off.

6 | THEORY ASSUMPTIONS IN THE COLOMBIAN CONTEXT

Prior to testing some of the implications of our theory, we verify that its main assumptions are consistent with the Colombian context. Our theoretical model has three main assumptions: campaign donations increase the probability that the recipient will win the election, the election winner's donors are more likely to receive a payment in return from the elected official than those who donated to other candidates, and the value of this payment decreases in the number and value of donations of other donors to the winning candidate.

Others have found evidence of a causal effect of campaign expenditures on the likelihood of winning both for incumbents and challengers (Gerber, 1998), which suggests that donations can impact that likelihood by increasing campaign funds. The Colombian data presents patterns that are consistent with those findings. There is a positive and statistically significant correlation between vote shares with the number of donors and the value of donations as shown in Figure 2. Here, we control for candidates characteristics like age, race, previous history of sanctions and irregularities in previous elections, and the position of the candidate in the ballot. We also include municipality fixed effects.

Similarly, we find that an increase in a one standard deviation in the number of donors is associated with a 35 percentage points increase in the probability of winning a seat.[17] These results should be interpreted with caution, as it is possible that the best candidates who are going to win regardless of donations attract more donors. Nonetheless, the existence of a positive correlation between donations and the likelihood of victory is a necessary condition for the validity of our theory's assumption.

The second assumption of the model states that those who donate to the election winners are more likely to receive a reward in return for their donation. We use information on contracts awarded to donors by the municipality governments as a proxy for this reward. However, a challenge in verifying the model's assumption arises when using this proxy: winner candidates might differ from loser candidates in ways that make them more likely to assign contracts if elected. For example, they could be much more efficient in the way

[16] Evidence by Hyytinen et al. (2017) shows that this type of bias correction produces RDD results that are similar to the experimental estimate.

[17] Results for models of the likelihood of a candidate winning are in Appendix B.

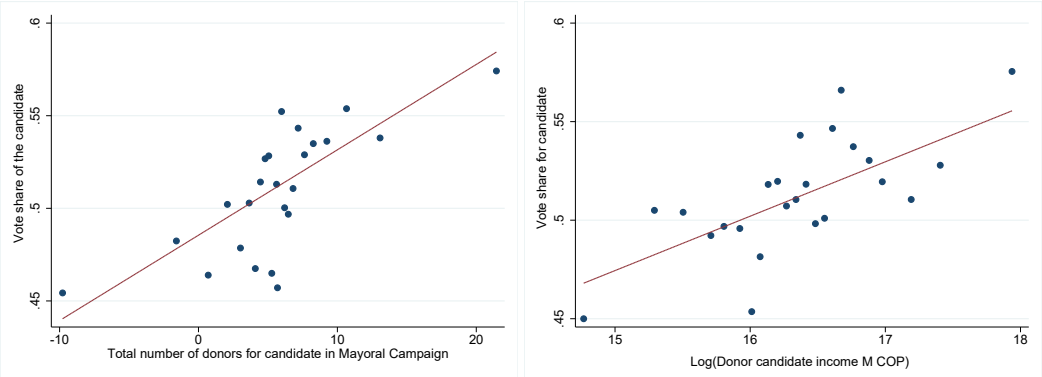

FIGURE 2 Number of donors and donation size, effect on candidate vote shares. *Notes:* Regressions include candidate controls and municipality fixed effects, and are ran at the candidate level. Both relationships are statistically significant. Candidate controls: gender, indigenous background, age, top row in the ballot, black, candidate has a sanction before, illegal registration of voting, if candidate smiled, and wore glasses in the ballot picture. Left: Number of donors for each candidate. Right: Logged value of all donations for the candidates in millions of Colombian pesos (M COP).

they allocate resources, or less corrupt, which would increase the available resources of the government. To circumvent this challenge, we use a regression discontinuity design to compare the likelihood of a donor receiving a contract from a candidate who barely won the election with that of a donor of a candidate who barely loses.

Table 1 shows that the donor of a winning candidate is 4.8 percentage points more likely to receive a contract from an elected mayor than if she donated to the loser candidate. This effect represents a twofold increase in the probability of obtaining a contract. This comparison assumes that candidates who barely win and barely lose are similar in all personal characteristics that would influence their ability to contract more with the private sector. Table 10 in Appendix B shows that, at least in terms of observable characteristics, winners and losers in close elections are indeed similar. In particular, they are no different in terms of campaign size, number of donors, and percentage of campaign revenues coming from private donors. This is important, as it is possible that even in narrow margins, winners could have more donations affecting the amount of contracts they give out.

Finally, there should be a negative relationship between the expected kickbacks received by a donor from the elected candidate and the donations of others to the same candidate. Figure 3 shows that the size of the average contract received by a donor is decreasing in the number of donors to the winning candidate, after controlling for individual candidate characteristics.

The negative relationship holds when we use the total value of others donations as the other explanatory variable as shown in Table 2, although it is not as precisely estimated. Together, these correlations and the causal estimate of donating to an election winning candidate on the likelihood of receiving a contract suggest our theory can be applied to the Colombian setting.

7 | RESULTS

The first observable implication of the model, informed by Lemma 1, is that there should be a negative relationship between individual donations to a candidate and the number of other donors contributing to the same campaign. Table 3 shows the results of regressing the

TABLE 1 Effect of narrow electoral victory on the probability of obtaining a contract

Dependent variable:	Probability of donor receiving a contract form supported candidate
Electoral victory	0.049**
(Conventional)	(0.022)
Electoral victory	0.048*
(Robust)	(0.027)
Observations	1058
Mean	0.048
Effect mean(Per)	100.00
Bandwidth	0.101

Notes: *** p<0.01, ** p<0.05, * p<0.1. Regression at the candidate level. Compares probabilities for donors of obtaining a contract from supported candidate. Probabilities are constructed as: # of donors who received contracts from supported candidate / Total # of donors for candidate. Robust standard errors, bias corrected estimates, and the optimal bandwidth by Calonico et al. (2014).

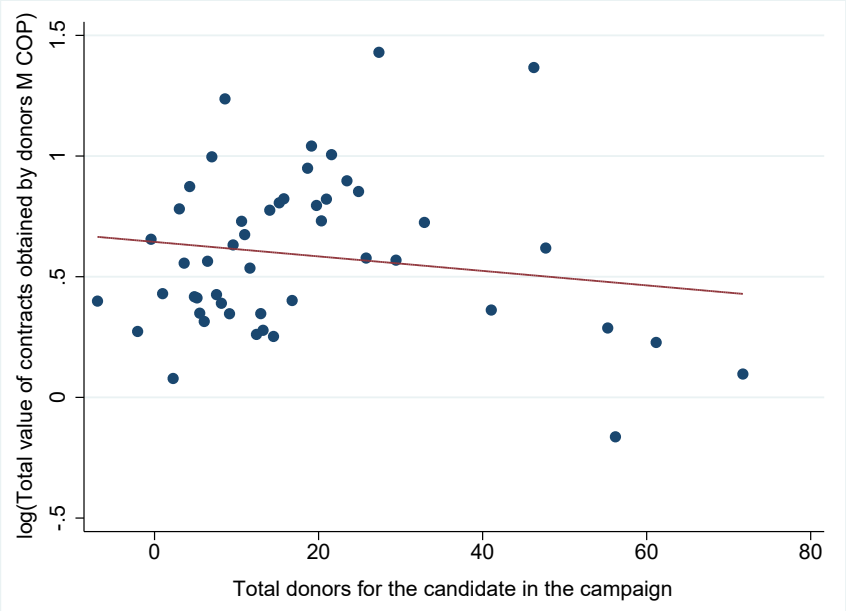

FIGURE 3 Value of contracts for individual donors and number of donors to the winning candidate. *Notes:* Relationship is statistically significant. Regression is ran at the donor level. Candidate controls are included. These are: gender, indigenous background, age, top row in the ballot, black, candidate has a sanction before, illegal registration of voting, if the candidate smiled, and if the candidate wore glasses in the ballot.

TABLE 2 Effect of number of donors and others' donations on value of contract obtained by donors

Dependent variable:	Log (Value of Contracts +1)			
	(1)	(2)	(3)	(4)
Total donors	-0.003***	-0.003*		
	(0.001)	(0.002)		
Log(Others' donations)			-0.013	-0.016
			(0.016)	(0.019)
Candidate controls		✓		✓
Observations	3136	2727	3136	2727
Mean	10.795	10.795	3.309	3.309
Effect Mean(Per)	-0.03	-0.03	-0.39	-0.48

Notes: *** p<0.01, ** p<0.05, * p<0.1. Regression at the donor level. Candidate controls: gender, indigenous background, age, top row in the ballot, black, candidate has a sanction before, illegal registration of voting, illegal registration of voting, if the candidate smiled, or wore glasses in the ballot picture.

logged donations on the inverse of the candidate's number of donors amongst the top three candidates. Column 1 shows the unadjusted coefficient, and column 2 reports the results controlling for candidate characteristics. The results in column 2 predict that an increase of one standard deviation in the number of total donors (six donors) to a candidate who has the average number of donors (four donors) would reduce an individual donation by 6.6%.

Other theoretical mechanisms would predict the opposite relationship between the size of an individual donation and the number of donors. For example, if donors prefer competent candidates, a citizen who sees many others supporting a candidate could interpret this as a sign of the candidate's competence, which would push her to make larger donations. More generally, observing a large number of donors supporting a candidate might reveal positive information about the candidate from the perspective of a potential donor. This suggests that the coefficient in column 2 could be a lower bound of the effect of the inverse number of donors.

Note that the theoretical model predicts an inverse relationship between the individual donation and the number of donors when the limits do not bind. When the limits bind, the number of other donors should not affect the optimal donation (that remains at the limit). This is because some of those who donate at the limit would want to donate even more, and for them, the negative effect of others' contributions would not be observed. When we exclude from the sample those donating exactly at the limit, we obtain almost identical results.

We now investigate the effects of changes in campaign donations limits on the number of donors and the size of the average donation. A simple comparison of the number of donors or the average donation per candidate across municipalities with high and low donation limits could be confounded by the characteristics of small and large municipalities, given that donation limits are determined by the number of registered voters. To address these concerns, we use a regression discontinuity design focusing our attention on municipalities that are close to the population thresholds that induce looser campaign donation limits. Under the assumption that municipalities just below and just above the threshold are similar in the determinants of donations, such a design allows us to estimate the causal effect of

TABLE 3 Effect of number of donors on individual donations

Dependent variable:	log(donations+1)	
	(1)	(2)
1/Total donors	0.338***	0.444***
	(0.048)	(0.048)
Candidate controls		✓
Observations	6174	5377
Mean	0.280	0.280
Effect mean(Per)	120.71	158.57

Notes: *** p<0.01, ** p<0.05, * p<0.1. Regression at the donor level. Candidate controls: gender, indigenous background, age, top row in the ballot, black, candidate has a sanction before, illegal registration of voting, if the candidate smiled, or wore glasses in the ballot picture.

TABLE 4 Effect of looser campaign limits on number of donors per candidate

Dependent variable:	Donors per candidate
Looser limits	-0.597*
(Conventional)	
Looser limits	-0.770**
(Robust)	(0.366)
Base Observations	1100
Observations in Bandwidth	46
Mean	0.506
Effect mean(Per)	-152.17
Bandwidth	3847.251

Notes: *** p<0.01, ** p<0.05, * p<0.1. Regression at the municipality level. Robust standard errors, bias corrected estimates, and the optimal bandwidth by Calonico et al. (2014).

looser limits. In Table 12 in Appendix B we check whether municipalities across the cut-off are similar.

Table 4 shows that there is a negative effect of looser limits on the number of donors per candidate. On average, crossing the threshold of registered voters that increases donation limits reduces a candidate's number of donors by almost one. This is closely tied to our theoretical expectations. If limits increase, the expected kickback would be further reduced, as now some other donors give more to the candidate. If there are enough donors to begin with, the kickback would be small already and this reduction would make contributing no longer profitable, which would encourage exit.

Finally, we examine the effect of looser campaign finance limits on the size of the average donation in a municipality. In Table 5, we find a negative estimate, but it is not significant at conventional levels. When we focus on the effect on the average donation to the winner of the election, we see that there is a large positive effect of looser limits on the average donation. Loosening the limits in a municipality increases the average donation to the

TABLE 5 Effect of looser campaign limits on average donation

Dependent variable:	log(average donation+1)	
	Top 3 candidates	Winner candidate
	(1)	(2)
Looser limits	-0.189	1.134***
(Conventional)	(0.354)	(0.316)
Looser limits	-0.337	1.167***
(Robust)	(0.411)	(0.383)
Base observations	1098	1098
Observations in bandwidth	70	78
Mean	0.814	0.716
Effect mean(Per)	-41.40	143.37
Bandwidth	4204.248	4570.223

Note: *** p<0.01, ** p<0.05, * p<0.1. Regression at the municipality level. Robust standard errors, bias corrected estimates and the optimal bandwidth by Calonico et al. (2014).

winner of the election by about 117%.[18] The difference between the results when we use the average donation to the top three candidates and those when we examine only donations to the winner of the election can be explained by the fact that 56% of those who donate at the limit choose to contribute to the winning candidate. For the others donors who are not constrained, our model would predict that a change in the limits should not affect their donation.

The previous findings show that the number of donors per candidate decreases while the average donation amount either does not significantly change or increases for the donor of the winning candidate. These two effects combined can potentially generate changes in the concentration of donations, increasing the influence of fewer donors. This is particularly relevant for the winner of the election, as she is in charge of allocating public resources. Consistent with these observations, Table 6 shows that there is a significant and large positive effect of looser contribution limits on the Herfindahl of donations per candidate. Looser campaign limits increase the Herfindahl index by 26 percentage points for the winner of the election for those municipalities near the cut-off.[19]

7.1 | Donors' influence and contract performance

So far we found that looser campaign limits leads to higher average donations and concentration of donor funding for the winner candidate, but does this translate into greater donors' influence over the mayor? A potential hypothesis is that concentrated contributions lead to more kickbacks for donors. In order to assess this, we look at the effect of looser campaign limits on the total number of contracts for donors. Results in Table 7 show that when there are looser campaign limits there are 17 more contracts for donors, however, this estimate is not precisely estimated. A potential concern with this estimate is that places with looser limits have a bigger budget, have more contracts overall, and that's why we would observe higher number of contracts for donors. Yet we see in Table 12 Appendix B

[18] This result is robust to different bandwidth sizes, see Figure 5 in Appendix B.
[19] This result is robust to different bandwidth sizes, see Figure 6 in Appendix B.

TABLE 6 Effect of looser limits on concentration of donations

Dependent variable:	Herfindahl Index
Looser limits	0.262**
(Conventional)	(0.127)
Looser limits	0.280*
(Robust)	(0.152)
Base Observations	999
Observations in Bandwidth	175
Mean	0.204
Effect mean(Per)	137.25
Bandwidth	8992.354

Note: *** p<0.01, ** p<0.05, * p<0.1. Regression at the municipality level. Comparison of concentration of donations for winners across the limit cut-off. Robust standard errors, bias corrected estimates and the optimal bandwidth by Calonico et al. (2014).

that both, the discretionary budget and the total number of contracts given in municipalities are smooth across the cutoff. Panel B of the same table, presents the effect of looser limits, but this time we run the regression at the donor level. We find that a donor on average receives 2.6 more contracts in municipalities where there are looser campaign limits. This coefficient is significant and the result is robust to using the logged number of contracts as the dependent variable.

The higher influence of donors over the winner of the election could also be reflected in the way the contracts to these donors are awarded. Table 8 shows the effect of looser campaign limits on the degree of discretion by the mayor when assigning the contracts and on the share of contracts to donors with time extensions and cost overruns. Under Colombian regulations, contracts given under the minimum value category are those under 10% of the municipality budget, they only need to be advertised 24 hours or more, and the sole criteria for assigning the contract is the lowest bidder. This is in strike contracts with open bid contracts where the call for proposals is online for 5 to 10 working days, and a committee needs to evaluate the proposals.[20]

Results in Table 8 column (1) show that the total number of minimum value contracts for donors in a municipality increases by 8.92 when there are looser campaign limits. This is a significant increase, considering that, on average, winner candidates confer 2.2 minimum value contracts to donors. Examining the share of minimum value contracts given to winner candidate's donors on all contracts given to donors of the winner, we find that there is substantial increase of 87.5 percentage points when there are looser campaign limits. We also see that looser campaign limits decreases the share of contracts under the category of Direct contracting given to donors. These are specific purpose contracts that the mayor can directly assign but that require proper justification.[21] Results in Table 8 show also that the

[20] Ruiz (2017) analyses how electing a donor funded politician leads to rewards for donors in terms of contracts that belong to the minimum value category under Colombian regulations. The paper finds that donors funded politicians rewards donors by using *many* minimum value contracts, that allows more discretion on who gets a contract. Often with minimum value contracts, the bid was advertised the minimum 24 hours and there was a sole bidder present, which happened to be a donor.

[21] The direct contract category applies to: 1. The acquisition or supply of goods and services of uniform technical characteristics and common use by entities; 2. Contracting in which the tender process has been declared

TABLE 7 Effects of looser limits on the number of contracts for donors

Dependent variable:	# Contracts donors (1)	Log(# Contracts donors+1) (3)
Panel A: Municipality level results		
Looser limit	15.575	0.745
(Conventional)	(9.643)	(0.561)
Looser limit	17.294	0.825
(Robust)	(11.392)	(0.666)
Base Observations	999	999
Observations in Bandwidth	200	198
Mean	0.958	0.150
Effect Mean(Per)	1805.22	550.00
Bandwidth	9800.720	9710.081
Panel B: Donor level results		
Looser limit	2.500**	0.293**
(Conventional)	(0.993)	(0.129)
Looser limit	2.598**	0.294**
(Robust)	(1.142)	(0.149)
Base Observations	3539	3539
Observations in Bandwidth	595	609
Mean	0.902	0.230
Effect Mean(Per)	288.03	127.83
Bandwidth	7128.160	7299.250

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors, bias corrected estimates, and the optimal bandwidth by Calonico et al. (2014).

TABLE 8 Effect of looser limits on characteristics of contracts for donors

Dependent variable:	Total min value (1)	% Min value (2)	% Direct contracting (3)	% Time extension (4)	% Costs overrun (5)
Panel A: Municipality level results					
Looser limit	7.577*	.776**	-1.464**	.045**	.095**
(Conventional)	(4.561)	(.329)	(.644)	(.022)	(.042)
Looser limit	8.92*	.875**	-1.215**	.038**	.093**
(Robust)	(5.488)	(.393)	(.772)	(.027)	(.057)
Base Observation	999	140	140	140	140
Observations in Bandwidth	184	26	14	12	14
Mean	2.187	0.524	1.040	0.065	0.076
Effect Mean(Per)	407.865	166.985	-116.827	58.462	122.368
Bandwidth	9244.197	6621.344	3771.106	3264.439	4102.967
Panel B: Donor Level Results					
Looser limit	5.732**	0.474*	-0.294**	0.011	0.082
(Conventional)	(2.730)	(0.244)	(0.149)	(.0310)	(0.054)
Looser limit	6.766**	0.591**	-0.303*	0.013	0.080
(Robust)	(3.265)	(0.297)	(0.178)	(0.050)	(0.070)
Base Observations	715	715	715	715	715
Observations in Bandwidth	111	75	155	74	87
Mean	2.781	0.313	0.546	0.046	0.060
Effect mean(Per)	243.29	188.82	-55.49	28.26	133.33
Bandwidth	5350.815	3760.795	7939.980	3612.478	4481.526

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors, bias corrected estimates, and the optimal bandwidth by Calonico et al. (2014). (2), (3), (4) and (5) at the municipality level have the dependent variable as share of total contracts for donors. Not all municipalities have donors who received contracts therefore the base sample is 140. At the donor level, there are 715 donors who received contracts.

share of contracts given to donors who require time extension and with costs overruns is higher when there are looser campaign limits.

A potential problem with the estimates of the models in columns (2) to (5) is that the sample is small. Not all municipalities have winner candidates who gave contracts to donors, leaving our base sample size with 140 municipalities. As a robustness check, we run our regressions at the donor level. There are a total of 715 donors who received contracts from winner candidates. When there are looser campaign limits on average 6.7 more minimum value contracts are given per donor. Similar to the municipality level results, when there are looser campaign limits the share of minimum value contracts increases (of the total contracts given to the donor) and the share of direct contracting contracts decrease. However, although the coefficients are positive, we do not find a significant effect on the proportion of contracts that have time extensions or costs overruns at the donor level.

7.2 | RD assumptions checks

To test the validity of the research design, we carried out a number of checks. One concern is that candidates or some donors might influence the count of registered voters to manipulate the campaign contribution limit in their municipalities. Under such manipulation, in a municipality whose number of registered voters is near the 25,000 threshold, the final count could be artificially inflated to allow some donors to give larger contributions. This could be particularly problematic for our results regarding the performance of contracts assigned to donors, as it is more likely that such manipulation of registered voters totals would occur in places with weak institutions. If that is the case, the higher share of underperforming contracts assigned to donors would not be caused by the looser contribution limits, but rather by the weakness of local institutions that also allow for the manipulation of voters' registries. To test if this concern is important in practice, we carried out the McCrary test of sorting, and find no evidence of a higher concentration of municipalities with registered voters right above the cut-off (see Figure 4).

We also check if there is an effect of looser limits on the observable characteristics of municipalities in Table 12 in Appendix B such as population, number of candidates, total number of contracts assigned in municipalities, and mayor's wages, using the same RD design. If we were to find significant effects of looser limits on these characteristics, it would be hard to argue that the municipalities right below and above the cutoff are similar. Reassuringly, we find no significant effect of looser limits on these characteristics. It is also the case that candidates running in municipalities with registered voters just below the 25,000 cutoff are similar to those running in municipalities just above this cutoff (See Table 13 in Appendix B) with respect to gender, race, age, ideological orientation, elected office experience, experience running a political campaign, and history sanctions.

A separate concern is that there is systematic measurement error in the donors data caused by differences in contribution limits. In particular, it could be the case that in municipalities with tighter limits, campaigns underreport their contributions more frequently relative to campaigns in municipalities with much higher limits. However, higher underreporting of donations to the left of the RD cutoff would bias our results *against* finding a negative effect of looser limits on the number of donors. It would also make it harder to find a positive effect of looser limits on the number of contracts given to donors and a negative one on their performance. This is because there would be more donors exerting pressure to assign contracts in a non-competitive way to the left of the cutoff than the ones that we

abandoned; 3. Contracts for the provision of health services; 4. Goods produced by or intended for agricultural purposes, offered on legally constituted product exchanges; 5. The contracting of goods and services required for defence and national security; and 6. Disposal of assets.

observe; this would also be true of more generous donors. It is important to note that the underreporting of donations in municipalities with tighter limits would bias the results in favor of finding a positive effects of looser limits on higher average donations.

To address these concerns, we examine the patterns of missing information in the donations data at both sides of the discontinuity cutoff. If donors not only underreport when there are tighter limits, but also sometimes decide not to report at all, we should see more missing information in the donation data to the left of the discontinuity. In the Table 14 Appendix B we show that there is no significant effect of looser limits on missing donation information for runner-up candidate.[22] Under the assumption that the same incentives driving the underreporting of both contribution amount and the number of donors also drive the choice of not reporting that information, this test suggests that our result on the effect of finance limits of the amount donated is not driven by measurement error.

8 | CONCLUSIONS

This paper studies how campaign contribution limits affect the influence of donors on elected officials. We offer a theory of how the number of donors and average donations in a political campaign are determined in the presence of campaign contributions limits. We also empirically examine the validity of the theory's assumptions and observable implications with data on Colombian mayoral races. We find that looser limits reduce the number of donors per candidate and raise the average contribution to winning candidates. Consistent with these findings, we see that, for elected mayors, the concentration of donations increases with looser limits.

We further use the Colombian data to assess if looser limits could impact the recipients of public contracts, the way in which they are assigned and the contracts' performance. We find evidence suggesting that the higher concentration of donations increases the influence of donors over mayors by reducing the competitiveness and transparency in which public contracts are assigned. In particular, donors of election winners in municipalities with looser limits receive more contracts and more of these contracts do not have oversight by a committee that reviews proposals, and have fewer days of open call for bids, rather a minimum value modality is used where the sole criteria for assigning a contract is the minimum price offered. Moreover, the share of contracts given to donors that required deadline extensions and with cost overruns is also higher.

It is difficult to assess overall welfare implications of looser campaign contributions limits. Here, we have limited our study on the effects of this regulation on public contracting. Future work should assess the impact of limits when donors do not expect contracts from elected officials, but rather changes in policy or legislation. A more difficult task for future research is to empirically assess the potential overall benefits of looser campaign contribution limits. The free flow of donations in a campaigns reveals important information to voters and donors about the candidates before the election. Moreover donations can be used to advertise politician policies and characteristics and inform voters. It also does not impose constraints in the ability of donors to express their political preferences. These do not appear to be negligible benefits, especially in democracies where informational asymmetries are more stark and where political expression is frequently coerced and undervalued.

[22] All winner candidates report information on campaign finance.

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A | PROOFS

| Proof of Lemma 1

In a subgame where $N \in \{1, 2, 3, \ldots, M\}$ citizens pay the fixed cost, the optimization problem of citizen i is

$$\max_{d_i \in [0,l]} \min\{1, \sum_{j=1}^{N} d_j\} \mathbb{I}\{d_i > 0\} \left(1 - b \sum_{j \neq i} d_j\right) - \frac{d_i^2}{2} - K.$$

If limits do not bind, the optimal donation must satisfy

$$d_i = 1 - b \sum_{j \neq i}^{N} d_j.$$

Note that $d_i = \frac{1-b\sum_{j=1}^{N} d_j}{1-b} = \frac{1-bD}{1-b}$, where D is the total donations and that this must hold for all donors in equilibrium. Therefore, all donors must give the same contribution

$$d(N, b) = \frac{1}{1 + b(N-1)},$$

which is decreasing in the number of donors.

We now show that payoffs are decreasing in the number of donors for subgames in which there is an interior solution for the optimization problem. Let

$$\widetilde{P}(N, b) \equiv (Nd(N, b))\,(1 - b(N-1)d(N, b)) - \frac{(d(N, b))^2}{2} - K.$$

One can show that

$$\frac{\partial \widetilde{P}(N, b)}{\partial N} = \frac{1 - bN}{(1 + b(N-1))^3},$$

which is negative for all N since $b > 1$.

If the constraint binds in one of these subgames ($l < d(N, b)$), all contributors give at the limit, and a donor's payoffs become

$$\overline{P}(N, b, l) \equiv (Nl)\,(1 - b(N-1)l) - \frac{l^2}{2} - K,$$

which imply

$$\frac{\partial \overline{P}(N, b, l)}{\partial N} = l[1 + bl - 2blN].$$

For N larger than $\frac{1+bl}{2bl}$, payoffs are decreasing in N. ∎

| Proof of Proposition 1

Note that without campaign donation limits, if $P(1,b) > 0$, the equilibrium number of donors, N_e^*, would be $\min\{M, N^*\}$, where $\overline{P}(N^*, b, l) = 0$. Such solution exists since $\lim_{N\to\infty} P(N,b) = 0$. If there are citizens that are not donating, none of them would have an incentive to deviate by paying the fixed cost, as this would bring them into a subgame where the payoffs are negative or zero. Also, no donor would deviate by changing the donation given others' optimal donation $d(N_e^*, b)$.

If $l < d(N_e^*, b)$, the limit binds in the optimization problem of all subgames in which $N < N_e^*$, as $d(N,b)$ is decreasing in N. If $\overline{P}(\frac{1+bl}{2bl}, b, l) > 0$, the number of donors in equilibrium is $\min\{M, N_l^*\}$, where $\overline{P}(N_l^*, b, l) = 0$. This solution exists as $\overline{P}(N_l^*, b, l)$ is a quadratic function with a maximum above zero. Again, it is clear that if a citizen not donating deviates to donating, she would get a zero or negative payoff. Those donating have no incentive to stop donating or giving a different quantity since l is the optimum donation when the constraint binds.

We now see how an increase in the limit affects the number of donors in an equilibrium where the limit binds. Solving for $\overline{P}(N^*, b, l) = 0$, we find that

$$N_l^* = \frac{1+bl}{2bl} + \sqrt{\left(\frac{1+bl}{2bl}\right)^2 - \frac{1}{2b} - \frac{K}{bl^2}}.$$

One can see that for a sufficiently small K an increase in l reduces N_l^*. ∎

B | OTHER TABLES AND FIGURES

TABLE 9 Donations and value of donations and probability of obtaining a seat

	(1)	(2)	(3)	(4)	(5)	(6)
Number of donors	0.008***	0.015***	0.017***			
	(0.002)	(0.002)	(0.003)			
Log(Donor Income (M COP))				0.052***	0.090***	0.090***
				(0.005)	(0.007)	(0.008)
Candidate controls			✓			✓
Municipality FE		✓	✓		✓	✓
Observations	1432	1018	871	3965	3934	3539
Mean	4.881	4.881	4.881	0.872	0.872	0.872
Effect Mean(Per)	0.16	0.31	0.35	5.96	10.32	10.32

Note: *** p<0.01, ** p<0.05, * p<0.1. (1)-(3) are estimated at the candidate level. (4)-(6) are estimated at the donor level. Candidate controls: gender, indigenous background, age, top row in the ballot, black, candidate has a sanction before, illegal registration of voting, and candidate smiled and had glasses in the ballot.

TABLE 10 Smooth individual covariates, around the electoral victory cutoff

Dependent variable	Mean	Std. Dev.	Donor fund. won	Std. Error	Obs.	Band-width	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Individual Characteristics							
Women	0.116	0.320	.032	.053	960	.067	0.542
Age	45.245	9.709	.352	1.571	1030	.08	0.823
Black	0.044	0.205	.022	.03	965	.074	0.464
Asian	0.107	0.309	-.041	.049	995	.076	0.405
Leftist party	0.024	0.154	-.022	.028	1262	.098	0.429
Right-wing	0.239	0.427	-.081	.06	1060	.075	0.180
Previously sanctioned	0.121	0.326	-.078	.048	1110	.08	0.104
Illegal Registration of ID.	0.005	0.071	-.003	.013	1124	.081	0.805
Has political experience	0.448	0.497	-.003	.013	1124	.081	0.805
Held office before	0.361	0.480	-.016	.067	1163	.085	0.810

Notes: Columns 1 and 2 report the basic descriptive statistics of each variable. Column 3 reports RDD point estimates of the effect of a left-wing victory in Mayor elections on each variable, using Calonico et al. (2014)'s optimal bandwidths (reported in column 6), bias correction, and robust standard errors (column 4), with linear local polynomials and triangular kernels. Column 5 reports the number of observations including in each estimation.

TABLE 11 Smooth individual campaign financial covariates, around the electoral victory cutoff

Dependent variable	Mean	Std. Dev.	Electoral victory	Std. Error	Obs.	Band-width	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Funding Covariates							
Number of Donors	4.131	6.715	0.772	0.921	1194	0.088	0.402
Total Campaign Income	46.534	99.093	14.479	11.91	1168	0.085	0.224
% of Donor Income	0.175	0.271	-0.032	0.038	1398	0.112	0.399

Notes: Columns 1 and 2 report the basic descriptive statistics of each variable. Column 3 reports RDD point estimates of the effect of looser campaign limits on each variable, using Calonico et al. (2014)'s optimal bandwidths (reported in column 6), bias correction, and robust standard errors (column 4), with linear local polynomials and triangular kernels. Column 5 reports the number of observations including in each estimation.

TABLE 12 Smooth municipality covariates across looser campaign limits cutoff

Dependent variable	Mean	Std. Dev.	Looser limits	Std. Error	Obs.	Band-width	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Discretionary Income (*)	31016.747	410388.781	-643.348	5045.757	76	4849.617	0.899
Municipal category	5.686	1.029	0.213	0.210	57	3649.972	0.310
Mayor wages	6.744	2.634	-0.419	0.420	57	3634.855	0.318
Council size	10.966	2.953	-0.437	0.373	60	3804.922	0.241
Total population	43216.607	267851.336	391.699	2239.875	147	8379.316	0.861
Education establishments	284.661	171.554	61.102	56.348	98	5835.792	0.278
Total candidates	4.054	1.677	1.319	0.849	125	6986.524	.120
Total # of contracts in municip.	2822.863	7918.165	-96.819	399.81	106	5989.310	0.809

Notes: Columns 1 and 2 report the basic descriptive statistics of each variable. Column 3 reports RDD point estimates of the effect of looser campaign limits on each variable, using Calonico et al. (2014)'s optimal bandwidths (reported in column 6), bias correction, and robust standard errors (column 4), with linear local polynomials and triangular kernels. Column 5 reports the number of observations including in each estimation. (*) Discretionary income scaled in # of minimum monthly wages.

TABLE 13 Smooth candidate characteristics across looser campaign limits cutoff

Dependent variable	Mean	Std. Dev.	Donor fund. won	Std. Error	Obs.	Band-width	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Individual covariates							
Women	0.096	0.295	-0.044	0.077	95	5582.719	0.569
Age	44.985	9.698	-2.363	5.804	98	6593.576	0.684
Black	0.047	0.211	-0.106	0.103	76	5227.417	0.304
Indigenous background	0.112	0.315	-0.351**	0.153	105	6848.513	0.022
Leftist party	0.026	0.160	-0.021	0.069	96	5624.339	0.759
Right-wing	0.244	0.430	0.442	0.293	122	6782.446	0.132
Previously sanctioned	0.111	0.315	0.012	0.175	80	4921.141	0.945
Illegal Registration of ID	0.008	0.089	0.004	0.003	48	3253.438	0.243
Has political experience	0.455	0.498	-0.245	0.217	143	8069.598	0.259
Has electoral experience	0.366	0.482	-0.302	0.269	100	5938.124	0.262

Notes: Columns 1 and 2 report the basic descriptive statistics of each variable. Column 3 reports RDD point estimates of the effect of looser campaign limits on each variable, using Calonico et al. (2014)'s optimal bandwidths (reported in column 6), bias correction, and robust standard errors (column 4), with linear local polynomials and triangular kernels. Column 5 reports the number of observations including in each estimation.

TABLE 14 Effect of looser limits on campaign reporting

Dependent variable:	Campaign Reporting
Looser limits	-0.119
(Conventional)	(0.107)
Looser limits	-0.151
(Robust)	(0.118)
Base Observations	1013
Observations in Bandwidth	178
Mean	.923
Effect mean(Per)	-16.348
Bandwidth	9028.990

Note: *** p<0.01, ** p<0.05, * p<0.1. Regression at the municipality level for candidates ranked in second place. Comparison of concentration of donations for winners across the limit cut-off. Robust standard errors, bias corrected estimates and the optimal bandwidth by Calonico et al. (2014).

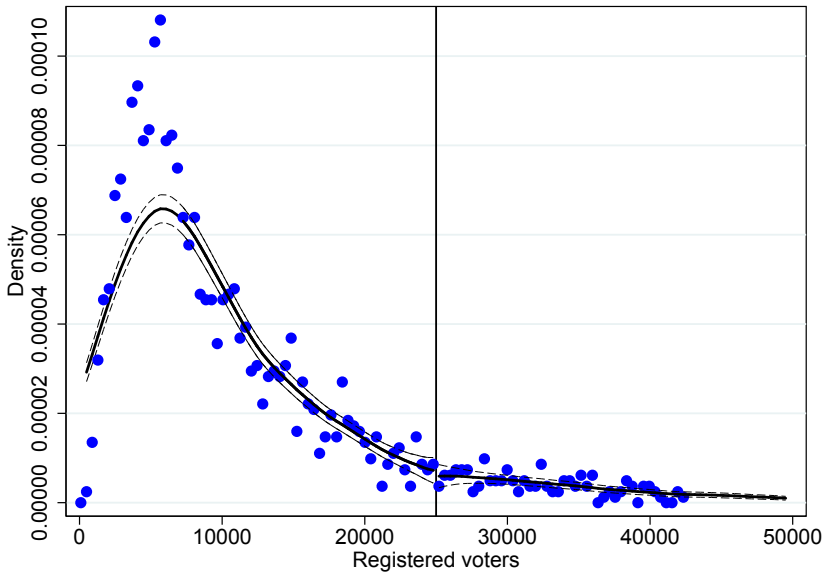

FIGURE 4 Mc Crary test - Distribution of registered voters around the cut-off. *Notes:* Figure shows the density of the running variable on both sides of the threshold, binned averages and 95% confidence intervals. The discontinuity estimate (log difference in height) is −0.188 with standard error of 0.321.

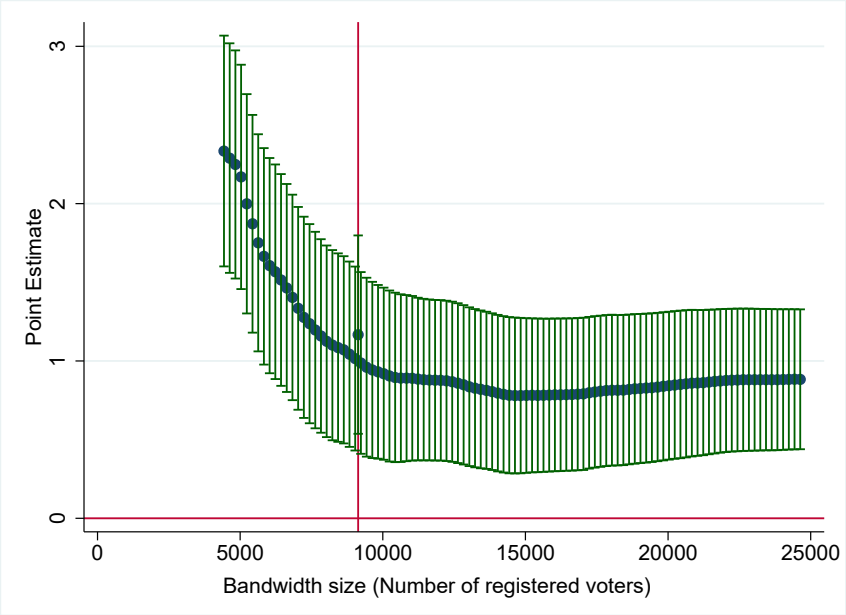

FIGURE 5 Bandwidth Graph Log Mean Donation. *Notes:* Red line denotes the optimal bandwidth. 95% confidence intervals displayed.

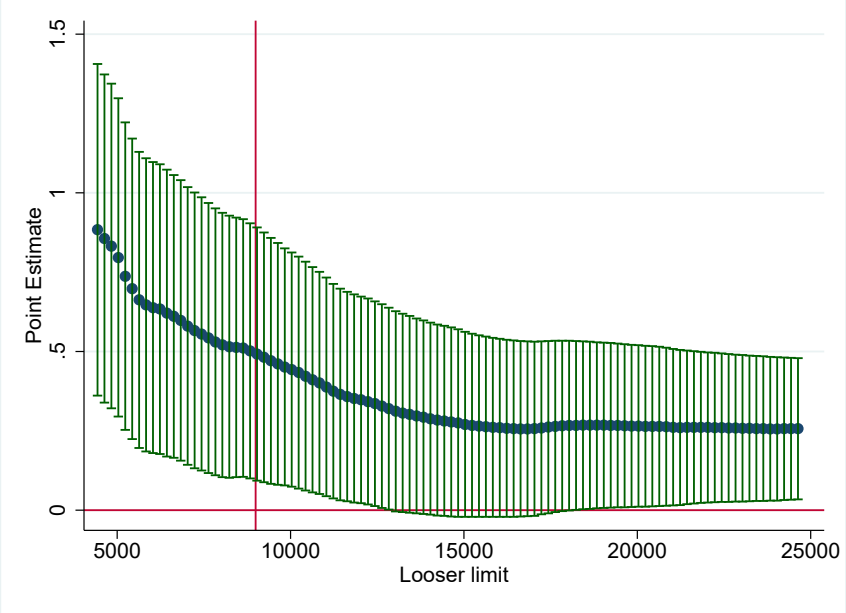

FIGURE 6 Bandwidth graph Herfindahl index. *Notes:* Red line denotes the optimal bandwidth. 95% confidence intervals displayed.

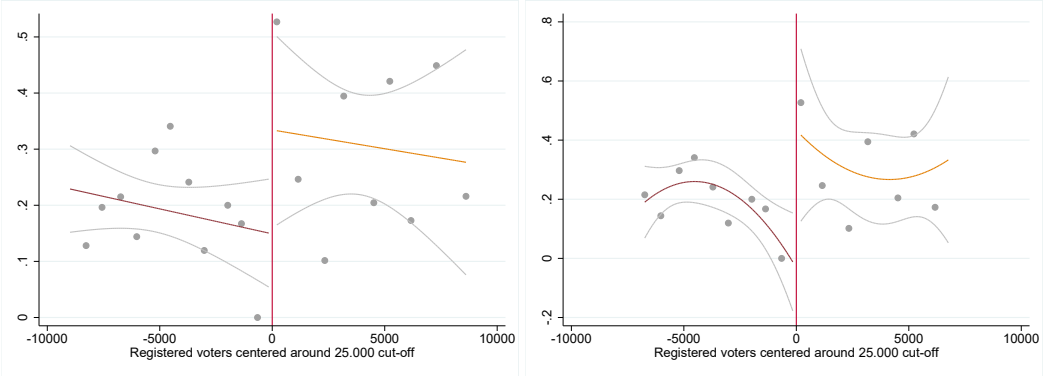

FIGURE 7 Effect of looser campaign limits on Herfindahl index. *Notes:* Observations within Calonico et al. (2014) bandwidth displayed. Left: linear fit. Right: quadratic fit.

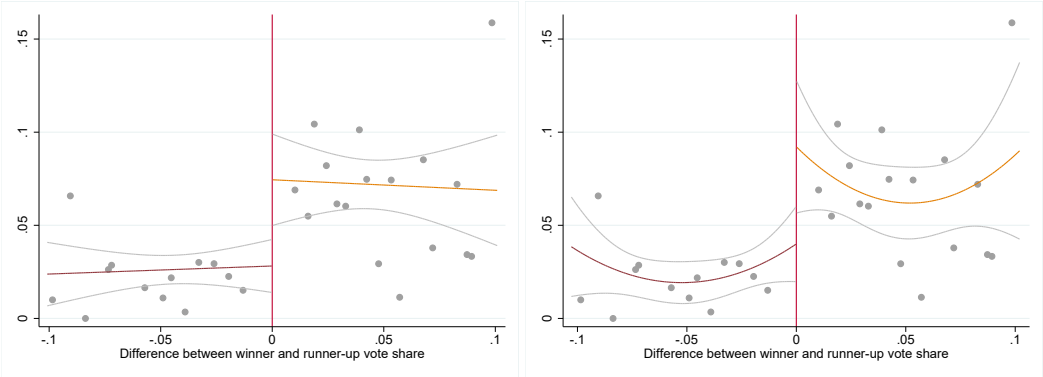

FIGURE 8 Effect of electing a politician on probability of donor getting a contract. *Notes:* Observations within Calonico et al. (2014) bandwidth displayed. Left: linear fit. Right: quadratic fit.