Small Campaign Donors*

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Abstract

We study the characteristics and behavior of small campaign donors and compare them to large donors by building the dataset of all the 340 million individual contributions reported to the U.S. Federal Election Commission between 2005 and 2020. Thanks to the reporting requirements of online fundraising platforms first used by Democrats (ActBlue) and now Republicans (WinRed), we observe contribution-level information on the vast majority of small donations. We first show that the number of small donors and their total contributions have been growing rapidly. Second, these small donors include more women and more ethnic minorities than large donors, but their geographical distribution does not differ much. Third, using a saturated fixed effects model, we find that race closeness, candidate ideological extremeness, whether candidates and donors live in the same district or state, and whether they have the same ethnicity increase contributions, but, crucially, the effects are lower for small donors. Finally, we show that campaign ads on TV and on social media affect the number and size of contributions to congressional candidates, particularly for small donors, indicating that pull factors are relevant to explain their behavior.

Keywords: Campaign finance, Campaign contributions, Small donations, ActBlue, WinRed, TV advertising
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1 Introduction

Small donors, i.e. citizens contributing small amounts of money to political campaigns, have become a topical issue of U.S. politics in recent years. They are perceived as increasingly important,[1] and even sometimes qualified as initiating a "revolution,"[2] in particular for their potential to mitigate the capture of the political process by interest groups and wealthy individuals. Yet, we know little about these small donors and their behavior. Who are they? Who do they donate to and why? How much do they differ from large donors? The lack of comprehensive data on small donors and their contributions had made answering these questions difficult. In this paper, we rely on new data emerging from the growing use of "conduits" channelling individual contributions to overcome that challenge. We provide the first comprehensive evidence on the characteristics and behavior of small donors.

Our first contribution is to build a novel dataset including all the 340 million contributions made by individuals and reported to the U.S. Federal Election Commission (FEC) between 2005 and 2020. A key novelty is that we are able to observe contribution-level data for the vast majority of contributions, however small they are. Indeed, in recent years, most contributions have been channeled by conduits such as ActBlue, an online fundraising platform created in 2004 that now dominates Democratic fundraising, and WinRed, its Republican counterpart launched in 2019. Conduits have more stringent reporting obligations than traditional campaign committees: they must report detailed information on all the contributions they collect, not just those above $200. In the 2020 electoral cycle, about 87% of all observable contributions went through a conduit. Overall, we have contribution-level data for 92% of the total amounts received by candidates.

For each of these observed contributions, the FEC data include information about the amount and date of the contribution, the donor's first and last names, their address, occupation, and employer. We use this information to create unique donor identifiers, and differentiate "large" from "small" donors based on their total contributions: we call "small donors" the donors who do not give more than $200, over a two-year electoral cycle, to any committee to which they contribute.[3] This definition is election-cycle-specific. Out of 42.9 million unique donor-cycles in our dataset, 23.2 million are small donors. In addition, we use donors' name and address to infer their gender, ethnicity and geo-localisation. We complement these data with information on all House, Senate, and presidential candidates for 2005-2020, for which we collected electoral results and hand-coded candidates' gender and ethnicity.

Using this new dataset, we produce four sets of results. Our first set of results provide novel evidence on the growing importance of small donors and their contributions in U.S. politics. The

[1] See, e.g., "'Not the billionaires': why small-dollar donors are Democrats' new powerhouse" (*The Guardian*, March 10, 2019), and "Why Famous, Powerful Presidential Candidates Are Begging You for Five Dollars"" (*The New Yorker*, June 10, 2019).

[2] See, e.g., "Campaign Reforms May Never Pass, But the Low-Dollar Revolution Has Already Begun" (*American Prospect*, February 28, 2019), and "Small dollars, big changes" (*The Washington Post*, February 6, 2020).

[3] We have chosen to define the small donors with respect to a $200 threshold, because $200 is the legal reporting threshold for campaign committees in the U.S. With this definition, a small donor is a donor who, absent the reporting features described above, would be unobservable. See Section 2.1 for more details.

number of *observable*[4] small donors has strongly increased over time, from about $50,000$ in the 2006 electoral cycle to nearly 12 million in the 2020 cycle. In comparison, the number of large donors has increased from 1.3 to 8.2 million over the same period. Furthermore, small donors' contributions account for a growing share of the number and amount of contributions received by campaigns.

Our second set of results provide descriptive evidence on the characteristics of small donors and the patterns of their contributions, as well as differences with large donors. First, the share of women is larger among small donors, especially in recent electoral cycles: 52.5% of small contributors are women, against 37.7% of large donors. Second, while ethnic minorities are under-represented among both small and large donors, this under-representation is less pronounced among small donors. In particular, the share of Black and Hispanic donors among small donors (6.5% and 7.1%, respectively) is twice as large as among large donors. Third, both small and large donors are concentrated on the coasts and in large metropolitan areas. By contrast, there are some parts of the country, such as the rural West, were almost no donor can be found. Fourth, contributions by small and large donors are far from being perfectly correlated across candidates. While some candidates receive nearly no small contribution, others receive a substantially larger share of all small donors' contributions than large donors'. Fifth, the timing of contributions by small and large donors differs substantially: in particular, small donors' contributions much more in the aftermath of key events, such as the death of Justice Ruth Bader Ginsburgh in 2020.

In the third part of the analysis, we focus on the determinants of small and large donors' contributions. To organize our investigation, we develop a simple conceptual framework that encompasses three motives underlying donors' choices: the electoral motive, the expressive motive, and the favor motive. We single out key factors that are predicted to influence donors' behavior: the closeness of the race, whether the candidate is the incumbent, and the alignment between the donor and the candidate in terms of ideology, gender, ethnicity, and geography (same district or state). We compare the influence of these factors for small and large donors with saturated fixed effects models including election, office (Senate vs. House), state, and, most importantly, contributor fixed effects. We study general and primary elections separately, and examine both the intensive and extensive margins. Our main regressions focus on donations to Democratic candidates for the period 2012-2020, during which the penetration of ActBlue is very high, ensuring that we observe most donations by both small and large donors. We also check the robustness of our findings for Republican candidates by studying the 2019-2020 cycle, after WinRed had been launched.

The factors highlighted in the conceptual framework prove to be relevant in practice. In particular, we find that the closeness of the race, the geographical match between the donor and the candidate, and, to a lesser extent, the gender and ethnic match between them have large and positive effects on the

[4] As discussed in more detail in Section 2, one cannot know the exact number of small donors, as small donors contributing directly to committees (i.e. not through a conduit) only appear in aggregated amounts of unitemized contributions. However, using those aggregates, we show that the majority of the small donations are now made through conduits, so that our dataset includes the vast majority of small donors.

likelihood of contributing and on the amounts contributed, for both small and large donors. In addition, donors are more likely to contribute and they make larger contributions to more progressive candidates, but to the most progressive ones. Except for ideology, the magnitudes of all effects are lower for small donors. For instance, in our preferred specification, large donors are 60.4% more likely to contribute to a candidate in a close race than in a safe one, against a nonsignificant 25.5% for small donors. Large donors are also 190% more likely to contribute to in-district candidates, as compared to 102% for small donors. Exploring the effects of those factors across different deciles of donors defined based on the size of their donations paint a consistent picture: the effects of closeness, in-district, and gender and ethnic match increase smoothly with the size of the donors (where we rank donors depending on the maximum amount they contribute to a candidate during a cycle). We also find similar results in primary and general elections. Furthermore, contribution patterns in primary elections reveal that donors contribute more to top-two candidates and that hedging (i.e. donors contributing to more than one candidate in a given race) is rare, particularly for small donors.

In sum, we uncover three key differences between small and large donors in terms of their behaviors: (i) small donors contribute more than large donors to non-close races (either sure winners or sure losers), (ii) they contribute more to out-of-district races, and (iii) they concentrate their contributions on fewer candidates, such as leaders of the Democratic party and its factions (e.g., Nancy Pelosi or Alexandria Ocasio-Cortez) as well as candidates competing against nemeses of the Democratic party (e.g., Andrew Janz in his 2018 bid against Devin Nunes). Interpreted through the prism of our conceptual framework, the findings suggests that small donors are more driven by expressive motives than large donors, and less by electoral motives. The result that small donors contribute relatively more often to out-of-districts candidates also suggests that they may be one of the drivers of the nationalization of U.S. politics (see, e.g., Hopkins (2018) and Sievert and McKee (2019)).

The effects of the aforementioned factors on donors' behavior can be driven by the combination of donors' own motives (push factors) and differences in campaign outreach activities across races and candidates (pull factors). Fully disentangling the effects of these two types of factors is beyond the scope of this paper. However, our fourth set of results makes progress in this direction by providing evidence on the impact of two specific pull factors on contributions: TV ads and social media ads, which account for more than half of all candidate expenses (Ridout et al., 2021).

We first extend Spenkuch and Toniatti (2018)'s border discontinuity design to estimate the effects of TV ads on small and large contributions to Democratic candidates over the 2012-2018 period.[5] In presidential elections, we find a positive and significant impact of Democratic ads on the number of contributors, which is almost entirely driven by large donors given that there were few (observed) small contributions in the 2012 and 2016 presidential elections. In House and Senate elections, Democratic and Republican ads have effects of opposite signs on the number of small donors contributing to the Democratic candidates and on the amount of their contributions. These effects are statistically

[5]Data on TV ads for the 2020 election cycle will not be available until 2023.

significant and they account for 4 percent of the mean (for the number of small donors) and 6 percent (for their contributions). By contrast, effects on large donors in congressional elections are non-significant and smaller. This difference may be due to small donors' lower baseline level of information.

Second, we use an event study to estimate the effects of social media ads in the 2020 election. We find significant effects on the number of small and large donors and on their total donation amounts, up to two weeks after the launch of the ad. These effects are larger for Democratic than Republican candidates, and larger for small donors than for large donors. While political ads are only one tool in the fundraising toolkit of campaign, the magnitude of the effects of both TV ads and social media ads suggests that pull factors are relevant to explain the behavior of donors.

Contribution to the literature There is a large literature on campaign donations, investigating both their determinants and their consequences (for a literature review, see Dawood, 2015). So far, this literature has mainly focused on the total aggregate resources available for political campaigns or on large political contributions or (Gimpel et al., 2006; Bonica, 2014; McCarty et al., 2006; Heerwig, 2016; Rhodes et al., 2018). However, the motives underlying large donors' contributions uncovered by previous studies (see Gordon et al. (2007); Chamon and Kaplan (2013); Barber (2016) for empirical evidence, and Grossman and Helpman (1994, 1996) for theoretical models) may not hold validity for small donors. For instance, small contributions are unlikely to buy policies or access to politicians. We contribute to this literature by studying the contributions of small donors and the differences with large donors' behavior.

Small donors have been overlooked by the theoretical literature (see Bouton et al. (2018) for an exception) and they have only been examined recently by empirical studies. Furthermore, existing work mostly relies on survey data, such as the American National Election Studies (ANES), or surveys targeting small donors (Graf et al., 2006; Joe et al., 2008; Lipsitz and Panagopoulos, 2011; Malbin, 2013; La Raja and Schaffner, 2015). By contrast, this paper relies on administrative data, thereby addressing well-known limitations of self-reported data, including misreporting and lack of representativeness. Furthermore, surveys such as the ANES do not indicate which actual candidates donors contribute to. Our data do, enabling us to study the effect of the alignment between donors and candidates' sociodemographic characteristics on donations.

In a concomitant paper, Alvarez et al. (2020) also study small donors using data on contributions channeled by ActBlue. They show that donors contributing less than $200 are more likely to be women and that they tend to be younger, with lower incomes. However, their focus is on a unique election and candidate, Bernie Sanders's 2016 presidential campaign, which may limit the external validity of their results. By considering the universe of small donors between 2005 and 2020, we provide a more comprehensive and generalizable picture of small donors' characteristics and behavior.

Another exception is a work-in-progress by Albert and La Raja (2020) who combine survey data and data from Bonica (2014) with ActBlue's FEC records. They show that small donors are more

likely to be lower-income, female, and racial minority citizens (consistently with the findings of Alvarez et al., 2019). However, unlike us, they do not link contributions reported by ActBlue and other conduits with the recipient candidates, preventing them from measuring the effects of candidate and race characteristics on donations. In addition, they only focus on contributions channeled by conduits and ignore all direct contributions to candidates recorded by the FEC, limiting their ability to reach robust conclusions on the similarities and differences between small and large donors. [6]

Making a small campaign contribution is an intermediate political behavior between voting (a behavior which is more widespread and less costly) and making a large contribution (a behavior which is rarer and costlier). Therefore, we build on the literature studying these other behaviors, by asking some of the questions addressed in this literature, but regarding small contributions. We study both the "intensity" of the behavior (how many small and large contributions people make, and what their total amount is – the counterpart of whether one votes or abstains) and its "direction" (which candidates the small and large contributions go to – the counterpart of which candidate one votes for). Specifically, we contribute to the literature on the effects of electoral campaigns on political behavior. A recent strand in this literature estimates the effect of TV ads on voter behavior. Krasno and Green (2008) do not find any effect of advertising on turnout in the 2000 presidential election. Similarly, Spenkuch and Toniatti (2018) conclude that political advertising has no significant impact on aggregate turnout. However, they do find an effect of advertising on presidential candidates' vote shares.[7] Using the same identification strategy, Sides et al. (2020) find that the effect of TV ads is much larger in down-ballot elections than in presidential elections. We build on these papers and show that TV ads not only affect voter behavior but that they also increase donations.

2 Data and descriptive statistics

Our dataset contains all the contributions made by individual donors and reported to the U.S. Federal Election Commission (FEC) between 1 January 1 2005 and 31 December 31 2020. This period covers eight distinct two-year electoral cycles, with the 2006 cycle going from 1 January 2005 to 31 December 2006, the 2008 cycle starting on 1 January 2007, etc. Our data include contributions to all entities raising more than $5,000 for federal elections, whether they are candidates, parties or any other political action committees (PACs). Building this novel dataset is our first contribution.[8] Overall, we observe

[6] Other recent studies on small donors use different types of data and approaches. Culberson et al. (2019) consider small donors but in an aggregate way, by analyzing unitemized donations as a whole rather than investigating the characteristics of individual small donors. Grumbach and Sahn (2020) study racial inequality in campaign contributions. On the determinants of small donor contributions, Green et al. (2015) conducted a field experiment to examine the impact of non-partisan messages, and Lessem et al. (2020) study the impact of house prices.

[7] On the persuasive effects of advertising in the 2000 presidential elections, see also Huber and Arceneaux (2007).

[8] All contributions reported to the FEC are publicly available on its website (https://www.fec.gov/data/). We scrapped all "individual contributions," namely contributions made by individuals, by contrast with contributions from organizations and other political committees. We further apply a number of cleaning procedures, detailed in Appendix A. In particular, we eliminate duplicate entries, refunded contributions, and contributions misattributed to individual donors instead of organizations. We also drop contributions which cannot be tied to an individual donor due to missing name or other

Table 1: Summary statistics on all observable contributions by individual donors, by two-year electoral cycle, 2006-2020

	Mean	St.Dev	P25	Median	P75	Max	Obs
2006	292.1	972	25	60	250	250,000	5,220,840
2008	299.2	1,161	25	75	250	296,131	10,135,950
2010	237.7	1,915	22	50	154	2,000,000	8,014,443
2012	237.0	6,841	15	38	100	5,486,382	16,379,566
2014	149.9	7,765	8	25	50	16,000,000	16,592,807
2016	129.6	8,222	6	20	50	11,000,000	37,253,535
2018	85.7	8,476	5	12	26	20,000,000	51,068,028
2020	59.7	5,988	5	15	35	15,000,000	195,015,888

Notes: The table provides summary statistics for all observable contributions by individual donors included in our dataset, separately by two-year electoral cycle, from 2006 to 2020.

a total of 340 million individual contributions.

Table 1 displays summary statistics on contributions split by two-year electoral cycle. We first observe that the number of contributions has dramatically increased over time. It was nearly ten times larger in the 2018 cycle than in 2006, and it increased again four-fold between 2018 and 2020. Second, the mean and median contribution amounts decreased during that period, from 292 to 60 dollars and from 60 to 15 dollars, respectively, pointing to the growing importance of small contributions.[9]

Below, we provide information on our data sources and on the regulatory background (Section 2.1); we argue that we are able to observe the vast majority of political contributions, which was not possible until recently, and explain why (Section 2.2); we define small donors (Section 2.3); and we provide a few stylized facts about differences between small and large donors (Section 2.4).

2.1 Data sources and regulatory background

The FEC, created in 1975, is an independent government agency responsible for administering and enforcing the federal campaign finance law (see e.g., Cagé, 2018).[10] Of particular interest to us is the FEC's role in the public disclosure of funds raised and spent during electoral campaigns.

The key entity in the FEC data is the committee. Every candidate, local party, or political group that spends money with a political purpose has to create a committee and to register it with the FEC. Whenever the total contributions of an individual to a committee since the beginning of the election cycle exceed $200, the committee must report the identity of this individual as well as the

identifying variables (c. 0.01% of all contributions).

[9] See Appendix Figure C.1 for the distribution of the amount of these contributions across all years.

[10] Individual campaign donations are limited by law in the U.S.: for the 2021-2022 election cycle, donations to a candidate's local committee were capped at $2,900 per election, and citizens could also contribute up to $5,000 a year to Political Action Committees, up to $10,000 a year to local party committees, up to $36,500 to national political parties, and up to $109,500 to other national party committees (for more details and up-to-date figures, see e.g., https://www.fec.gov/help-candidates-and-committees/candidate-taking-receipts/contribution-limits/).

contributions they receive from her from that point onward.[11] Contributions reported to the FEC are said to be *itemized*: each of them has an entry in the FEC data with detailed information on the specifics of the contribution (date and amount), the contributor (their full name, address, occupation, and employer), and the recipient. By contrast, contributions from individuals that have not (yet) attained the $200 reporting threshold with the committee of interest are said to be *unitemized*. The committee's financial summary reports the total amount of all unitemized contributions, aggregated across all contributors.[12]

Adding to the distinction between itemized and unitemized contributions, contributions can either be *direct* – when they are made directly by an individual to a recipient committee – or *earmarked* – when they are made through an intermediary or *conduit*.[13] The largest of such conduits is ActBlue, an online fundraising platform that now dominates Democratic fundraising. ActBlue was created in 2004 to help the Democrats raise money.[14] Candidates which adopt ActBlue can receive online contributions without having to set up their own fundraising platform. They simply need to include a link on their website which redirects potential contributors to a page dedicated to them on ActBlue's website.[15] ActBlue also facilitates political contributions on donors' side.[16] Donors can contribute to candidates seamlessly, from their computer or their smartphone. Once they have entered their information and card number, an additional contribution is just one click away. Moreover, on ActBlue's website, users can browse and search for candidates and groups to donate to. Importantly, ActBlue does not favor or advertise any of them, and candidates are ordered alphabetically. In 2019, a similar platform was launched on the Republican side, WinRed.[17]

2.2 Visible contributions

Until now, donations above $200 made directly to committees have been the main focus of the literature. By contrast, we are able to observe the vast majority of political contributions, however small they are,

[11] To be specific, committees are required to report all contributions made on the date the reporting threshold is hit and onward, but not the contributions made beforehand. Consider for instance a donor who made two contributions to a candidate: a first one of $150 and a second one of $100. The candidate's campaign committee must report the second donation but not the first.

[12] A small fraction of committees choose to itemize all the contributions they receive. Culberson et al. (2019) call these committees "serial reporters" for their penchant for disclosing all contributions, irrespective of their amount.

[13] Contributions made through conduits clearly designate the destination committee. This distinguishes them from contributions made to Political Action Committees (PACs), which PACs have full discretion to use to support candidates of their choice or other committees.

[14] Other conduits on the Democratic side, such as MoveOn.org and Swing Left, are much smaller. Formally, ActBlue is a nonprofit organization. Its stated mission is to "empower small-dollar donors." Groups that use ActBlue pay a 3.95% credit card processing fee. As a nonprofit, ActBlue runs its own, separate fundraising program and accepts tips on contributions to pay for its expenses. See e.g., "How ActBlue Is Trying To Turn Small Donations Into A Blue Wave," *FiveThirtyEight*, Carrie Levine and Chris Zubak-Skees, 25 October 2018.

[15] See e.g., "How ActBlue Became a Powerful Force in Fund-Raising," *The New York Times*, Derek Willis, 9 October 2014.

[16] See e.g., "How Small Donations Gave Underdog Democrats a Fighting Chance for the House," *The Washington Post*, Michelle Ye Hee Lee, 4 November 2018.

[17] Contrary to ActBlue, WinRed is a for-profit fundraising platform. For more information on the launch of WinRed, see e.g., " GOP to launch new fundraising site as Dems crush the online money game," *Politico*, Alex Isenstadt, 23 June 2019.

for two reasons.

First, like other committees, ActBlue and other conduits must register with the FEC and report the contributions they receive. But critically, unlike other committees, conduits need to report *all* the contributions they collect on behalf of candidates, including those below $200. Conduits report these contributions in their own financial accounts, but the vast majority of them also identify, in the "memo texts" or "receipt descriptions" attached to the contributions, the committee which the contribution is earmarked to. Through a thorough cleaning of these memos (detailed in Appendix A) we are thus able to incorporate earmarked contributions among other contributions flowing from an individual donor to a recipient committee.

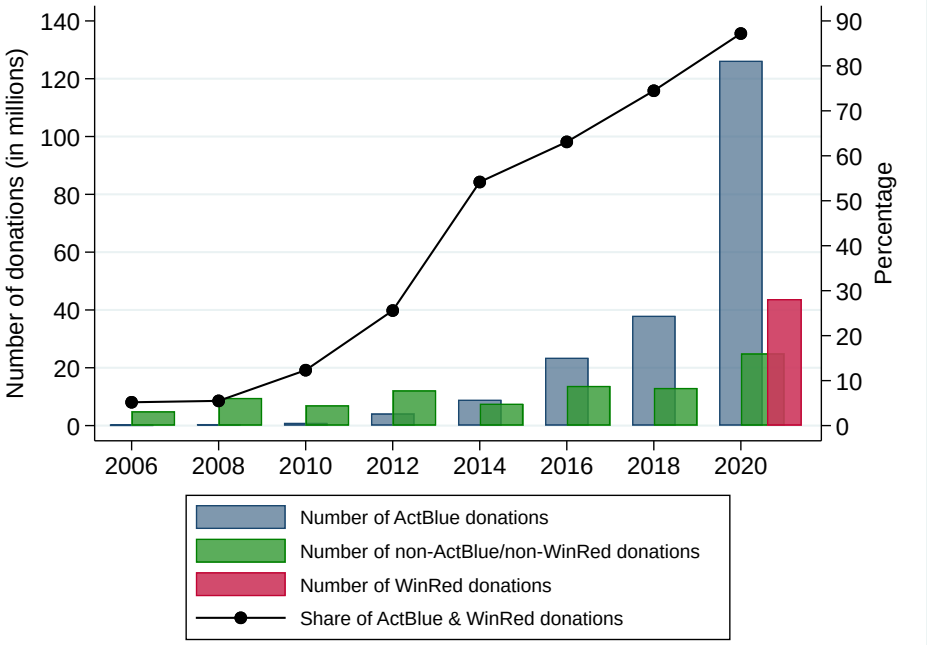
Second, contributions made through ActBlue and other conduits have steadily increased over time, and they now account for the vast majority of contributions in our data. Overall, 76.4% of the individual contributions in the data were made through conduits. Figure 1 shows that ActBlue accounts for the lion's share of such contributions today. We plot the number of donations made through ActBlue, through WinRed, and the number of other donations. In the years following its creation, ActBlue only channeled a small fraction of contributions. While the 2008 Barack Obama campaign famously raised a large number small donations, it did so without using ActBlue. The number and amount of contributions channeled by ActBlue increased dramatically after 2012. In the 2020 electoral cycle, donations channeled by ActBlue and by the newly created conduit WinRed accounted for nearly 65% and 23% of all contributions, respectively. In total, more than 95% of all observable individual donations in the 2020 electoral cycle were made through ActBlue, WinRed, or another conduit. Conduits account for a lower share of contribution amounts, since many of the contributions they channel are small. But that share has been increasing as well. Overall, ActBlue and WinRed accounted for 39.2% of the money contributed by individuals to committees in the 2020 cycle, up from 15.1% just two years before and only 2.9% in 2012 (Figure 1b).

Unsurprisingly, the increase in the number of ActBlue and WinRed contributions was concomitant with an increase in the fraction of candidates using these conduits. The share of Democratic congressional candidates receiving at least one contribution through ActBlue rose from 67% in 2006 to 96% in 2020 (Appendix Figure C.2). On the Republican side, in 2020, around one third of candidates used WinRed. As shown in Appendix Figure C.3, the fraction of Democratic candidates using ActBlue and other conduits is slightly higher among incumbents and, interestingly, among women candidates. It is also higher among White candidates than Black and Hispanics, but this difference has slightly receded over time. We observe similar sociodemographic differences in the adoption of WinRed and other conduits by 2020 Republican candidates (Appendix Figure C.4).

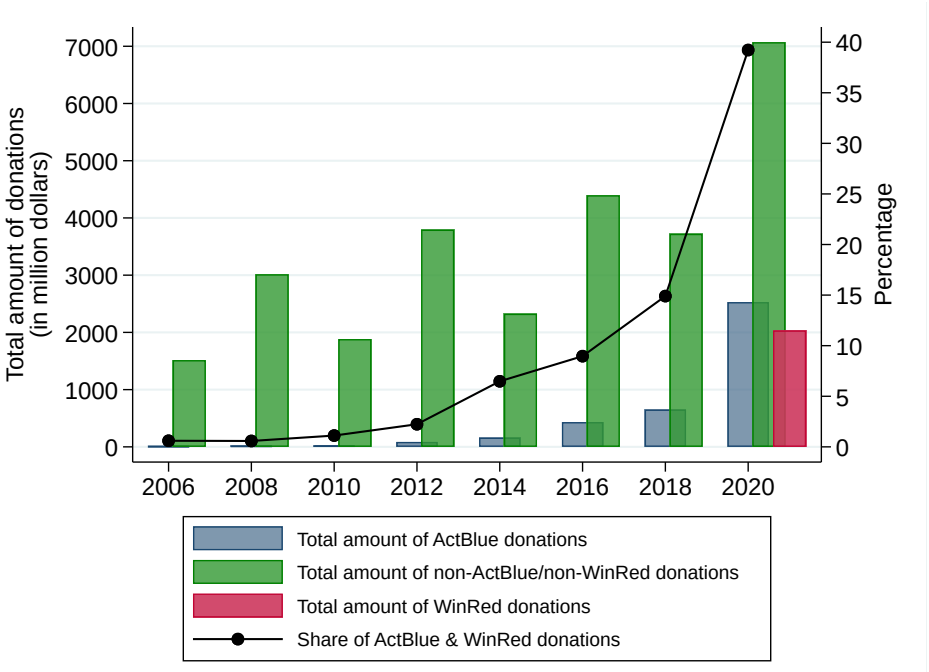
The growing number of contributions made through conduits and in particular through ActBlue, on the Democratic side, together with the fact that conduits report all contributions implies that we now observe the vast majority of all individual political contributions. We show this in Figure 2, where we estimate the share of all individual contributions which we observe in our data. We sum

Figure 1: Number and total dollar amounts of ActBlue and WinRed contributions, 2006-2020

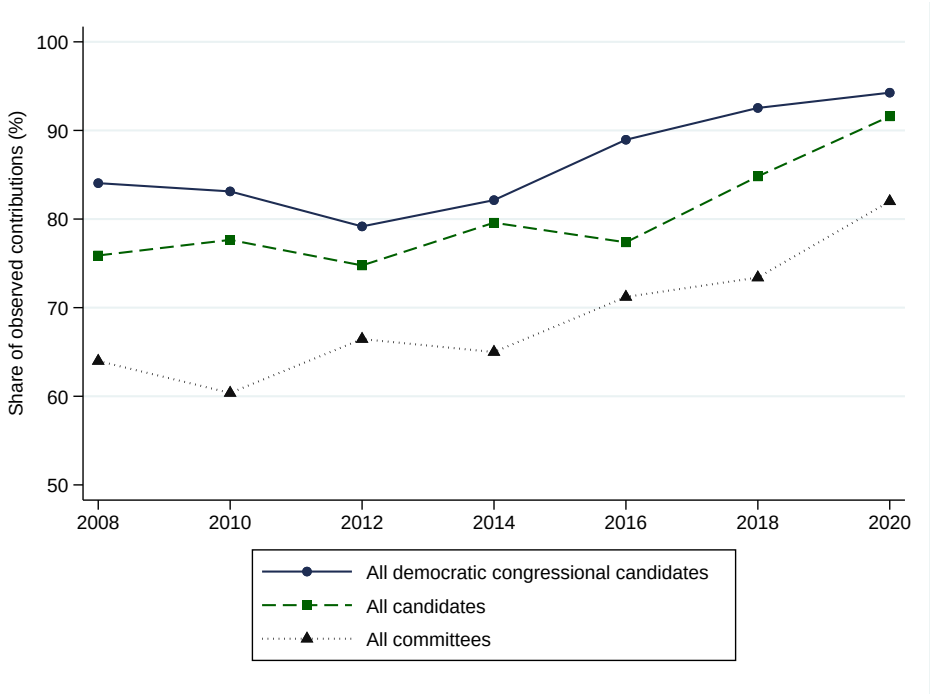
(a) **Number of donations**



(b) **Total dollar amount**



Notes: The figure represents the number (sub-Figure 1a) and total amount (sub-Figure 1b) of donations made by individual donors between 2006 and 2020, by two-year electoral cycle and depending on whether these donations were made through ActBlue, WinRed or none of the two.



Notes: The figure plots the evolution of the share of contributions (in dollar amounts) for which we have contribution-level information, among all contributions received (computed as the sum of committees' itemized and unitemized contributions), by different groups of committees, in each cycle between 2008 and 2020. The 2006 cycle is not included, as tabulated data on the share of itemized and unitemized contributions is only provided in FEC summary files from the 2008 cycle onwards.

Figure 2: Share of observed contributions, 2008-2020.

the contributions made directly to committees (and which are itemized by them) and the contributions earmarked to these committees, and divide the obtained total by the contributions reported as aggregates in committees' financial summaries (which count all contributions they received, whether itemized or not). As shown in the figure, this share has increased over the years. The contributions to Democratic congressional candidates that we observe accounted for 95% of their total contributions in the 2020 elections, against 84% in 2008. This is also true when including presidential and Republican candidates in the sample, and when considering all contributions. As we show in Appendix Figures C.5, C.6 and C.7, this increase is driven by the increasing share of unitemized contributions that are earmarked (92% in 2020 for Democratic congressional candidates, compared to 12% in 2008). In 2020, considering earmarked contributions increases the share of observable contributions to Democratic candidates by 50%.

2.3 Small donors

The fact that we observe the vast majority of individual contributions, including *small contributions*, enables us to identify *small donors*, whom our analysis focuses on.

While the FEC data contain unique candidate IDs, the same is not true for individual contributors. To build unique donor IDs, we first clean four variables identifying donors: their first name, last name,

street, and zip code. We then assume that the individuals associated with two distinct contributions are the same if they match exactly on three of these characteristics and if they obtain a high fuzzy match score on the fourth.[18] Overall, we identify a total of 30 million unique donors who donated at least once between 2006 and 2020. In the 2020 cycle, this number was 20 million, which corresponds to 8.5% of the adult U.S. citizen population.

Then, we define as "small donors" all individuals who contributed less than $200 to each committee during a specific cycle. To determine whether an individual's contribution to a committee is below $200, we distinguish two sets of committees. The first set, accounting for the vast majority of committees, only itemize direct contributions of an individual when their total during the cycle reaches more than $200, in compliance with the FEC mandate described in Section 2.1. In this case, we determine that the individual gave less than $200 if we do not observe any direct contribution to the committee and if the sum of all her contributions to the committee through conduits is lower than $200. The second set of committees choose to itemize all the contributions they receive.[19] In that case, we determine that an individual gave less than $200 if the sum of all her direct and earmarked contributions to the committee is lower than $200.[20]

All other donors are called "large." The distinction that we draw between small and large donors is election-cycle-specific: a donor may be small in one cycle and large in the next one if the maximum amount she gave to a committee was larger than $200 in the second cycle but not in the first. Overall, our data include 19.7 million large donor-cycles and 23.2 million small donor-cycles. About 4% of all unique individual donors appear in both categories.

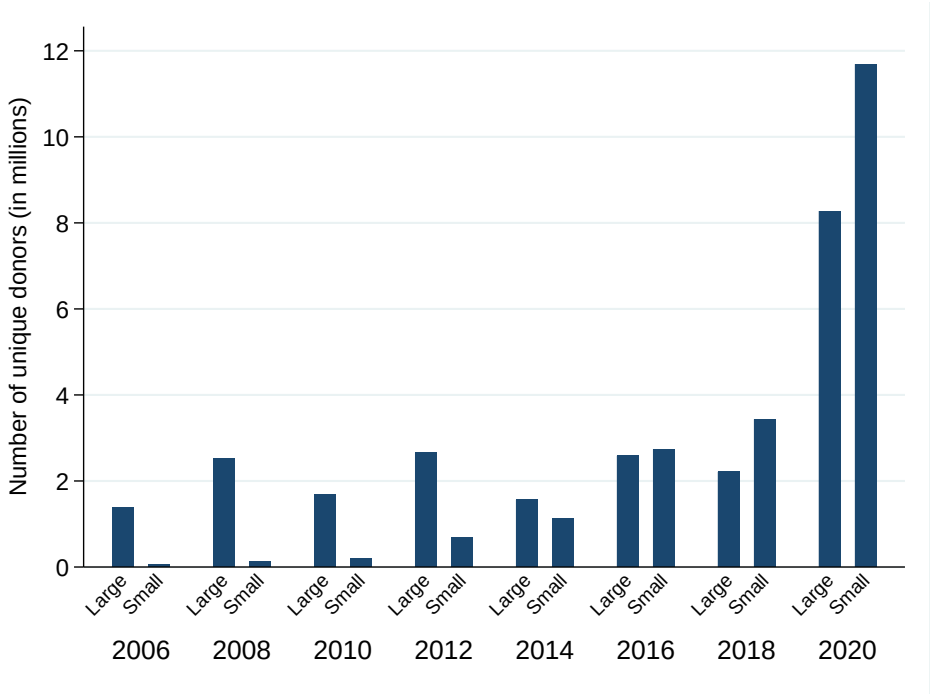
There are two data-driven imperfections in our identification of small and large donors and of their contributions. First, we miss a small subset of small donors, namely donors who do not use conduits and who contribute less than $200 to all the candidates to whom they contribute directly. We do not know the exact number of these "hidden donors" (a terminology proposed by Alvarez et al., 2019), but we know that it is small, especially in recent years. Indeed, recall from Figure 2 that, thanks to the growing use of conduits, we observe the vast majority of contributions in the last elections. Second, the (observed) total contributions of a large donor may be below the actual total, and even below $200. This issue arises for donors who made their contributions in several instalments, with the first ones being below $200. We are not too concerned with these cases since, for the same reasons as for hidden donors, they only represent a small share of total contributions. Besides, even though their computed totals may be incorrect, they are correctly labelled as "large" and not "small" donors.

Figure 3 plots the number of small and large donors in each electoral cycle. The total number of

[18] For additional details on this procedure, see Appendix A.4.1.

[19] These are the "serial reporters" Culberson et al. (2019) mentioned above. We identify committees in this category by the fact that their total unitemized contributions are null. They account for about 12% of all committee-cycles.

[20] Note that – as appears clearly in Appendix Figures C.5 to C.7 – contributions by small donors are not equal to unitemized contributions, as the latter also include (i) contributions to committees that total less than $200 but were made by donors who contributed more than $200 to at least one other committee, as well as (ii) contributions made by donors to committees to which they would give more than $200 in total, before that threshold was reached.



Notes: The figure represents, for each electoral cycle between 2006 and 2020, the number of large and small unique donors. Small and large donors are defined in the text.

Figure 3: Total number of small and large unique contributors, by electoral cycle, 2006-2020

donors increased tenfold between 2006 and 2020, from less than 2 million to nearly 20 million. Until 2018, this increase was almost entirely driven by a steady increase in the number of small donors. Between 2018 and 2020, both the number of small and large donors increased spectacularly.

Table 2 reports the number of contributors by type of race. Small donors account for 54% of the unique contributor-cycles to committees ($23,199,509$ unique contributor-cycles out of $42,877,618$) and for 57% of the unique contributor-cycles to candidates. They represent a higher share of donors for the Presidential elections (61%) than for the House and Senate elections (44% and 57%). They are also relatively more present among donors to the Primary elections ($9,677,818$ unique contributor-cycles out of $16,872,709$, i.e. around 57%) than among donors to the General elections (51%).

2.4 Differences between small and large donors

In this section, we use our novel dataset to provide stylized facts about the socio-demographic characteristics and contribution patterns of the small and large donors. In Section 3, we build on this descriptive evidence to explore and compare the determinants of contributions made by these two types of donors.

Gender and ethnicity distribution We start by comparing the gender and ethnicity distribution of small donors, large donors, candidates and the overall population. We use donors' first name to identify

Table 2: Repartition of donors by type of races.

	All donors	Large Donors	Small Donors
	Number mean	Share mean	Share mean
Candidates			
All Committees	42,877,626	46	54
All Candidates	28,703,265	42	58
Presidential	16,340,735	39	61
House	9,333,036	56	44
Senate	11,004,958	43	57
Elections			
General	34,422,475	49	51
Primary	16,881,693	43	57

Notes: The table gives summary statistics on the repartition of unique contributors-cycles across recipients or races. Time period is 2006-2020. Primary Elections donations are those received by candidates participating only to the primary or those received by general election candidates before the date of the primary.

their gender and ethnicity. We infer donors' gender using U.S. Social Security data on the proportion of boys and girls for each name. We infer their ethnicity using census statistics on the distribution of ethnicities by surname in each census geography. Appendix A.4.2 provides more details on these procedures. For candidates, gender and ethnicity were coded by hand through internet searches, using biographies, pronouns and pictures. Adult citizen population figures come from the American Community Survey.

The data yield two broad insights. First, small donors tend to be more representative of the overall population than large donors, as seen in Table 3. Women only account for 37.5% of large donors, as compared to 54.1% of small donors. 89.6% of large donors are White and only 3.7% Black, 3.6% Hispanic and 3.0% Asian, against 12.9%, 13.1% and 4.5% respectively in the overall population. Among small donors, ethnic minorities are also underrepresented, but much less so: 6.5% of them are Black, 7.3% Hispanic and 3.5% Asian, which is, for the first two groups, nearly twice as much as for large donors.

Second, the representativeness of donors has improved in recent elections. The fraction of women has increased among both groups over time, as shown in Appendix Figure C.8. Similarly, Appendix Figure C.9 plots the evolution over time of the share of each ethnicity among small vs. large donors. Interestingly, the fraction of ethnic minorities among small donors has increased substantially since 2006. By contrast, their fraction among large donors was slightly *larger* than among small donors in 2006, but it has increased much less since then.

Finally, the gender and ethnic distribution of candidates offers a useful comparison point. There are even fewer women among candidates (20.5%) than among large donors, and the fraction of Whites is lower among candidates (82.6%) than among large donors, but similar as among small donors.

Table 3: Summary statistics on candidates' and donors' demographics, 2006-2020

	Candidates	Large Donors	Small Donors	2020 Voting-Age Citizens
	Share	Share	Share	Share
Female	0.207	0.375	0.541	0.515
White	0.820	0.894	0.823	0.670
Black	0.089	0.039	0.067	0.129
Hispanic	0.055	0.036	0.073	0.131
Asian	0.025	0.030	0.035	0.045
Observations	14,648	19,678,104	23,199,522	235,418,736

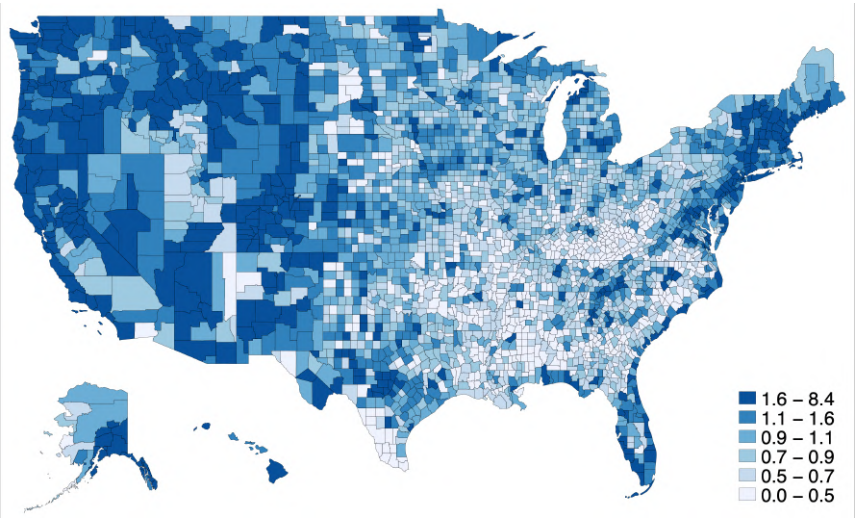
Notes: The table gives summary statistics on the demographic characteristics of federal election candidates, large and small donors. Time period is 2006-2020. An observation in the first column is a unique candidate-cycle, and in the second and third columns a unique contributor-cycle. Figures from the fourth column come from U.S. Census Bureau ACS estimates.

Geographical location Second, we exploit the fact that we know donors' exact address to map the number of small and large donors as a share of the population in each county. The spatial distributions of small and large donors, shown on Figures 4a and 4b for the 2020 cycle, are relatively similar. Both types of donors are concentrated in the North East, on the coasts, and in large metropolitan areas such as Atlanta, Dallas Fort-Worth, Chicago, and Minneapolis. However, we observe more small donors in the Great Lakes region, and more large donors in the rural West. Despite the recent increase in the number of donors, contributing to electoral campaigns remains a rare behavior in large swaths of the U.S., including most of the Midwest and the South. Overall, these spatial differences are much larger than differences in standard indicators of voting behavior such as voter registration, turnout, party affiliation, and vote shares. The distributions of small and large donors in cycles prior to 2020, shown on Appendix Figures C.10a to C.16b, are very similar to 2020.

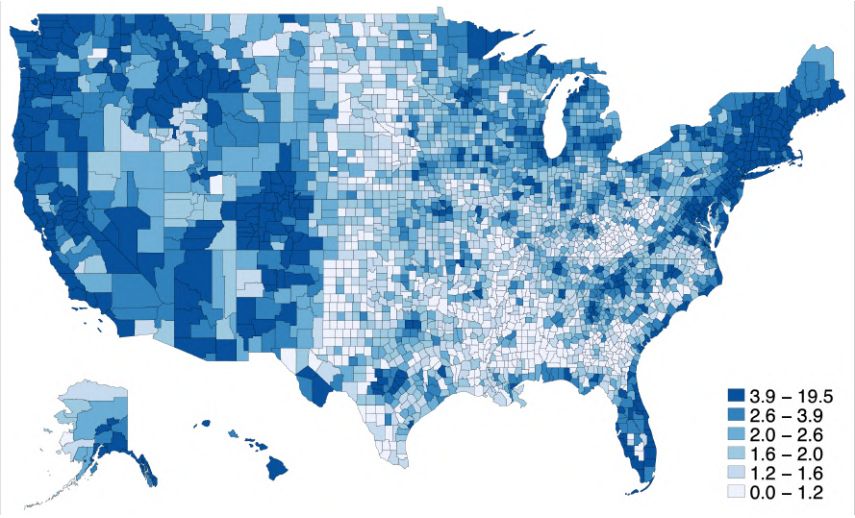
Timing of the contributions Third, we compare the timing of the contributions made by small and large donors. In Figure 5, we plot the share of total contributions by small and large donors (top and bottom graphs) on each day of the 2020 electoral cycle (previous cycles are shown in Appendix Figures C.17 to C.23). Three main patterns emerge. First, regular peaks reveal a cyclicality in donations by both small and large donors, but the frequencies differ. For large donors, we observe a monthly frequency which is probably driven by recurrent monthly donations. For small donors, we observe a quarterly frequency which might be driven by candidates' intensified fundraising effort before quarterly campaign finance reporting deadlines. Second, we observe a steady increase in contributions by large donors over time, in the two years preceding the election, while small donors maintain a relatively stable level of activity except for surges during the primary season (February and March) and in the last three months before the election. Finally, donors' activity surges in the days following key events (e.g., the nomination of Kamala Harris as vice-presidential candidate and the Democratic Party Convention). These surges are substantially more pronounced for small donors. For instance, about 5.5% of all small donors' contributions during the 2020 election cycle where made within three days

Figure 4: The geography of small and large donors, 2020

(a) **% of large donors in population**



(b) **% of small donors in population**



Notes: The figures map the small and large donors living in each U.S. county during the 2020 electoral cycle, as a share of the county population. Small and large donors are defined in the text.

of the death of Justice Ruth Bader Ginsburgh. By contrast, this surge in activity only accounted for 1.7% of all contributions by large donors.

Target committees Finally, we investigate whether small and large donors give to different committees. In Appendix Figure C.24, we use one observation per committee and plot the relationship between the share of small donors contributing to the committee (out of the small donors across all committees during that cycle) and the share of large donors. If small and large donors were contributing in identical proportions to the same committees, all points would be located on the 45-degree line. We observe a positive correlation, indicating that small and large donors tend to donate to similar candidates, but the correlation is far from perfect (0.445). A large number of candidates are close to the horizontal axis, indicating that they receive nearly no contributions from small donors, even though some of these candidates attract a substantial fraction of large donors' contributions. Conversely, candidates located above the 45-degree line receive a larger share of small donors' than large donors' contributions.[21]

Overall, differences in the sociodemographic characteristics of small and large donors, in the timing of their contributions, and in the candidates that they contribute to suggest that they may respond to different factors when deciding whether to give, to whom, and how much. The next section compares the determinants of contributions by these two types of donors.

3 The determinants of campaign contributions

In this section, we study the determinants of campaign contributions, and investigate whether they differ for small and large donors. We first provide a simple conceptual framework to guide and organize the empirical analysis. We then turn to the empirical analysis itself.

3.1 Conceptual framework

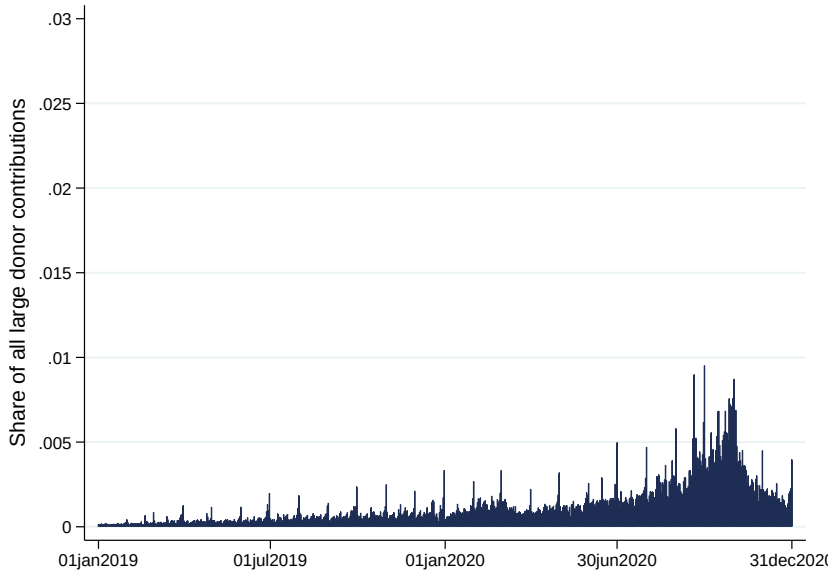
Why do individuals contribute to electoral campaigns? As explained in Gordon et al. (2007), the literature identifies two broad classes of motives underpinning this political behavior.[22] Some scholars mainly view contributions as a strategic investment. Such contributions aim at increasing the victory chances of candidates with desirable characteristics such as ideology and competence (Poole and Romer, 1985; Wand, 2007), buying policy favors such as (future) legislative votes or pressure on regulatory agencies (Ara, 1979; Baron, 1989; Snyder, 1990; Grossman and Helpman, 1994, 2001),

[21] Note that, due to the winsorization at the 99th percentile, this figure hides the fact that a very small number of committees attract a very large fraction of all contributions by all donors.

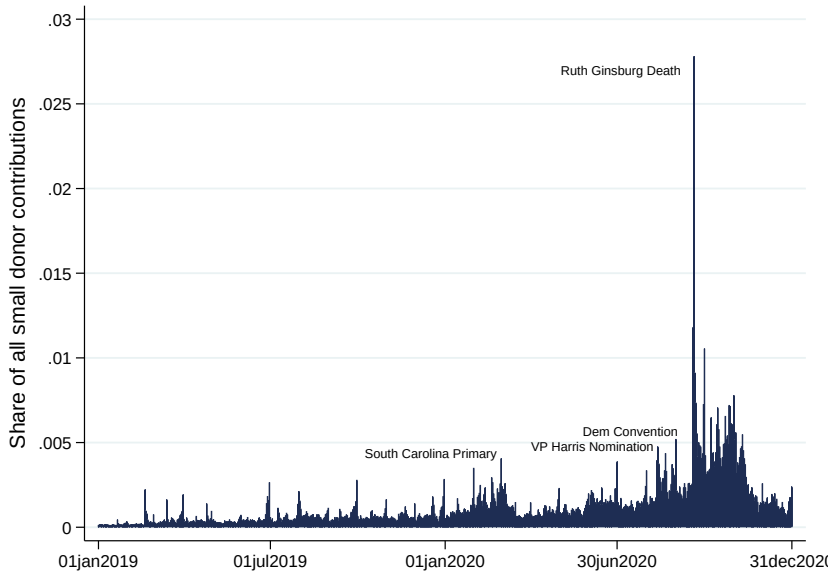
[22] There are various typologies of motives in the literature. For instance, Wilson (1995) considers three motives: the material motive (people contribute in order to gain material benefits), the purposive motive (people contribute in order to achieve ideological or policy goals), and the solidary motive (people contribute in order to work and interact with like-minded and influential people). Gimpel et al. (2006) and Culberson et al. (2019) use a similar typology. Francia and Wilcox (2003) consider four categories of donors: investors who contribute to obtain personal gains or access, ideologues who contribute to promote particular issue agendas, intimates who are driven by the social aspects of giving, and incidentals whose patterns of contributions are inconsistent.

Figure 5: The timing of small and large donors' contributions, 2020

(a) **Large Donors**



(b) **Small Donors**



Notes: The figures plot the number of large and small donors' contributions on each day of the 2020 election cycle, as a share of the total contributions made over the whole cycle. Small and large donors are defined in the text.

or buying access to politicians once in office in order to shape legislation in the making (Langbein, 1986; Hall and Wayman, 1990). To facilitate the discussion, we will talk about contributions made to promote a candidate's electoral success as *electorally-motivated*, and about contributions made in expectation of a political favor, through access or legislative votes, as *favor-motivated*.

Other scholars view contributions mainly as consumption goods (e.g., Ansolabehere et al., 2003; Gimpel et al., 2008). Bonica (2014) (p. 370) writes "[...] the vast majority of donors give amounts so diminutive that it is difficult to conceive of the contribution as an investment." Such contributions are made for no other reason than the donor enjoying that form of participation in the political process. As stated by Ansolabehere et al. (2003) (p. 117-118): "individuals give because they are ideologically motivated, because they are excited by the politics of particular elections, because they are asked by their friends or colleagues and because they have the resources necessary to engage in this particular form of participation. In short, people give to politics because of the consumption value associated with politics, rather than because they receive direct private benefits." We call these contributions *expressive*.

In Appendix B, we develop a stylized and reduced-form model of contributions that encompasses these different motives.[23] The main purpose of this model is to structure our discussion of the expected influence of observable factors – i.e. measurable characteristics of donors, candidates and electoral races – over donors' choices. We argue that few contribution patterns are unambiguously distinctive of one motive versus another. Yet, highlighting the factors likely to affect campaign contributions and measuring their empirical importance is key to understand the behavior of small donors and uncover similarities and differences with large donors.

We organize the observable determinants of donors' choices into three broad categories: (i) "matching" factors, which capture the similarity in descriptive characteristics (e.g., gender and ethnicity) of candidates and donors, (ii) "political" factors, which capture the political characteristics of candidates (e.g., incumbent or party leader status), and (iii) "electoral" factors, which capture the electoral characteristics of the race (e.g., how competitive it is).

First, the model's general prediction with respect to the matching factors is that, independently of the underlying motive, shared descriptive characteristics should increase contributions. Donors might indeed expect higher returns, in terms of policies or favors, from the victory of candidates similar to them, and they may have a stronger taste for such candidates. Thus, ceteris paribus, donors can be expected to donate more and more often to candidates of the same ethnicity, gender, ideology, and to candidates who are close geographically (i.e., from the same state or district). In the literature, these effects are often referred to as affinity effects.

Second, various political characteristics of candidates may make them more or less appealing to donors. For instance, donors driven by the favor motive may find contributing to incumbents attractive

[23] Unfortunately, the literature does not offer any workhorse model predicting clear contribution patterns for donors driven by different motives. Yet, using arguments of various degrees of formality, the literature highlights the compatibility of different motives with different patterns of contributions. Our model aims to capture these insights.

since incumbents can provide favors right away, while challengers would only be able to do so in the future, and conditional on winning the election. Donors may also find incumbents more appealing if they are more prominent public figures. Specific types of incumbents (e.g., members of the majority party, party leaders, committee chairs, and members of particular committees) may be perceived as particularly influential and thus attract relatively more donations. On the other hand, donors dissatisfied with incumbents' performance in office or with the current state of affairs more broadly may choose to punish incumbents by supporting their opponents. Hence, whether electoral and expressive motives primarily benefit incumbents or challengers is ambiguous.

Third, the competitiveness of the race and whether a candidate is expected to be among the top-two vote-getters are two of the key electoral factors discussed in the literature. Electorally-motivated donors have little incentive to contribute to the campaign of candidates who are sure to win or lose. They will rather focus on races they deem sufficiently close and, when more than two candidates are present (such as in many primary elections), on the top two. Expressively-motivated contributions may also be larger in close races, if these races are more salient, and they may go primarily to top-two candidates as well, if those have higher notoriety. However, a distinguishing feature of expressive contributions is that, unlike electorally-motivated contributions, they may also flow to sure winners or sure losers. Like expressive voters (Pons and Tricaud, 2018), expressive donors may choose to support candidates irrespective of their chances of winning, for instance because they feel ideologically close to them. Finding no effect or only weak effects of closeness and of being a top-two candidate on contributions would thus be suggestive of the importance of the expressive motive relative to the electoral motive.[24] We note that contributions to sure winners may also be favor-motivated since these candidates are more likely to be in a position to fulfill the promised favor. Therefore, contributions to sure losers point to expressive motivations even more clearly.

Our model identifies a second contribution pattern that would allow distinguishing between different motives: hedging, i.e. a donor contributing to several candidates in the same race. Indeed, hedging can be easily explained neither by the electoral motive nor the expressive motive, but it is consistent with the favor motive. Finding evidence of hedging would thus be suggestive of the relative importance of this motive. Favor-motivated donors may be particularly likely to hedge in close races, when multiple candidates have strong chances of winning.

Of course, this discussion does not exhaust the set of individual characteristics of donors and candidates that may affect contribution patterns and magnitudes. For instance, our model predicts that, independently of the motive, contributions should increase in donors' income, since the opportunity cost of contributing is lower for richer individuals. Our specifications use contributor fixed effects to

[24] We say "suggestive" because it is not entirely impossible to rationalize contributions to sure losers or winners with an electoral motive. First, donors may have inaccurate beliefs about the closeness of the race and who the top-two candidates will be. Second, electorally-motivated donors may knowingly contribute to sure losers in order to send a costly signal to other candidates and to pull their policy platforms toward the platform of the sure loser (see e.g., Piketty, 2000; Castanheira, 2003, for such a mechanism in the case of voting). Similarly, donors can contribute to sure winners in order to increase these candidates' prominence.

control for factors that are time invariant, whether they are observed or not.

3.2 Empirical strategy

We now turn to investigating empirically the effects of the key aforementioned factors on the behavior of small and large donors.

Sample of analysis As described in Section 2, campaign committees which appear in the FEC data can be associated to candidates as well as parties, corporations or issue-specific fundraising groups, which may support multiple candidates and span multiple districts. But the electoral and demographic characteristics highlighted above are all attributes of unique candidates. In this section, we thus restrict our analysis to committees associated with a unique candidate and drop non-candidate committees as well as joint committees associated with multiple candidates, which account for 65.2% of all committees and 52% of the total amount of contributions. In order to have a clear definition for in- and out-district contributions, we further focus on congressional candidates, as opposed to presidential candidates (accounting for 3.9% of all committees and 18% of contributions). Finally, we drop the candidate-cycles who receive contributions but do not participate in the cycle's election, either because they run for Senate in a later cycle, or because they withdrew from the race while still collecting money to repay their debts (11% of all recorded committees).

As we saw in Section 2, small donations to congressional candidates channelled by ActBlue only became an important phenomenon after 2012. Hence, in order to ensure a sufficiently large and representative sample of small donors, we focus here on the 2012 to 2020 election cycles. In most of the empirical analysis, we only consider donations to *Democratic* candidates. As we discuss below, we obtain qualitatively similar results for Republican candidates in 2020 (the first cycle after WinRed was created).

We consider contributions to general and primary elections separately, since their motives may differ. For instance, hedging is more likely to take place in primary elections (which feature several candidates of the same camp) than in general elections (which usually only feature one). For congressional candidates who eventually get nominated for the general election, we define primary election contributions as those made before the date of the primary in the corresponding state.

Overall, the sample used in this section includes 2,701,519 large and 5,815,270 small unique donors, for a total of 33.5 million candidate-contributors pairs. This represents a total of 67 million contributions for a total amount of 4.11 billion dollars.

Empirical specifications Formally, we estimate the following model:

$$Y_{ic(s,r)t} = \mathbf{X}_{ct}\beta + \mathbf{V}_{ict}\gamma + \mu_t + \delta_s + \eta_r + \zeta_i + \epsilon_{ic(s,r)t}, \tag{1}$$

where we use one observation per donor-candidate pair and i indicates the donor, c the candidate, s the state, r the race, and t the election cycle. The outcome of interest, $Y_{ic(s,r)t}$, takes different forms, depending on whether we focus on the extensive or the intensive margin. To estimate the impact of our independent variables on the extensive margin, i.e. the decision whether or not to contribute, we set $Y_{ic(s,r)t}$ to 100 for each donor-candidate pair for which we observe at least one contribution during the cycle. For each donor that makes at least one contribution during the cycle, we then identify all the candidates this donor did not make a contribution to, and set the dependent variable of the corresponding pairs to 0.[25] To estimate the impact of the different factors on the intensive margin, i.e. the size of the donations conditional on giving, we define $Y_{ic(s,r)t}$ as the inverse-hyperbolic sine (IHS) transformation[26] of the total amount contributed by donor i to candidate c in election t,[27] and we drop all the donor-candidate pairs for which $Y_{ic(s,r)t} = 0$. We finally consider the extensive and intensive margins jointly by defining $Y_{ic(s,r)t}$ as the IHS transformation of contributions' amount and keeping the contributor-candidate pairs for which no donation was recorded during that specific election. In all our regressions, we cluster the standard errors two-way, at the candidate and contributor level.

Our main explanatory variables of interest are included in $\mathbf{X}_{ct}$ and $\mathbf{V}_{ict}$. $\mathbf{X}_{ct}$ is a vector of seat and candidate characteristics, including an indicator variable for closeness, equal to one if the mean Democratic winning margin over the last two elections for that seat was between -15% and 15% or if there was a change in the party of the winner in the last two elections; an indicator for safe Republican seat, equal to one if the mean Democratic winning margin over the last two elections for that seat was below -15% and there was no change in the party of the winner in the last two elections;[28] and an indicator equal to one if the (Democratic) candidate is the incumbent. When analyzing primary elections, the vector $\mathbf{X}_{ct}$ also includes the closeness of the primary, an indicator equal to one if the mean margin of victory of the winner in the last two primary elections for that seat was between -15% and 15%; and an indicator for whether the candidate is one of the top-two vote-getters in the primary (based on the actual outcome of the primary). The vector $\mathbf{V}_{ict}$ includes a set of indicators equal to one when the characteristics of the donors match with those of the candidates. These characteristics include gender, ethnicity and geography. Geographic match is an indicator equal to one if the contributor resides in the candidate's congressional district, for House elections, and in the candidate's state, for Senate elections.[29] We only have a measure of ideology for candidates, not donors. This prevents

[25] Alternatively, one could go one step further and include all potential contributors in the sample, i.e. all U.S. citizens, and set the outcome to 0 for all pairs involving (the majority of) those which did not make any political donation. However, we do not have this list. Hence, we consider as potential contributors all the contributors who appear at least once during the same cycle in our dataset. Similarly, we take the supply of candidates as fixed: all potential candidates are those receiving at least one contribution during the cycle.

[26] This transformation, which allows to interpret coefficients as changes in percent of the dependent variable, facilitates the comparison of coefficients for small and large donors, whose contribution amounts naturally differ. We use this transformation rather than the logarithm of the contributions given that, when combining the extensive and intensive margins, we have many zeros.

[27] In the few cases where multiple committees are associated to the same candidate, we aggregate donors' contributions to the candidate across all committees.

[28] Below, we show that our results remain similar when using alternative definitions of close and non-close races.

[29] For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the

us from exploring the effect of ideological proximity between them, but we do study how candidates' ideology affects contributions.

Table 4 provides descriptive statistics on our main explanatory variables. Panel (a) shows first that, in general elections, a substantial share of both large and small donors contribute to candidates in non-close races, but donors of both types contribute disproportionately to those competing in close races. Second, large and small donors contribute disproportionately more to challengers than incumbents. Third, matching characteristics seem to have a comparable influence on small and large donors. Fourth, 88% of contributions go to out-of-district candidates, a key difference with voting, yet both large and small donors contribute disproportionately more to their in-district candidate than the average out-of-district candidate. Indeed, in-district pairs account for fewer than 0.5% of all pairs, but more than 10% of all contributions.

Panel (b) paints a similar picture for primary elections, with one substantial difference: in these elections, large and small donors contribute disproportionately more to incumbents than challengers. Together with Panel (a), this suggests that the timing of contributions to incumbents and other candidates differ substantially. Overall, when adding contributions during the primary and the general elections, both large and small donors contribute disproportionately more to incumbents, consistent with the stylized fact that incumbents tend to collect more funds (see, e.g., Fouirnaies and Hall, 2014, and references therein). Panel (b) further shows that, in primary elections, contributions neither flow disproportionately to close primaries, nor to the top-two candidates.

To estimate the effects of district characteristics, our main specification controls for electoral cycle, state, House vs. Senate, and, most importantly, contributor fixed effects (respectively μ_t, δ_s, η_r, and ζ_i). The inclusion of contributor fixed effects is only possible because the same donor has the option to donate to multiple candidates (unlike other forms of political behavior such as voter turnout and vote choice) and because we built unique donor IDs, based on the rich information provided by the FEC (as described in Section 2). Thanks to these contributor fixed effects, we estimate the effects of district characteristics out of variations *within* the same contributor across races and over time. For instance, the effect of race closeness is estimated by comparing the same donors' contributions to candidates in close races vs. candidates in safe Republican or Democratic districts. Our specification improves on the existing literature, which typically studies the determinants of campaign contributions by using total contributions to a candidate as outcome (see, e.g., Gimpel et al., 2008; Thomsen and Swers, 2017; Culberson et al., 2019; Grumbach and Sahn, 2020), preventing the inclusion of donor fixed effects or controls for the characteristics of individual donors. The few studies which explore the behavior of individual donors mostly rely on survey data that are not amenable to the inclusion of donor fixed effects, either because they do not include information about the candidates receiving the contributions (see, e.g., Albert and La Raja (2020)), or due to the limited number of donations made by any given

corresponding matching variable to 0. This allows us to use the corresponding donors when we estimate the effects of other characteristics. Appendix Table D.1 reports the share of observation with missing values for each of these characteristics. We obtain qualitatively similar results when we drop these individuals.

Table 4: Summary statistics on the variables of interest, general elections, Democratic congressional candidates, 2012-2020

(a) **General elections**

	Candidates	Large donors	Small donors
	Share	Share	Share
Electoral characteristics			
Close Races	0.261	0.523	0.485
Sure Winners	0.375	0.126	0.095
Sure Losers	0.348	0.352	0.421
Incumbents	0.430	0.267	0.218
Matching characteristics			
Gender		0.491	0.477
Race		0.627	0.609
District		0.117	0.122
Observations	2,068	8,796,466	10,692,074

(b) **Primary elections**

	Candidates	Large donors	Small donors
	Share	Share	Share
Electoral characteristics			
Close Races	0.255	0.476	0.443
Sure Winners	0.364	0.298	0.301
Sure Losers	0.352	0.226	0.256
Close Primary Races	0.054	0.078	0.066
Incumbents	0.226	0.345	0.328
Top-two Candidate	0.558	0.557	0.548
Matching characteristics			
Gender		0.497	0.489
Race		0.588	0.568
District		0.151	0.164
Observations	3,502	6,800,470	5,928,393

Notes: The table gives summary statistics on the variables of interest. Time period is 2012-2020. An observation is a candidate-cycle in the first column, and a contributor-candidate-cycle pair in the second and third columns. The shares are computed as the number of individuals with each characteristic divided by all individuals for which information on the characteristic is available (i.e., for which the variable is not missing). Small and large donors are defined in the text.

individual donor in their data (see, e.g., Barber et al., 2017). Despite our richer specification, we cannot exclude the possibility that our point estimates capture the impact of correlated factors varying at the seat-year level, such as the intensity of media coverage or the polarization of political discourse, motivating our second specification.

In a second specification, we control for all observed and unobserved factors varying at the seat-year level by adding seat-year fixed effects to the aforementioned sets of fixed effects. In that specification, we have to drop race closeness and other district characteristics varying at the seat-year level, but we can still estimate the effects of matches between donors and candidates. Indeed, the ethnicity, gender, and location of a candidate running in a specific district and election year will match with the ethnicity, gender, and location of some but not all donors. Controlling for seat-year fixed effects rules out a larger set of confounders, but not all of them. For instance, to the extent that female donors and candidates share similar policy priorities, point estimates on gender match may capture the effect of a match on that other dimension.

While the estimates shown below may not fully disentangle the causal impact of the variables included in our regressions from the effect of correlated factors, we see our results as important stylized facts. In particular, comparing the point estimates obtained for small and large donors is a critical first step to assess whether or not the behavior of the former responds to the same determinants as the latter.

3.3 Donors to Democratic candidates, general elections

The extensive margin We first focus on the extensive margin: donors' decision whether or not to donate to any given candidate. Table 5 presents the results. We show the results for large donors in columns (1) to (3), and for small donors in columns (4) to (6). As indicated by the sample mean, the average large and small donor contributes to 0.87% and 0.62% of the Democratic candidates, respectively. We first consider the specification including contributor fixed effects to estimate the effects of district characteristics, and find a positive relationship between the closeness of a race and the likelihood of a contribution. For large donors, the effect is significant at the 1% level and its magnitude is large: large donors are 0.52 percentage points more likely to contribute to the campaign of candidates running in close races than those running in safe Democratic constituencies, the omitted category (column 2). This effect corresponds to 60.4% of the sample mean. For small donors, the effect is not significant and smaller: 0.159 percentage points, or 25.5% of the sample mean (column 5). The difference between sure winners (in safe Democratic constituencies) and sure losers (in safe Republican constituencies) is smaller and not significant for both small and large donors.[30]

Second, in line with the descriptive statistics in Table 4, we find that both large and small donors

[30]Appendix Figure C.25 and Table D.2 show that we obtain similar results when defining closeness based on different ex-ante vote margin thresholds or based on the ex-post margin (which may be endogenous). The effect of closeness even becomes larger when one considers tighter ex-ante margins or ex-post margins. The value, sign, and statistical significance of the other variables' coefficients are stable across the different definitions of closeness.

are less likely to give to incumbents than to challengers in the general election. These effects are large (-0.65 percentage points for large donors, or 74.8% of the mean, and -0.64 percentage points for small donors, or 102.6% of the mean) and significant at the 1% level.

Third, we turn to the specification including also seat-year fixed effects to estimate the effects of matches between candidate and donor characteristics, and find that both large and small donors are more likely to contribute to candidates running in the state and, particularly, in the district in which they live. Compared to out-of-state candidates, large and small donors are more likely to contribute to in-state (but out-of-district) candidates by 0.64 and 1.61 percentage points (102% and 190% of the mean), an effect significant at the 1% level (columns 3 and 6). Now focusing on in-state candidates, large and small donors are 24.49 and 17.51 percentage points more likely to contribute to candidates running in their district than to candidates coveting an out-of-district seat in the same state. Both effects are significant at the 1% level and very large: they correspond to 28-fold increases compared to the mean.

Fourth, donors tend to be more likely to contribute to the campaign of candidates with matching characteristics, but to a different extent for small and large donors. Large donors are 0.04 percentage points (5% of the mean) more likely to contribute to candidates of the same gender, which is significant at the 5% level. The corresponding point estimate for small donors is smaller and not significant. By contrast, both sets of donors are more likely to contribute to candidates of the same ethnicity. A match on ethnicity increases the likelihood of a contribution from large and small donors by 0.12 and 0.06 percentage points, respectively (14.2% and 15.1% of the mean), significant at the 1 and 5% level (columns (3) and (6)).[31]

The intensive margin We now focus on the intensive margin: donors' decision of *how much* to give to a candidate, conditional on contributing to them. Table 6 restricts the sample to the subset of candidate-contributor-years for which we observe a strictly positive donation, and uses the inverse hyperbolic sine transformation of the total amount contributed by a donor to a candidate as outcome. By construction, the sample size is much smaller here than when we study the extensive margin.

Differently than for the extensive margin, the point estimate on closeness is now *negative* for both types of donors. It is not significant for large donors and only significant at the 10% level for small donors.When we use other definitions of closeness (as above), the effect for small donors is no longer significant (Appendix Figure C.26 and Table D.3).

The negative effect of closeness on the intensive margin can be reconciled with the positive effect on the extensive margin as follows. The estimated effect of closeness in Table 6 is likely to reflect two distinct forces. First, closeness may be expected to have a positive effect on the amount of

[31]Note that the point estimates on ethnic match in columns (3) and (6), corresponding to our preferred specifications, differ substantially from those in columns (2) and (4). One possible explanation is that candidates of different ethnicity are characterized by different fund raising efforts. Since the distribution of ethnicity among both donors and candidates is uneven, such differences could affect the estimates in columns (2) and (4), but they are controlled for by the inclusion of seat-year fixed effects in columns (3) and (6).

Table 5: The determinants of campaign donations: Extensive margin, general elections, Democratic candidates, 2012-2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	0.527***	0.524***		0.166	0.159	
	(0.156)	(0.154)		(0.161)	(0.160)	
Safe Republican Seat	0.078	0.096		0.000	0.019	
	(0.226)	(0.230)		(0.219)	(0.222)	
Incumbent Candidate	-0.662***	-0.649***		-0.649***	-0.640***	
	(0.181)	(0.180)		(0.181)	(0.180)	
In Same State	1.655***	1.623***	1.614***	0.615***	0.601***	0.639***
	(0.126)	(0.126)	(0.121)	(0.078)	(0.084)	(0.062)
In Same District	24.778***	24.832***	24.490***	18.679***	18.703***	17.505***
	(1.762)	(1.784)	(1.537)	(2.878)	(2.901)	(2.061)
Same Gender	0.018	0.035*	0.043**	0.002	-0.001	0.015
	(0.015)	(0.017)	(0.015)	(0.028)	(0.029)	(0.012)
Same Ethnicity	0.028	0.024	0.123***	0.035	0.025	0.059**
	(0.101)	(0.151)	(0.017)	(0.096)	(0.147)	(0.021)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Seat-Year FE			✓			✓
Sample Mean	0.868	0.868	0.868	0.624	0.624	0.624
– Expressed in number of candidates	3.48	3.48	3.48	2.34	2.34	2.34
R-sq	0.067	0.083	0.151	0.066	0.076	0.166
R-sq (within)	0.030	0.031	0.030	0.022	0.023	0.020
Observations	1,005,817,237	1,005,817,237	1,005,817,237	1,697,099,635	1,697,099,635	1,697,099,635

Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is an indicator variable equal to 100 for each donor-candidate pair for which we observe at least one contribution during the cycle. For each donor that makes at least one contribution during the cycle, we then identify all the candidates this donor did not make a contribution to, and set the dependent variable of the corresponding pairs to 0. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and donor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

"inframarginal" contributions, namely contributions to candidates to whom the donor makes some contribution, independently of whether the race is close or not. Second, donors only make certain "marginal" contributions if the race is sufficiently close, and they do not donate to the corresponding candidate otherwise, as shown in Table 5. Such marginal contributions may be expected to be smaller on average than inframarginal contributions, since the donor's underlying interest in the candidate is not sufficiently strong to ensure that a contribution takes place regardless of the race closeness. The fact that closeness increases the likelihood of such contributions should thus affect its coefficient in the intensive-margin regression negatively. On net, the negative effect that we find indicates that the latter force dominates the former.

To provide some empirical support for our interpretation, we use an alternative specification which includes contributor-candidate fixed effects but not seat-year fixed effects. In this specification the effect of closeness is only estimated out of donors who contribute to the same candidate in multiple years. Therefore, most of these donors can be considered as "inframarginal", and we shut down the marginal channel described above. Appendix Table D.4 shows that the coefficient on closeness is positive in this specification, consistent with our interpretation.

While we saw in Table 5 that both large and small donors are less likely to contribute to incumbents than challengers, Table 6 shows that, conditional on making a donation, large and small donors contribute 13.8% and 10.6% more to incumbents, significant at the 5 and 10% level. Since our outcome is the IHS transformation of the dependent variable, all our effects are obtained by taking the exponential of the point estimates and subtracting 1: for instance, $\exp(0.129) - 1 = 0.138$. The difference between these two effects should not be overplayed. Indeed, as shown below, the effect of closeness on the extensive margin is positive during the primary elections, suggesting that incumbents raise a disproportionate share of their contributions during the primaries, while challengers do so during the general elections, and that overall, incumbency actually encourages donors to contribute.

Finally, geography and match on ethnicity play a similar role at the intensive and extensive margins. The impact of geography is, again, very large: large donors contribute 112.5% more to in-district candidates than out-of-district ones, and small donors 60.5% more. Furthermore, the effect of a match on ethnicity is again positive and larger for large donors (an increase by 5.5%) than for small donors (an increase by 3%). By contrast, a match on gender leaves the intensive margin unaffected.

Overall effects: both margins Table 7 presents the results obtained when we combine the intensive and extensive margins. Overall, match on ethnicity and candidates running in donors' state or district affect the contributions of both small and large donors positively, while incumbency affects them negatively. Closeness and match on gender have a positive impact, but that is only significant for large donors.

Table 6: The determinants of campaign donations: Intensive margin, general elections, Democratic candidates, 2012-2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	-0.136	-0.061		-0.228*	-0.117*	
	(0.071)	(0.063)		(0.097)	(0.058)	
Safe Republican Seat	0.016	0.102		0.015	0.036	
	(0.100)	(0.079)		(0.136)	(0.075)	
Incumbent Candidate	0.250***	0.129**		0.132	0.101*	
	(0.059)	(0.046)		(0.091)	(0.042)	
In Same State	1.386***	0.696***	0.698***	0.818***	0.450***	0.434***
	(0.069)	(0.041)	(0.035)	(0.062)	(0.031)	(0.025)
In Same District	0.449***	0.670***	0.754***	0.310**	0.419***	0.473***
	(0.076)	(0.046)	(0.045)	(0.110)	(0.043)	(0.042)
Same Gender	0.080	-0.010	-0.006	0.020	-0.009	-0.003
	(0.042)	(0.011)	(0.010)	(0.034)	(0.009)	(0.007)
Same Ethnicity	0.098***	0.097**	0.054***	0.067**	0.048*	0.030***
	(0.022)	(0.035)	(0.009)	(0.021)	(0.023)	(0.005)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Seat-Year FE			✓			✓
Sample Mean	4.287	4.150	4.150	2.994	2.815	2.815
R-sq	0.162	0.738	0.756	0.178	0.775	0.790
R-sq (within)	0.126	0.094	0.098	0.101	0.078	0.076
Observations	8,707,859	7,869,765	7,869,740	10,614,053	8,519,036	8,518,925

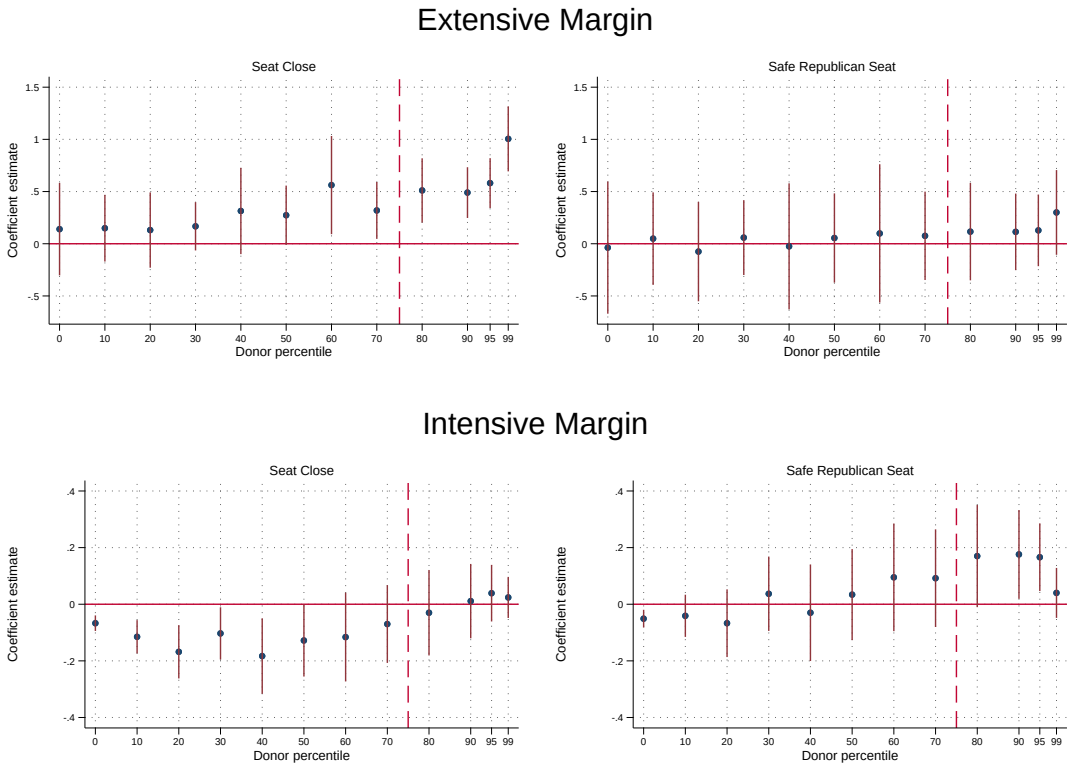
Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes all pairs for which we observe non-zero contributions. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * p<0.10, ** p<0.05, *** p<0.01.

Table 7: The determinants of campaign donations: Extensive and intensive margins, general elections, Democratic candidates, 2012-2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	0.022**	0.022**		0.005	0.004	
	(0.007)	(0.007)		(0.005)	(0.005)	
Safe Republican Seat	0.005	0.006		0.001	0.002	
	(0.010)	(0.010)		(0.007)	(0.007)	
Incumbent Candidate	-0.025**	-0.025**		-0.018***	-0.018***	
	(0.008)	(0.008)		(0.005)	(0.005)	
In Same State	0.089***	0.089***	0.088***	0.023***	0.023***	0.024***
	(0.006)	(0.006)	(0.006)	(0.003)	(0.003)	(0.002)
In Same District	1.483***	1.484***	1.469***	0.757***	0.757***	0.714***
	(0.105)	(0.106)	(0.094)	(0.112)	(0.113)	(0.081)
Same Gender	0.002*	0.002*	0.002**	0.000	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Same Ethnicity	0.002	0.002	0.007***	0.001	0.000	0.002**
	(0.005)	(0.007)	(0.001)	(0.003)	(0.005)	(0.001)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Seat-Year FE			✓			✓
Sample Mean	0.037	0.037	0.019	0.019	0.019	
R-sq	0.080	0.091	0.153	0.071	0.078	0.168
R-sq (within)	0.047	0.048	0.048	0.033	0.034	0.032
Observations	1,005,817,237	1,005,817,237	1,005,817,237	1,697,099,635	1,697,099,635	1,697,099,635

Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Figure 6: The effect of closeness: Estimations by donors' deciles, general elections, Democratic candidates, 2012-2020

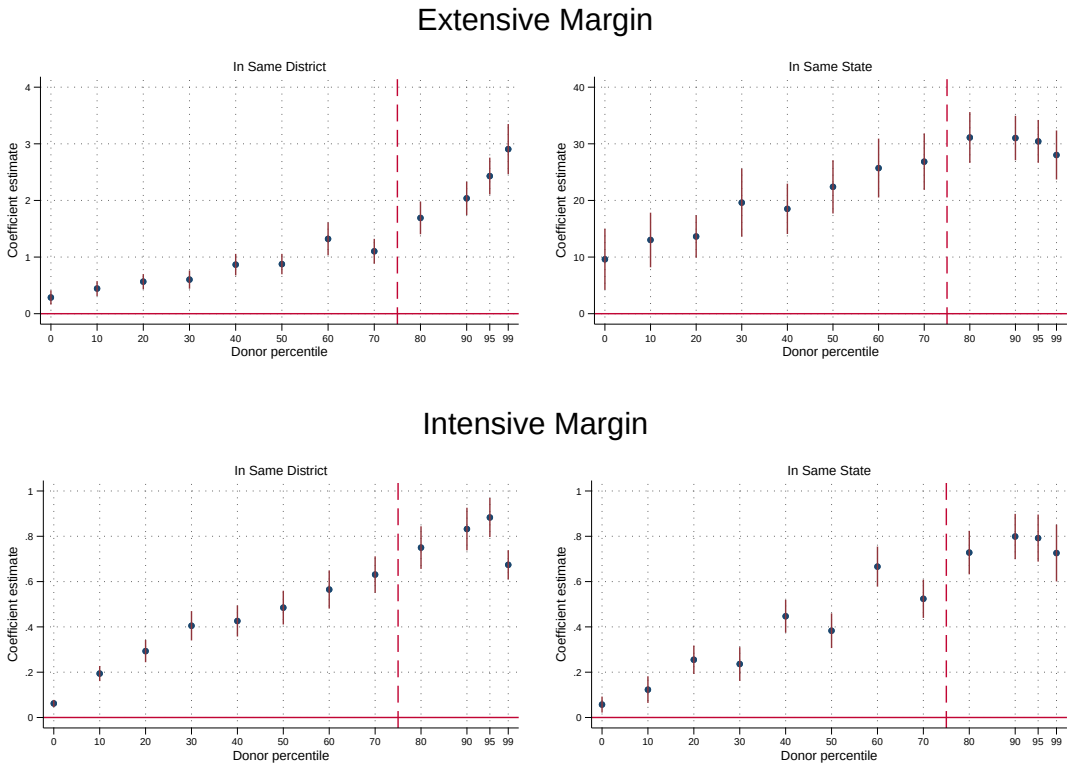


Notes: The figure plots the values and 95% confidence intervals of the "Close seat" and "Safe Republican seat" coefficients obtained from estimating Equation (1) for different deciles of donors, based on the distribution of the maximum contributions made to any candidate during an electoral cycle. A donor making a maximum contribution of $200, the threshold used to split our sample between small and large contributors in the regression tables, would locate in the 8th decile. The estimations include Election Year, State, House/Senate and Contributor fixed effects.

Heterogeneous effects with respect to donor size. So far, we have defined small and large donors based on a dichotomous rule (whether their maximum contribution to any candidate is above or below $200). We now check whether our results are qualitatively robust to using finer categories. We rank donors depending on the maximum amount they contribute to a candidate during a cycle, and estimate Equation (1) separately in each decile of this distribution. We focus on the variables for which the size of the effects shown in Tables 5, 6, and 7 differs the most for small and large donors. If these differences are meaningful, instead of reflecting spurious correlations, we should expect effect size to change linearly as we move from the bottom to the top deciles. Figures 6 and 7 show the results for the closeness of the race and geographic match, respectively.

As shown in Figure 6, the effect of closeness on contributions increases with donors' maximum contribution, consistent with the results based on the dichotomous distinction between small and large donors. We observe this pattern both for the extensive margin, where closeness only has a positive and significant impact for sufficiently large donors, and the intensive margin, where closeness has a

Figure 7: The importance of geography: Estimations by donors' deciles, general elections, Democratic candidates, 2012-2020



Notes: The figure plots the values and 95% confidence intervals of the "In state" and "In district" coefficients obtained from estimating Equation (1) for different deciles of donors, based on the distribution of the maximum contributions made to any candidate during an electoral cycle. A donor making a maximum contribution of $200, the threshold used to split our sample between small and large contributors in the regression tables, would locate in the 8th decile.The estimations include Election Year, State, House/Senate and Contributor fixed effects.

negative impact for donors in the bottom deciles and a positive but non-significant impact for those in the top deciles. Furthermore, on the intensive margin, very small donors contribute less to sure Democratic losers (indicating that they contribute more to sure winners), while the opposite is true for large donors.

Turning to the role played by geography, Figure 7 shows that, both on the extensive and intensive margins, the smaller the donors, the more out-of-district contributions they make. While large donors tend to give more to candidates running in their district or state, small donors – and in particular the very small ones – seem to give less disproportional importance to the district and state where they live, both when they decide whether to contribute to a candidate and, conditional on making a donation, when they choose how much to give.

Appendix Figure C.27 shows that the effects of a gender match and ethnicity match between the donor and the candidate also tends to increase with the decile, on the extensive margin and the intensive margin respectively. These effects are positive and significant only for donors in the top deciles. By contrast, Appendix Figure C.28 shows that the effect of incumbency does not vary across deciles.

Candidates' ideology As mentioned in Section 3.1, another potential driver of donors' behavior is the ideology of candidates. However, it is difficult to obtain convincing estimates of candidates' positioning for both incumbents and challengers. Indeed, the most widely used measure of candidates' ideology, NOMINATE scores, is only available for politicians who have held office and cast votes in legislative assemblies (see e.g., McCarty et al., 2006). We overcome this difficulty by using the common-space campaign finance scores (CFscores) developed by Bonica (2014), which estimate candidates' ideal points and rank them on the left-right axis based on the contributions they receive.[32]

CFscores are currently available up to the 2018 election cycle only, which is why we did not include them in our main analyses. Merging them with our dataset, we obtain a measure of ideology for 76% of the Democratic candidates, with scores spanning from -4.355 (Kevin Gaither, IL-15) to 1.381 (Frederick Lavergne, NJ-03).

In Figure 8, we split Democratic candidates by CFscores quantile, for each electoral cycle, and plot the share of small and large donors contributing to candidates in each quantile. Overall, we do not observe any major differences between the contributions of large and small donors depending on the ideology of candidates. If anything, small donors contributed on average to candidates who were slightly more to the left in the earlier years of our sample, but this difference shrank in more recent cycles.

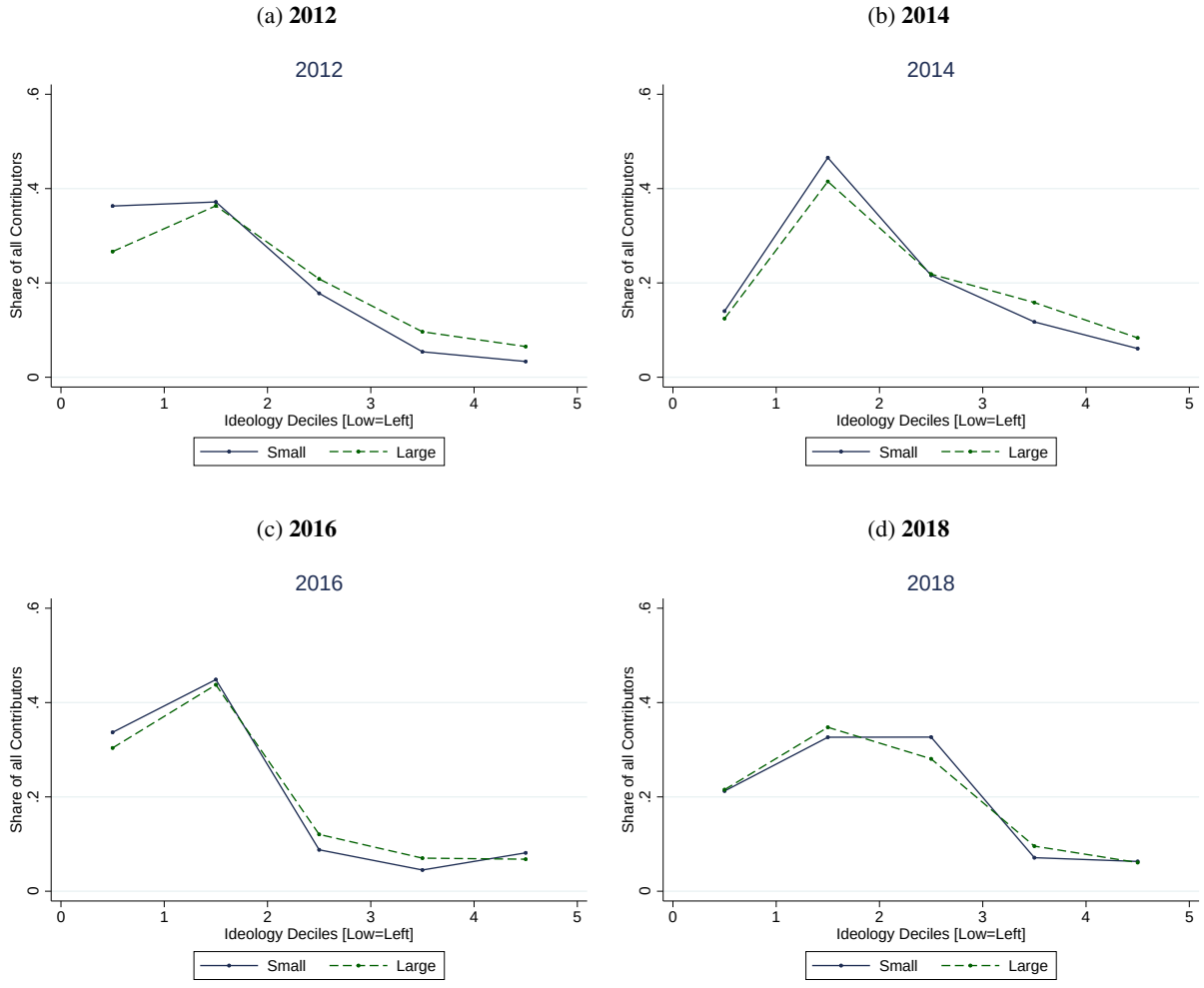
The analysis in Figure 8 is however purely descriptive and univariate. To explore the effect of ideology while controlling for other explanatory variables, we include both the CFscores of the candidates and their CFscores squared as independent variables in our main regressions, while excluding the 2020 cycle (for which CFscores are not yet available) from the sample. We include the CFscores squared because of the inverted-U patterns observed for some electoral cycles in Figure 8.

Appendix Tables D.5 and D.6 present the results for the extensive margin and the intensive margin, respectively.[33] We first note that, reassuringly, the results discussed above remain stable when we control for candidates' ideology. Second, the point estimates on ideology and ideology squared indicate that the relationship between candidates' ideology and donors' likelihood to contribute to them is concave: large and small donors contribute less often to Democratic candidates on the left of the distribution (with ideology scores lower than -3) and to candidates on the right of the distribution (with scores higher than -1) than to candidates in between. By contrast, conditional on giving, contribution amounts increase as we move to the left of the ideological spectrum. The fact that Democratic donors contribute more to the most progressive candidates suggests that they may have contributed to the polarization of U.S. politics in recent years.

[32] An important caveat is that we seek to estimate the effect of candidates' ideology on political contributions, but CFscores are based on contributions themselves, creating a risk of endogeneity.

[33] We do not include the specification with seat-by-year fixed effects in these tables because, given our focus on Democratic candidates in general elections, there is no variation in ideology within a district for a given electoral cycle.

Figure 8: The determinants of campaign donations: Ideology, general elections, Democratic candidates, 2012-2018



Notes: The figure represents, for each electoral cycle between 2012 and 2018, the share of small and large donors going to candidates grouped by quintiles of CFscores (calculated separately for each cycle).

3.4 Donors to Democratic candidates, primary elections

We have focused until now on the donations received by the Democratic candidates in the general elections between 2012 and 2020. We now investigate whether the determinants of donors' behavior are similar in primary elections over the same period. There are several important reasons to explore contribution patterns in primary elections. First, a large fraction of donors give to primary elections: 70% and 62% of the large and small donors, compared to 64% and 63% for the general elections. Second, donors' motives may differ between primary and general elections. For instance, donors may be reluctant to contribute to candidates in competitive primaries if they worry that going through a heated and heavily-dipusted primary election may hurt the Democratic nominee's chances of victory in the general election (Fouirnaies and Hall, 2020). Finally, primary elections allow us to investigate new types of behavior, such as hedging and concentration on the top-two candidates, since they often involve multiple candidates of the same party (here, the Democratic party).

Appendix Tables D.7, D.8, and D.9 present the results of the estimation of Equation (1) in primary elections for the extensive margin, the intensive margin, and combining both margins. We estimate specifications in the form of Equation (1) and include two additional variables in the vector of seat/candidate characteristics, $\mathbf{X}_{ct}$: the closeness of the primary, and whether the candidate is one of the top-two vote-getters in the primary.

Overall, the patterns we observe are broadly consistent with the ones documented for the general elections. In particular, donors contribute disproportionately more to candidates in their district and state, and ethnic and gender matches both have positive (albeit not always statistically significant) effects. However, there are a few noteworthy differences. First, the closeness of the general election affects even the primary contributions of both small and large donors, but the closeness of the primary itself does not matter much: we only find effects significant at the 10% level (and negative) of primaries' closeness on the extensive margin and the intensive and extensive margins combined, for small donors. These results suggest that donors have the general election in mind when contributing in the primary. Competitive primaries may be detrimental to the prospect of a candidate in the general election, discouraging donors to contribute.[34] Second, in primary elections, large and small donors contribute larger amounts to incumbents, conditional on donating to them (like in general elections), but they are also more likely to donate to them (contrasting with general elections). These effects are substantial, particularly for large donors. Large donors are 0.258 percentage points (69% of the mean) more likely to give to incumbents than challengers during the primary, and they give 13.1% more to the former.

Furthermore, we provide evidence on dimensions which are not relevant for general elections. Large and small donors are more likely to give to one of the top-two primary candidates than lower-ranked candidates by 0.512 and 0.367 percentage points, respectively (137% and 164% of the mean). These effects on the extensive margin dominate negative effects (by 34.5% and 39.5%) on the intensive margin, resulting in overall positive effects. The combination of positive effects on the extensive

[34]Note that, as shown on Table 4, only 5% of primaries are close.

margin and negative effects on the intensive margin is coherent with an electoral motive: in order not to waste their donations on sure losers, many donors turn to top-two candidates, but they give them less money because they like these candidates less than their favorite ones.[35]

We use a complementary approach to investigate another potential pattern of contributions highlighted in the conceptual framework: hedging. Hedging cannot be studied with regressions at the candidate-donor level since it describes donors' tendency to give to *multiple* candidates in the same race. Therefore, we simply count the number of donors exhibiting this behavior. In practice, hedging appears to be a rare phenomenon, particularly among small donors. Only 0.9% of large donors and 0.03% of small donors are hedging. Moreover, in about 75% of all the Democratic primaries that took place between 2012 and 2020, we could not find even a single donor contributing to multiple candidates. In Appendix Figure C.29, we plot the distribution of the share of donors who hedge in primary elections for which there is at least one hedging donor. Even in these races, hedging remains a rare phenomenon that is mostly prevalent among large donors.

3.5 Donors to Republican candidates, general elections

So far, we have focused on the behavior of donors to Democratic candidates. As explained before, thanks to the early launch of ActBlue, we observe a vast majority of contributions to these candidates, including those by small donors, from 2012 onwards. On the Republican side, WinRed was only launched in 2019. In this subsection, we explore the factors affecting Republican donors, focusing on the 2020 general elections. The descriptive statistics are shown in Appendix Table D.12.

To explore the behavior of Republican donors, we estimate Equation (1) using contributions to 2020 Republican candidates as outcome. The results are presented in Appendix Tables D.13, D.14, and D.14 for the extensive margin, the intensive margin, and their combination.

On the extensive margin, the signs and magnitudes of the coefficients are generally similar as those for Democratic candidates. Three exceptions are the effects of incumbent, gender match, and ethnic match. First, Republican donors (both large and small) are not less likely to contribute to incumbents during the general election. Second, they are not more likely to contribute to candidates of the same ethnicity. Finally, large and small donors are *less* likely to contribute to candidates of the same gender than candidates of a different gender.

On the intensive margin, Republican donors tend to donate substantially more to in-state and in-district candidates, and less to candidates in close races, like Democratic donors. Other effects are different than for Democratic donors. First, Republican donors contribute larger amounts to sure winners (candidates in safe Republican districts), as compared to sure losers, and smaller amounts to incumbent candidates. The corresponding coefficients are large for both large and small donors, but

[35] It remains that this result should be interpreted with caution. Indeed, whether a candidate is on of the top-two vote-getters is determined ex post, based on the results of the primary. It may thus be endogenous to the amount of money raised by the candidates, in which case the positive point estimates do not necessarily indicate strategic behavior.

significant only for the latter. Second, gender match has a negative effect, similar as on the extensive margin, and ethnic match does not have any significant effect.

3.6 Discussion

Two key differences between small and large donors that emerge from the results discussed above are that small donors contribute more than large donors to sure winners or sure losers in non-close races, and to out-of-district races.

As discussed in Section 3.1, contributions to non-close races are a distinguishing factor between the expressive motive and the electoral motive. The first result thus suggests that small donors are less electorally-motivated than large donors. Yet, the fact that small donors' contributions still appear to flow disproportionately to close races suggests that the group of small donors is composed of donors with different motives. Some are expressively motivated and contribute to safe races, while others are electorally motivated and contribute to close races. An alternative interpretation is that most small donors are expressively motivated, but the expressive value of a contribution increases with the closeness of the race.

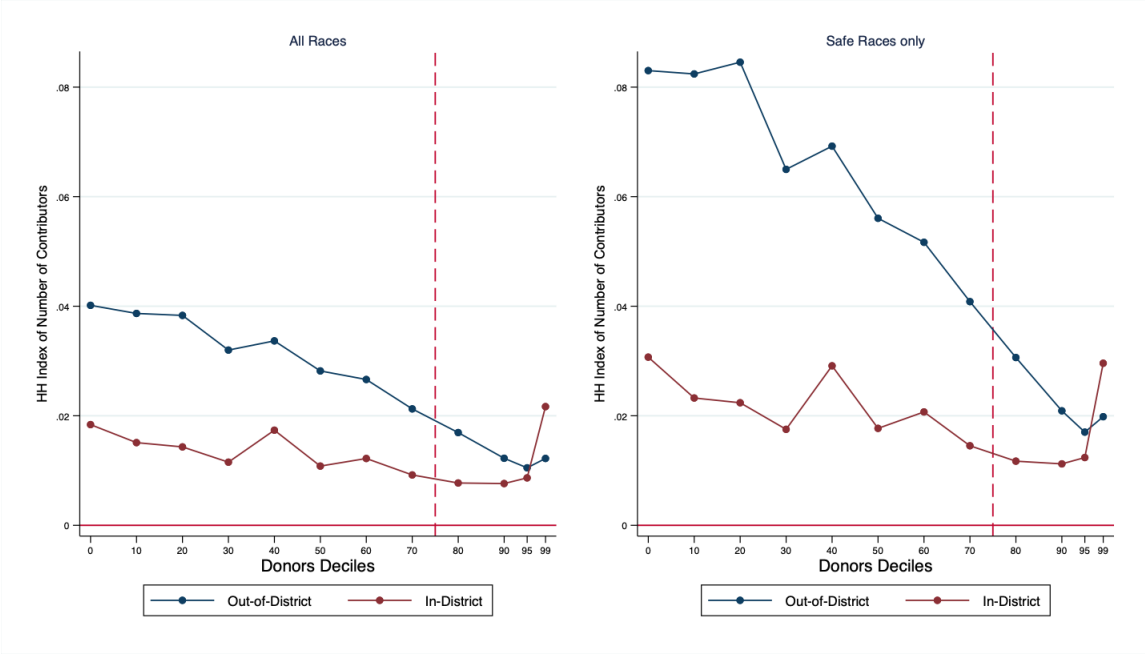
These results also raise the question of which candidates are the target of small vs. large donors. Within each donor decile, we compute the "market share" (defined with respect to the number of donors) of each candidate and build an Herfindahl index that measures the spread of donors across candidates. A higher value of the index means that contributions by donors in a given decile are concentrated on fewer candidates. We report the results for Democratic donors in Figure 9, where we distinguish between all races (Panel (a)) and safe races (Panel (b)) and between in-district and out-of-district contributions.

We see that small contributors tend to concentrate their out-of-district contributions on a much smaller number of candidates, particularly when we restrict the sample to safe races. A cursory look at the characteristics of these big receivers on the Democratic side in the House and the Senate reveals that many compete in nationally prominent races either because the Democratic candidate is a leader of the party or of one of its sub-groups (e.g., Elizabeth Warren in 2018, Nancy Pelosi in 2014 to 2020, and Alexandria Ocasio-Cortez in 2020) or because the Republican candidate is a nemesis of the Democratic party (e.g., Andrew Janz, in 2018, who tried to outseat Devin Nunes, or Amy McGrath, who challenged Mitch McConnell in 2020). Splitting the safe races between Democratic and Republican safe races, we find that the concentration is mostly driven by the former. Thus, the identity of the Democratic candidate appears more relevant to small donors.

4 Political ads and small contributions

The correlation between small and large contributions, on the one hand, and the determinants investigated in Section 3, on the other hand, can be driven by the combination of donors' own motives (push

Figure 9: The concentration of contributors: Herfindahl-Hirschman index of contributors, general elections, Democratic candidates, 2012-2020



Notes: The figure plots the Herfindahl-Hirschman index of concentration of out-of-district and in-district contributors in all races (left graph) and of all contributors in safe races (right graph), for different deciles of donors grouped based on the maximum total contributions they make to a candidate during an electoral cycle, and for different samples of candidates.

factors) and differences in campaign outreach activities across races and candidates (pull factors). For instance, the fact that people tend to donate more in close races may reveal that they have a stronger intrinsic desire to contribute when the stakes are higher but it could also ensue from them receiving more information from candidates and more requests to donate in such races. Of course, pull factors can also contribute to explain the relationship between race closeness or candidate characteristics and other forms of political behavior, including turnout. In fact, there is comprehensive evidence that electoral campaigns have the potential to mobilize voters (e.g., Gerber and Green, 2000, 2019; Braconnier et al., 2017) and that their intensity varies with race closeness (Cagé and Dewitte, 2021), among other dimensions.

To investigate the effect of pull factors on contributions, we focus on TV ads and social media ads. In the U.S., political advertising accounts for a large fraction of all candidate expenses (55 percent in 2020, according to Opensecrets.org). The vast majority of these advertising expenditures still go to TV ads, but expenditures on digital ads have substantially increased in the last elections. For instance, Ridout et al. (2021) report that 74 percent of 2020 presidential ad spending went to TV ads, against 24 percent for digital ads and 2 percent for radio ads. Ashworth and Clinton (2007), Krasno and Green (2008), and Gerber et al. (2011) find that the effects of political ads on voter turnout and vote choice are short-lived at best, but recent work by Spenkuch and Toniatti (2018) uncovers a substantial impact on vote shares, which the authors attribute to the stronger mobilization of supporters of the candidate

disseminating more ads. If ads sent by candidates motivate their supporters to vote, then they may also increase political engagement on another margin: contributing money to the campaign.

We first extend Spenkuch and Toniatti (2018)'s design to estimate the effects of TV ads on small and large contributions and, so, disentangle this important pull factor from correlated push factors. We then use an event study to estimate the effect of social media ads. In addition to helping us understand why small and large donors contribute to campaigns, estimating the dollar returns of money spent by candidates on political ads will reveal whether, beyond mobilizing voters, this form of campaign communication can generate financial returns and partly cover its own cost.[36]

4.1 Effects of TV ads

Empirical strategy The identification strategy we use to estimate the effects of TV ads is borrowed from Spenkuch and Toniatti (2018). It exploits variation in the number of TV ads across the borders of neighboring counties which is plausibly exogenous due to media markets regulation. The FCC grants companies local broadcast rights for media markets encompassing multiple counties, so candidates determine the volume of TV ads at the level of the media market, based on the characteristics of markets' overall population and on other aggregate market-level factors. Each border county should only have a small influence on these factors and, thus, on the volume of ads its population is exposed to, since it only accounts for a small share of the population living in any market (5 percent on average). Therefore, differences in TV ads across neighboring counties that are located in the same state or in the same district but belong to different media markets can be expected to be orthogonal to the characteristics of these specific counties. Spenkuch and Toniatti (2018) show that this is indeed the case for a large number of observables.

Formally, we estimate the effects of TV political ads by restricting the sample to pairs of neighboring counties in different media markets, and using specifications of the following form:

$$Y_{c(p)t} = \phi \text{Ads}_{ct} + \mu_{pt} + \mathbf{X'}_{ct}\gamma + \psi \text{OtherAds}_{ct} + \alpha_c + \epsilon_{ct},$$

where $Y_{c(p)t}$ is the outcome for a specific race in county c (in county-pair p) in election-year t, Ads_{ct} is the number of TV ads for that race broadcasted in the county's media market, μ_{pt} is a year-specific county-pair fixed effect, equal to one for the two counties sharing a common border, $\mathbf{X}_{ct}$ is a set of county-level time-varying controls, OtherAds_{ct} is the number of ads aired in the same media market for all other races,[37] and α_c is a county fixed effect.[38] Some counties have multiple neighbouring counties

[36] Perez-Truglia et al. (2021) also use Spenkuch and Toniatti (2018)'s design to measure the impact of TV ads on donations, but with a different focus: investigating the substitutability between political and charitable giving.

[37] We use a unique variable counting all other ads. The definition of OtherAds depends on the type of race we consider. It includes House and Senate ads when we focus on the presidential elections, presidential and House ads when we look at Senate races, etc. Ads related to gubernatorial and down-ballot races (such as state legislatures, supreme courts, or ballot initiatives) are always included in OtherAds. While we do not estimate the effects on outcomes in these races, these ads could still plausibly affect contributions to other races.

[38] In regressions focusing on a single year, α_c is replaced by the lagged value of the dependent variable in the previous

located in a different media market but in the same state. We follow Spenkuch and Toniatti (2018) and include these counties multiple times in the sample. The coefficient of interest, ϕ, is identified based on deviations from the mean in one county relative to deviations from the respective mean in the neighboring county. Like in Section 3, we focus on the election cycles since 2012 since small donations made through conduits only became an important phenomenon after that year. We do not include the 2020 election cycle since the 2020 ad data will not be available until 2023.

The number of TV political ads aired in each county is measured over the 60 days leading up to the election (as in Spenkuch and Toniatti, 2018), based on data from the Wesleyan Media and Wisconsin Advertising Projects.[39] It includes ads sponsored by candidates themselves, ads sponsored by their national and local parties, and ads by PACs and other interest groups which are broadcasted to support a specific candidate and are therefore categorized as pro-Democratic or pro-Republican in the data (by difference with ads supporting a cause, for instance). In media markets overlapping multiple congressional districts, people receive ads promoting candidates of their congressional district ("local" ads) as well as ads promoting candidates of neighboring districts. We use different specifications to measure the effects of all ads or, alternatively, focus on local ads.[40] Appendix Table D.19 provides summary statistics on these different types of ads. In our sample of border county pairs, people receive 1,680 Democratic ads supporting presidential candidates, 2,400 ads for Senate candidates and 1,670 ads for House candidates per electoral cycle between 2012 and 2018, on average. When focusing on ads for local races, the numbers of ads supporting Senate and House candidates are 1,930 and 310, respectively.

Finally, we cluster standard errors two-way, by state and by media market border, to account for correlation of the residuals across counties of the same state and across neighboring border-counties.

Effects on turnout and vote shares We first replicate the results of Spenkuch and Toniatti (2018). While they measure effects of TV ads on the results of the 2004, 2008, and 2012 presidential elections, we consider the 2012 and 2016 elections, corresponding to our sample period.[41] As shown in Appendix Table D.16, Panel A, consistently with Spenkuch and Toniatti (2018), we do not find any significant effect of TV ads on aggregate turnout (columns 1 to 3).

Yet, the difference between the number of Democratic and Republican ads increases the difference between the vote share of the Democratic and Republican candidates (columns 4 to 6). This effect is positive in 2012 and 2016. Averaged over both years, an increase in the number of Democratic ads by 1,000, relative to Republican candidates, increases the difference in vote shares by 1.1 percentage

election of the same type.

[39] Below, we show the robustness of our results to a specification where we consider the entire general election campaign, defined as the period separating the primary election from the general election.

[40] In this case, the OtherAds_{ct} variable also includes non-local ads of the same office.

[41] For detailed information on the sources of data used to measure electoral outcomes and covariates, see Spenkuch and Toniatti (2018). Electoral results for the presidential and Senate races come from the CQ Voting and Elections Collection. Results for the House races comes from the Leip Election Atlas.

points. However, it is only statistically significant in 2012. The point estimates for the effects on turnout and vote shares in 2012, which is the one year in common with Spenkuch and Toniatti (2018), are nearly exactly identical as in their paper, as should be expected.

While Spenkuch and Toniatti (2018) focus on presidential elections, we also measure the effects of TV ads on the results of congressional races from 2012 to 2018. For House races, we restrict the sample to border-counties located not only in the same state but also in the same constituency. Since counties can span multiple constituencies, we require that at least 90 percent of the surface area of each of the border-counties be included in the constituency so that the race relevant to the county is defined unambiguously. Local ads are defined as the ads related to this specific race. For Senate races, the sample is identical as for the presidential elections, since Senate constituencies are state-wide. Our main specification, shown in Appendix Table D.16, Panel B, pools House and Senate races in the same regression in order to maximize statistical power. Specifically, we include one observation per border-county per election year per type of race, and we replace the county fixed effects and county-pair-by-year fixed effects with two sets of fixed effects (one for House races and the second for Senate races). We use local TV ads for the House or Senate race of interest as independent variable and exclude ads targeting other House and Senate races which voters in the county may receive due for instance to the county's media market spanning multiple constituencies. Ads aired in other races are included in the OtherAds total.

Once again, despite positive effects on participation in 2014 and 2018, we do not measure any significant impact on voter turnout averaged across all years. However, the effects on vote shares are large and significant. An increase by 1,000 in the difference between the number of ads aired by Democratic and Republican candidates increases the difference between the Democratic and Republican vote shares by 0.97 percentage points on average, in the four Senatorial and House elections between 2012 and 2018. Average effects on vote shares are close in magnitude in Senatorial and House elections and significant in both types of elections, as shown in Appendix Table D.20. Effects are also positive and significant, though smaller, when using all political ads (not just ads promoting the candidates of the local House district or the Senate candidates from that state) as independent variable, as shown in Appendix Table D.21. These results are qualitatively similar to those reported by Sides et al. (2021) for the 2000-2018 congressional races.

Put together, the estimates in Panels A and B of Appendix Table D.16 corroborate Sides et al. (2021)'s conclusion that TV ads have larger effects on electoral outcomes in down-ballot elections than in presidential elections. We now turn to our main outcome of interest, campaign contributions, and ask whether the effects of TV ads on this outcome are also larger in House and Senate elections. In addition, we measure the effects of TV ads separately on small and large donors to determine whether one type of donors is more responsive to this pull factor.

Effects on contributions Since our data on small contributions prior to 2020 come primarily from ActBlue, our analysis focuses on contributions to the Democrats, and our main independent variable is the number of Democratic ads. The number of Republican ads is included as a separate regressor to test the hypothesis that own advertising by the Democrats increases the contributions they receive, while spots by their Republican rivals have the opposite effect.[42] The inclusion of Democratic and Republican ads as distinct independent variables makes this specification slightly different from the previous one that, following Spenkuch and Toniatti (2018), regressed the *difference* between the Democratic and Republican vote shares on the *difference* between the number of Democrat and Republican ads.

We measure the effects of TV ads on two distinct outcomes related to donors' behavior: the number of contributors per 10,000 inhabitants and the total amount of contributions per 10,000 inhabitants. The first outcome captures effects on the extensive margin, while the second outcome reflects effects both on the extensive and on the intensive margins. We consider all the people who contributed at least once in the last 60 days before the election, corresponding to the period over which we count the number of ads, and the contributions they made during that time. As in Section 3, we only take contributions to candidates into account, disregarding donations to committees which cannot be unambiguously linked to a single candidate. Like with political ads, we differentiate between "all" and "local" contributors (contributions). The latter include all contributors (contributions) for the candidate running in the district corresponding to the county of the contributor, and the former also include contributors (contributions) to *any* Democratic candidate for the same chamber, including candidates in other districts. Appendix Table D.19 provides summary statistics on these different totals of contributors and contributions.

Table 8, Panel A reports the effects for the 2012 and 2016 presidential elections. We observe a positive and significant impact of Democratic ads on the number of contributors and a negative impact of Republican ads, which is non-significant and of slightly lower magnitude (column 1).[43] The effects are almost entirely driven by large donors, which is not surprising given the very small share of small contributions to Democratic candidates in presidential elections that we observe in 2012 (since Barack Obama did not use ActBlue to channel small contributions) and 2016 (since Hillary Clinton allowed small donors to give to her campaign through multiple channels, including but not limited to ActBlue). In fact, the mean number of small contributors per county is much smaller than the mean number of large contributors (0.45 against 6.26). The effects of Democratic and Republican ads on the overall amounts of contributions are less precisely estimated because that outcome is much noisier (see descriptive statistics on the number of contributors and on contribution amounts in Appendix Table D.19).

Table 8, Panel B, turns to the effects of TV ads in down-ballot races. As in Appendix Table D.16,

[42] Similarly, we control separately for the number of Democratic ads and the number of Republican ads aired in the same media market for all other races.

[43] Interestingly, Spenkuch and Toniatti (2018) also obtain effects of opposite signs when they regress the Democratic vote share defined relative to the voting age population on Democratic ads as well as Republican ads instead of using the difference between Democratic and Republican ads as the main regressor.

Table 8: Effects of TV ads on campaign contributions

(a) **Presidential elections**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Democratic Ads (Total number, in 1000s)	0.23**	0.26**	-0.02	117.95	118.07	-0.12
	(0.11)	(0.12)	(0.03)	(95.83)	(95.98)	(0.52)
Republican Ads	-0.09	-0.10	0.01	236.99	236.98	0.01
	(0.13)	(0.14)	(0.03)	(296.37)	(296.36)	(0.67)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.073	0.073	0.028	0.045	0.045	0.033
Observations	10,116	10,116	10,116	10,116	10,116	10,116
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	6.71	6.26	0.45	1,776.57	1,766.79	9.77

(b) **Congressional elections**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Democratic Ads (Total number, in 1000s)	0.17	0.03	0.14**	-11.46	-20.32	8.86**
	(0.10)	(0.05)	(0.06)	(70.17)	(68.30)	(4.06)
Republican Ads	-0.18	-0.06	-0.13*	2.42	11.06	-8.64**
	(0.11)	(0.06)	(0.07)	(78.58)	(77.28)	(4.04)
County-Pair x Year x Office FE	✓	✓	✓	✓	✓	✓
County x Office FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.036	0.015	0.044	0.009	0.008	0.039
Observations	24,600	24,600	24,600	24,600	24,600	24,600
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	6.74	3.06	3.68	1,000.78	863.02	137.76

Notes: Models are estimated using OLS. An observation is a county x election cycle x office type. In Panel a, the sample includes all county-pairs in the 2012 and 2016 presidential elections. In Panel b, we combine House and Senate races for the 2012 to 2018 elections. The sample includes all county-pairs with border-counties located in the same congressional district, for House races, and all county-pairs in which a Senate race took place. The dependent variable considers all contributions to Democratic candidates. In columns (1) to (3), it is the number of unique contributors over the last 60 days of the election, per 10,000 inhabitants in the county; in columns (4) to (6), it is the total dollar amount of contributions over the last 60 days of the election, per 10,000 inhabitants in the county. Controls include all other political ads aired in the county (for presidential elections, these are House, Senate, governor and other down-ballot races' ads; for senatorial elections, presidential, House, governor and other down-ballot races' ads; and for House elections, presidential, Senate, governor and other down-ballot races' ads), measured in the same way as the main dependent variable and for both Democratic and Republican candidates, together with a set of socio-demographic characteristics of the county (total population, share of high-school dropouts, share of college graduates, share of ethnic minorty population, share of foreign born population, media household income, share of population below poverty level and employment-to-population ratio). Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Panel B, we pool Senate and House races in our baseline specification. While people can only vote for candidates in their local district, they can donate to races in other constituencies. Local ads may actually prompt contributions to out-of-district and out-of-state races because they also inform people about the overall election. Conversely, TV ads for neighboring constituencies covered by the same media market may increase the overall salience of the elections and thus affect people's contributions to their local race. Therefore, unlike in Appendix Table D.16, Panel B, our main specification measures the effects of TV ads aired in the county for *all* House and Senate races on contributions to *all* races by county's residents. Democratic and Republican ads have effects of opposite signs on the number of people contributing to Democratic candidates (column 1). The effect of Democratic ads on contributors to down-ballot races is of similar magnitude as the effect on contributors to presidential races, but it is not statistically significant. This effect is nearly entirely driven by an increase in the number of small donors: While presidential ads mostly affect the number of large donors, the opposite is true for House and Senate ads. An increase in Democratic ads by 1,000 (corresponding to 40 percent of the mean number of Senate ads and 60 percent of the mean number of House ads) increases the number of small contributors per $10,000$ inhabitants by 0.14, which is significant at the 5 percent level and corresponds to 4 percent of the mean (column 3). Similarly, the effect on total contribution amounts is only statistically significant (at the 5 percent level) for small donors, and it corresponds to 6 percent of the mean (column 6). The effects of Republican ads on the number of small contributors and the amount of their contributions are once again of opposite sign as the effects of Democratic ads, very close in magnitude, and significant at the 10 and 5 percent levels, respectively. One possible interpretation for the fact that small donors in down-ballot races are more responsive to TV ads than large donors is that their baseline level of political information is lower, making the information conveyed in the ads more impactful. A complementary interpretation is that unlike small donors, large donors receive personalized requests from congressional candidates to contribute, which further decreases the scope for undifferentiated TV ads to affect their behavior.

Using the point estimates in Table 8 Panel B, we can estimate the dollar returns of money spent by candidates on TV ads in terms of small contributions. On average, in border counties, an additional 1,000 ads increase contributions from small donors to congressional races by 6.46% of their mean level across counties (8.86 divided by 137.7, in column 6). The mean number of ads paid by congressional candidates in a media market over the 60-day periods preceding the election is 887, on average, between 2012 and 2018. Therefore, during that period, TV ads have increased contributions from small individual donors in border counties to congressional races by about 5.6%. If we multiply this fraction by the average total amount of such contributions across the country per election cycle (26 million dollars), we obtain that ads triggered approximately 1.46 million dollars of contributions – far from their total estimated cost of 189 million. We note that this back-of-the-envelope calculation relies on the important assumptions that the effects of TV ads are linear, so that the marginal effect of an additional 1,000 ads estimated using our design is equal to the average effect.

We complement the estimates of political TV ads effects in down-ballot races in two ways. First, Appendix Table D.22 shows the effects of TV ads separately in Senate and House races (Panels A and B). Effects of Democratic ads on the number of small contributors and on the amount of their contributions are positive and of the same order of magnitude in both types of races. Effects on the number of small contributors are not statistically significant, and effects on the total amount of contributions are only significant in Senate elections. In House elections, differently from Senate elections, we observe sizable and significant effects on the number of large contributors, resulting in larger and significant effects on the total number of contributors.

Second, Appendix Table D.23 checks the robustness of our results to an alternative specification, restricting the definition of the dependent and independent variables to the local race instead of considering the effects of TV ads aired for all congressional races on contributions to all races.[44] The overall effects of Democratic ads on small donors shown in Panel A are similar as in Table 8, but effects of Republican ads, while remaining negative, are more modest and no longer significant. Effects in Senate races are consistent and more precisely estimated (Panel B), while effects in House races are much less precisely estimated (Panel C), due perhaps to the very small number of local ads in these races (Appendix Table D.19).

Ads and contributions over time. While electoral outcomes are only observed once, on Election Day, the number of contributors and amount of contributions can be traced throughout the campaign. We take advantage of this special feature to use an alternative definition of our treatment and outcomes at the monthly level, and expand the sampling period to go back to ten months before the election and also include the primary elections. We replace county-pair-by-year fixed effects with county-pair-by-month fixed effects. This specification further weakens our identification assumption since it exploits deviations from the mean in one county and *in one specific month* relative to deviations from the respective mean in the neighboring county in that month. On the other hand, the corresponding estimates are noisier because our outcomes vary more on a monthly level than summed over the entire campaign, as would be expected. In addition, the effects should be interpreted with caution, because TV ads aired in a specific month may appear to increase contributions even if they just changed the timing of contributions which would otherwise have been made later in the campaign, leaving the total amount unchanged.[45]

The results are displayed in Appendix Table D.24. The effects are qualitatively similar as in the main specification (Table 8). If anything, the point estimates on small donors for congressional

[44] In a few states and years (five in total in the sample), two Senate races took place at the same time. In these cases, TV ads and the contribution amounts are summed over the two races, and the number of contributors counts all people who donated to at least one of the two races. When we estimated effects on electoral outcomes, voter turnout and the difference between the Democratic and Republican vote share were averaged over the two races.

[45] This concern would be even stronger if we ran the analysis at the week level instead of the month level. Weekly observations would also contain many more 0s, which could decrease our ability to detect effects. Therefore, we do not use a finer level of analysis than the month.

elections are even larger, as a share of the mean, albeit less precisely estimated: Democratic ads in these elections increase the number of small donors and the amount of their contributions by 8 and 16 percent (as compared to the 4 and 6 percent increases in the baseline results in Table 8) . We obtain qualitatively similar results when we control for the number of Democratic and Republican ads in the previous month, to ensure that our effects do not capture the delayed impact of previous ads (Appendix Table D.25).

Restricting the analysis to local ads and contributions, like in Appendix Table D.23, also yields consistent results (Appendix Table D.26).

4.2 Effects of social media ads

Empirical strategy We now turn to the effects of ads on social media. While these ads account for a smaller fraction of campaign budgets than TV ads, they can be better targeted and they often immediately direct donors to online conduits. We collected data on political and issue ads posted on Meta's social media platforms (Facebook and Instagram), using the company's API, as in Fowler et al. (2021). Starting in May 2018, this dataset provides information on the exact timing of each ad, its full text, the estimated number of impressions in each state,[46] and the name of the page that posted it. We clean and match the page names to the corresponding congressional candidate. Some pages do not find a match, because they are independent from any candidate, and some candidates are associated with multiple pages. We focus on ads issued in the 2020 election – i.e., from 1 January 2019 to 31 December 2020 – because it is the only electoral cycle for which ads are available for the full cycle.

A candidate can post multiple ads on the same day, targeting different areas or different groups. Overall, our sample includes a total of 383,597 ads. As shown in Appendix Figure C.30, ads are spread over the whole election cycle, and their number increases over time. The figure counts ads on their first day of publication, but ads can run for multiple days, with a medium length of nine days.

We exploit the detailed information we have on Meta ads' timing to estimate their effect on small and large donors using an event study. The ads often target a single state or a handful of states. Therefore, we define events and measure outcomes at the candidate x state x week level. We compute the total number of ads and impressions for each candidate, state, and week and define an event as a week in which a candidate launched at least one ad in the state. We exclude new advertising weeks which are separated by less than three weeks, to be able to estimate effects up to three weeks after. Overall, our estimation includes a total of 88,890 events across general and primary elections for 918 candidates. For each event, we use one observation per week. Thus, if there are multiple events for a candidate x state, the same week is included multiple times.

[46] Specifically, Meta provides a bracket of the total number of impressions (e.g., 1-999) as well as the share of impressions per state. We compute the number of impressions in a state by multiplying the mean of the bracket with the state share.

Our main specification is as follows:

$$Y_{iw} = \mu_{4-} I_i + \sum_{k=-3}^{-2} \mu_k I_i + \sum_{k=0}^{3} \mu_k I_i + \mu_{4+} I_i + \theta_w + \gamma_i + \epsilon_{iw},$$

where Y_{iw} is the outcome for candidate x state x event i in week w, μ_k ($-3 \leq$ k ≤ 3) are dummies indicating the number of weeks relative to the first day of the ad, μ_{4-} and μ_{4+} are dummies equal to 1 for observations corresponding to four weeks or more before or after the event, respectively, I_i designates the number of impressions per inhabitant in the state in the first week (a measure of treatment intensity), γ_i are candidate x event fixed effects, and θ_w are week x state fixed effects. We cluster the standard errors at the event level. The coefficients of interest, μ_0, μ_1, μ_2, and μ_3, measure the impact of ads in the week in which the ad starts, and one to three weeks after, relative to the omitted category μ_{1-}.

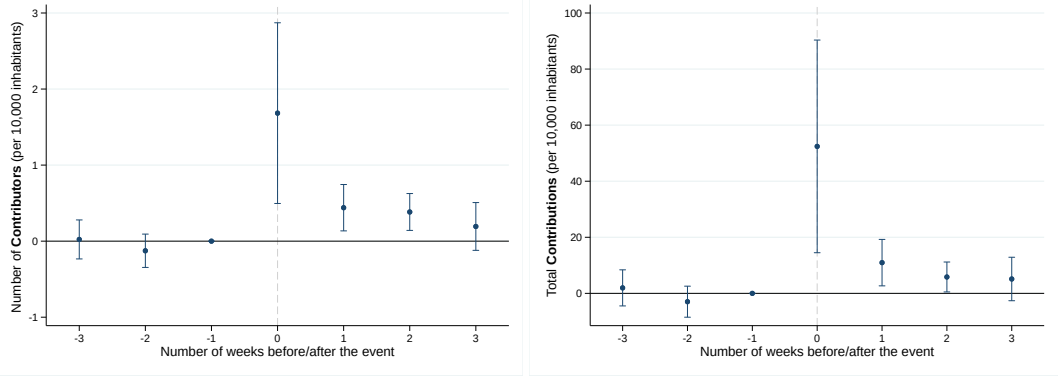
The fact that candidates run ads at different times enables us to control flexibly for the calendar week and to ensure that our effects are not biased by the overall increase in donations over the election cycle or by other time trends. The θ_w week x state fixed effects allow for time trends in donations to vary across states.

Our identification assumption is that conditional on the controls, the specific week in which a candidate runs an ad is uncorrelated with the outcome. We also assume that any pretrend before the fourth week preceding the launch of the ad or any impact after the fourth week following it are accurately captured by the fixed effects μ_{4-} and μ_{4+}.

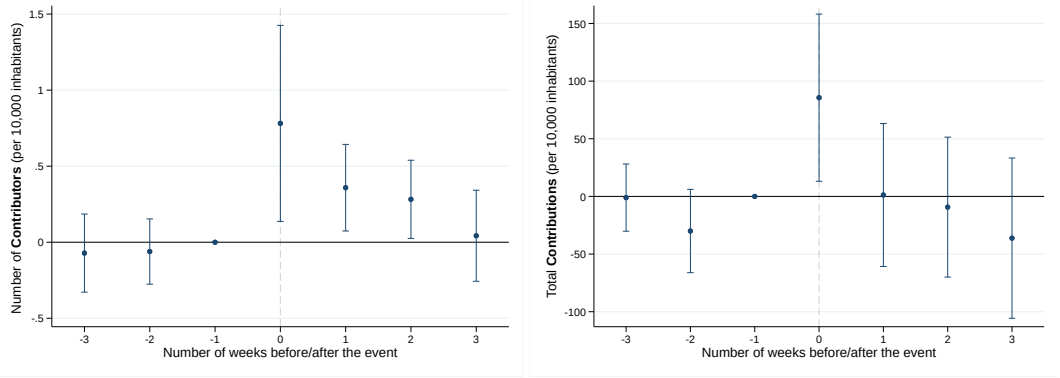
Effects on contributions We measure the effects of ads posted by Democratic candidates on the number of contributors and the dollar amount of contributions to the candidate who posted the ad. The graphs in Figure 10 show no pretrend in any outcome in the three weeks before the ad. Instead, the ads have immediate effects that are statistically significant on the number of small and large donors and on their total donation amounts. The effects generally persist up to two weeks after the launch of the ad. Appendix Table D.27, Panel A, reports the corresponding point estimates. The average number of impressions per inhabitant is 0.005 for Democratic ads, or .5 per hundred. Overall, one additional impression per hundred inhabitants (corresponding to twice the mean number of impressions) increases the number of Democratic donors per 10,000 inhabitants that week by 107% of its mean level (.0246 divided by .023, column (1)), compared to the preceding week. For donation amounts, the effect is 117% (1.381 divided by 1.182, column (4)). These effects are larger for small donors than for large donors: one additional impression per hundred inhabitants increases the number of unique small donors that week by 168% of its mean level (column (3)), against 60% for large donors (column (2)); and the total contributions by small donors by 326% (column (6)), against 84% for large donors (column (5)). Appendix Figure C.31 and Table D.27, Panel B show the effects for Republican ads. These effects are weaker than for Democrats and only significant in the first week following the ad, but

Figure 10: Effects of social media ads on campaign contributions, Democratic candidates, 2020 General Election

(a) **Small Donors**



(b) **Large Donors**



Notes: The figure shows point estimates and 95% confidence intervals associated with the leads and lags variables defined in equation 4.2; that is, indicator variables taking the value of one on weeks 3/2/1/.. before/after the week of the corresponding ad-event. Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Democratic candidates for the general elections who ran at least one ad on Meta's platform durin the 2020 election cycle. Estimations also include "4-" and "4+" indicator variables, as well as candidate x event fixed effects and week x state fixed effects. In left figures, the dependent variable is the number of unique contributors from the corresponding state donating that week to the candidate posting the ad, per 10,000 state inhabitants. In right figures, it is the total dollar amount of contributions made that week from the corresponding state to the candidate posting the ad, per 10,000 state inhabitants. Standard errors are clustered at the event level. See Appendix Table D.27 for a table visualisation of these results.

they remain larger for small donors than large donors.

We extend the analysis in two ways. First, 57.6 percent of ads include a hyperlink to ActBlue or WinRed, allowing viewers to directly make an online donation. We restrict the sample to these ads and find that their effects are much larger (Appendix Figures C.32 and C.33). While unsurprising, this result provides additional evidence that we are capturing a causal impact rather than a spurious relationship. Second, we measure the effects of ads sent during the primaries and obtain qualitatively similar results, indicating that the effects are not restricted to the general election (Appendix Figures C.34 and C.36 for the full sample and Figures C.35 and C.37 for ads including a link to ActBlue or WinRed).

5 Conclusion

In this paper, we study the characteristics and the behavior of small donors, and compare them to large donors. We take advantage of the growing use of conduits, such as ActBlue, to build a dataset including more than 30 million unique donors and 340 million contributions. Our contribution-level data cover more than 92% of the total amounts received by all candidates for the 2006 to 2020 electoral cycles. A key novelty is that we observe rich contribution-level information, including the exact timing and amount of each contribution, as well as donors' name, address, and occupation. We use this information to create unique donor identifiers, identify each donor's gender, ethnicity, and location, and differentiate "large" and "small" donors based on their total contributions to any candidate. In our dataset, more than 15 million of donors are small donors. Building this dataset is our first contribution.

This new dataset allows us to produce four main results. First, we provide novel evidence on the growing number of small donors in the U.S. and on the magnitude of their contributions. Second, we show that small donors include more women and more minorities than large donors, with minorities still under-represented, but that small and large donors do not differ much in terms of their geographical distribution. We also find that small and large donors tend to contribute to different races, and at different moments in the campaign. Third, we explore the determinants of contributions by small and large donors using a saturated fixed effects model. We find that the closeness of the race, whether the candidate and the donor live in the same district or state, and the ethnic match between the donor and the candidate have a large and positive impact on contributions. Furthermore, donors are more likely to contribute to more ideologically extreme candidates, and they donate more money to these candidates. All these effects have a smaller magnitude for small donors. Fourth, we investigate the impact of one pull factor, campaign TV and social media ads, on the behavior of donors. We find that political ads affect the number and the size of contributions, and more so for small donors, in congressional elections, suggesting that pull factors are important to explain donors' behavior.

Our findings highlight fundamental differences between the characteristics and contribution patterns of small and large donors. In particular, we find converging evidence that small donors are relatively more driven by expressive motives. First, a substantial share (about 40%) of small donors' contributions flow to safe races (i.e., to sure winners or sure losers), which would be difficult to explain by electoral or influence motives. Second, small donors are particularly likely to contribute to races which gain national prominence because they involve Democratic candidates who are leaders of the party or of one of its factions, or Republican nemeses of the Democratic party. Such confrontations enable donors to express and signal their beliefs and preferences. Third, independently of the closeness of the race, small Democratic donors tend to contribute to more progressive candidates.

While we provide groundbreaking evidence on small donors, our paper leaves many questions unanswered. Our results shed light on the determinants of small donors' contributions, once they enter the sample, but what explains the dramatic increase in the number of such donors over time?

In particular, can the creation of ActBlue and WinRed explain this pattern, or have these conduits only channeled (and made visible) donations which would have taken place regardless? Furthermore, one should study the effects of small contributions to complement the evidence we provide on their determinants. Do small and large campaign contributions affect electoral outcomes differently? Have candidates changed their behavior in response to the recent surge in small contributions, and have these contributions fueled the recent polarization of U.S. politics? We hope that our new dataset and the first results shown in this paper will help researchers address these important complementary questions.

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Online Appendix to the Paper
Small Campaign Donors

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Contents

A Data construction

A.1 Scrapping the FEC's website

Committees registered with the FEC have to fill-in paper or electronic forms reporting their financial activity over periods varying from 24 hours to 6 months, depending on committees' type and the stage of the election cycle. The FEC uploads these fillings on its website, and processes most of their information, including the list of all contributions received and disbursements made, which it renders browsable and accessible for download. This data is already partially formatted: in their filings, the committees have to sort the contributions they received along "lines", which designate the different sources of contributions. Lines 11A(i) (and lines 17A(i), for presidential committees) of forms 3 and 3X gather all contributions from *individuals, partnerships and other persons who are not political committees*. In addition, the FEC identifies, among these contributions, all those coming from *physical* individuals (as opposed to partnerships, for instance), and stores them under the category "*Individual Contributions*" (is_individual=t in tabulated format). This is the data we scrapped.[1][2]

The FEC website allows to export detailed contributions data for no more than 500,000 records at a time. It proposes to filter the data on, among other things, intervals of date of receipt (e.g., between the 02/01/18 and 02/04/18) and contribution amounts (e.g., below 200 dollars). To extract the full set of records, we thus implemented the following procedure:

1. Retrieve for each day in the sample frame the number of contributions that were registered this day.

2. If the number of contributions made on that day is below 500,000, extract the data by selecting it through the following URL: `https://www.fec.gov/data/receipts/individual-contributions/?two_year_transaction_period=[PERIOD]&min_date=[MINDATE]&max_date=[MAXDATE]`; where `MINDATE`, `MAXDATE` are the same date and `PERIOD` is the identifier of the two-year period containing the interval of interest (e.g., 2017-2018).

3. If the number of contributions made on that day is above 500,000,[3] we divide the set of contributions in sets of records with fewer than 500,000 elements using amount ranges (e.g., below 2 dollars, between 2 and 100 dollars, over 100 dollars) and extract the data using `https://www.fec.gov/data/receipts/individual-contributions/?two_year_transaction_period=[PERIOD]&min_date=[MINDATE]&max_date=[MAXDATE]&min_amount=[a]&max_amount=[b]` where [a] and [b] are the different contribution amount thresholds.

All of these steps were implemented in Python, with the package *selenium*. Eventually, we merged all extracts in a single data file.

[1] URL: `https://www.fec.gov/data/receipts/individual-contributions`

[2] The *Individual Contributions* data contains about .6% of non-11A(i)/17A(i) lines, maybe due to processing errors; we deleted them.

[3] All these days but one are during the 2020 election cycle

A.2 Verifying the exhaustivity of the data

We verify the exhaustiveness of these data by comparing, for each committee, the aggregate amount of itemized contributions they reported in their financial summaries with the amounts obtained by summing all the contributions to this committee within our dataset. The process make apparent two issues: errors in either FEC or committee reporting, and missing reports.

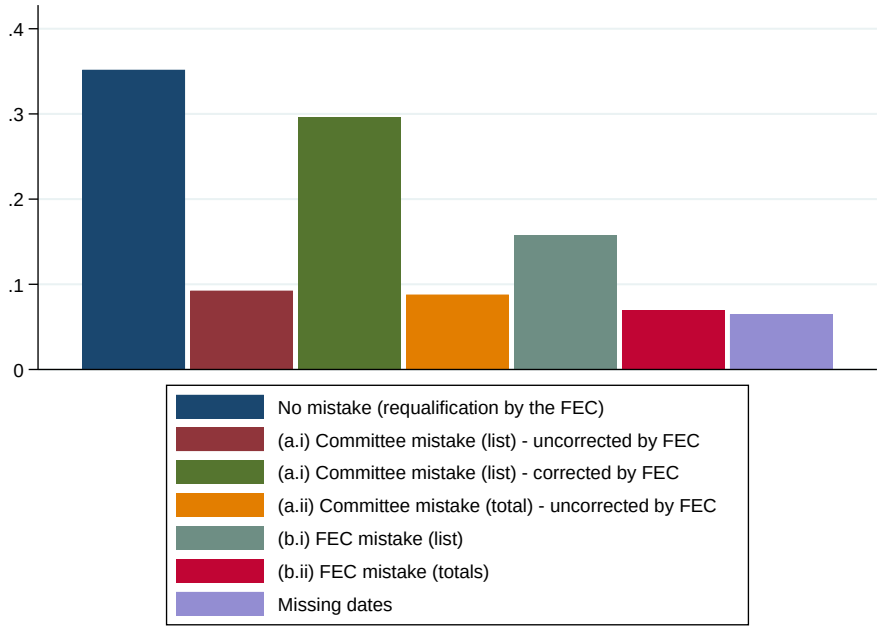
A.2.1 Issues in reporting

Among the 42,245 committee-cycles who filed reports with non-zero figures during the 2007-2018 period,[4] 18,082 (42.8%) have totals that do not match. We manually identified the sources of these mismatches for a stratified sample of 216 of those committees by looking at the list of all contributions, both in the pdf version of committees' reports and in the .csv tables generated by the FEC processing of these reports. The results are summarized in Figure A.1. About 40% are contributions from partnerships or other entities that qualify as 11A(i) contributors, but are not individuals *per se*. For this reason, the FEC does not include them in its "Individual Contributions" data section – and hence they do not appear in the data we scrapped –, even though they are still accounted for in the reported totals. This mismatches thus do not indicate erroneous or missing contributions – hence the denomination "No Mistake (requalification)". Similarly, about 6% of the mismatches come from the few contributions for which committees did not indicate a date of receipt: we had not found a way to scrap these contributions at the time of this verification (we have found a solution since).

The remaining differences are errors in the data, originating from mistakes either in committees' filings (whether in their list of itemized contributions (i) or in their reported totals (ii)) or in the FEC's processing of these elements (i.e. the pdf versions of reports are correct, but not the data tabulated by the FEC). In about 38% of the committee-cycles where there is a mismatch, the committee reported, in the list of 11A(i) contributions, contributions that are *not* 11A(i)'s – such as transfers from another committee – thereby providing an incorrect list of contributions (in the Figure "Committee mistake (list)"). Three-fourth of these wrong categorizations have been identified by the FEC and the appropriate contributions removed from the list ("-corrected"), but without changing the totals reported by the committee, meaning that these totals became un-representative of the – correct – available list of individual contributions. In the other fourth ("uncorrected"), the browsable list of individual contributions still includes these wrongly categorized donations, but the totals reported by the committee do not (so that the totals in fact accurately represent the sum of individual contributions).[5] On the contrary, for 8% of the cases, the list of individual contributions appears correct but differs nonetheless from totals reported, meaning that either contributions are missing, or the total computed

[4] We perform this verification exercise in 2020, before the 2020 data became available in full.

[5] There could also be committees for which the list of contributions has not been corrected by the FEC *and* for which the totals amounts computed include the erroneous contributions. Because the two are then equal, we are not able to systematically count the number of committees with such mistakes; we can nevertheless delete (parts of) the erroneous contributions ourselves (see below).



Notes: The figure represents the reasons why committees' list of individual contributions do not add up to the total amounts they reported. Each bar corresponds to a different error type, and represents the share of committees that include this error. One committee can display multiple errors and error-types.

Figure A.1: Reasons for totals mismatch

and reported by the committee are incorrect ("Committee mistake (total)").

Similar mistakes are made by the FEC in making the reports' information available for browsing and download. About 16% of totals' mismatches are due to misprocessing of contributions lists, so that they differ from those reported by the committees in their original filings ("FEC-mistake (list)"). Another 7% of committee-cycles have, on their financial summary webpage, totals that differ from those in the original filings, meaning the FEC processed them incorrectly ("FEC-mistake (totals)").

Eventually, we thus estimate that 25% of mismatching committees (11% of all) have inaccurate list of individual contributions, and 44% (18%) have incorrect totals. As most of our analyses are made at the contribution-level, we are interested in having the most accurate list of individual contributions. Hence we implement several strategies to correct the inaccurate lists.

- Contributions that have been wrongly categorized by committees can often be spotted through their name (that are not in the form firstname-surname): after dropping the obvious keywords ("INC.","INVESTMENTS",..), we navigated "manually" through the 240,000 first names that failed to have a gender assigned, in order to spot the non-individuals.

- The FEC wrong processing of lists was, in several cases, due to multiple imports of the same pdf report, which resulted in duplicate contributions. We thus dropped all donations that are from the same contributor, amount, date, description and report type, but with a different "file

number", which is an automatic number assigned to a file when uploaded on the server.

A.2.2 Missing fillings

Several campaigns failed to report their financial data to the FEC. Out of the 19,029 candidate-cycles with positive official vote counts at either a primary or a general election between 2006 and 2018 cycles, 4,342 have no receipt declared. One explanation is that these campaigns may not have surpassed the 5,000$ reporting threshold. Yet, for those with relatively high vote counts, this seems very unlikely. The FEC procedure in these cases is to send a "Administrative Termination" letter, which, without further action from the committee, effectively terminates its activities. Contribution data for these missing fillings remains unavailable. We do not include these committees in our analyses.

A.3 Cleaning the contributions data

A.3.1 Earmarked contributions

Background An earmarked contribution is a contribution made by an individual donor through an intermediary, called conduit, with a clear designation of the final recipient committee. Conduits can be persons as well as organizations; and need not to be registered with the FEC to be subjected to reporting rules. Conduits registered with the FEC need to itemize and report *all* their contributions, whatever their amount, with information, for each contribution, on the name and address of the original contributor (if the contribution is from an individual and exceeds 200$, the conduit must also report the contributor's employer and occupation[6]); the date of the receipt; the identity of the recipient; the date of the transfer of the contribution to this recipient, and the type of payment (cash, check, etc.).

In terms of reporting threshold and contribution limits for the recipient committees, earmarked contributions are treated like a direct contribution originating from the individual donor (and not the conduit). This means that committees have to report earmarked contributions of contributors whose total contributions since the beginning of the election cycle (independently of whether they are earmarked) exceed $200. These contributions will thus be observable both in the committee reports and in the conduit reports.

Processing The data we scrapped include the list of all 11A(i) contributions in conduits reports, i.e. earmarked contributions from individual donors. In this list, the contributions are recorded as going from donors to conduits, but most of them also include a field called "memo text" with information on the recipient committee. The format of this memo text is heterogeneous across both time and conduits. To extract the information, we screened all possible patterns of reporting. Some included the full committee ID, other its name, or the one of the affiliated candidate,[7] – all of these being

[6] In practice, most conduits include this information for all contribution amounts.

[7] Earmarked contributions made early in the election cycle are sometimes designated to seats, before the official candidate is announced/running (e.g. "for the Democratic nominee for TX-02 district"). These are assigned to the candidate that will

subject to errors. We eventually managed to identify the recipient committee of 98% of all earmarked contributions.

The second step was to identify which of these contributions were also itemized by their recipient committee, in order to remove the duplicates. This pairing exercise is even less straightforward as the conduits do not always transfer contributions the moment they receive them (hence, duplicate contributions could be registered on different dates). Moreover, the reports by the conduit and the candidate committee may identify the contributors differently, and the candidate committee does not always record the contribution as earmarked. After manually identifying as many of these issues as possible, we managed to merge 87% of all the earmarked committee-itemized donations with their conduit-itemized equivalent, and dropped the latters.

Special cases As it is a non-profit, the conduit "Actblue" offers contributors to top-up their contributions with tiny amounts to support their operations. These donations are recorded in the conduit data as "Contributions to Actblue"; we dropped them from our analysis. We also dropped contributions of the conduit "It Starts Today", a 2018 special conduit that divides contributions equally across all 468 democratic candidates, thus artificially boosting the number of very small earmarked contributions.

A.3.2 Refunded contributions

Contributions refunded by committees to contributors, which appear in the data as one positive contribution and one negative contribution, have been removed. For partial refunds, we took away the appropriate amount from the initial contribution. There are multiple reasons for a contribution to be refunded: the contributor could have exceeded the legal contribution limit; the contribution may not permissible or may be unwanted by the committee (Democratic Party refunded a contribution from Harvey Weinstein after revelations on his sexual misconducts); etc.

A.4 Processing the data on contributors

A.4.1 Grouping

For each contribution, committees identify contributors with their full name, their full address, their occupation, and their employer. This is, in theory, enough to identify any given individual across contributions, committees and years. However, there are many ways contributors' information are collected and recorded by committees: orally at an event, self-declared in an app, on a paper form, etc. Hence, in practice, there are many small variations and errors in the information about any given contributor across contributions. This means that a grouping procedure relying on exact matching would generate a large number of false negatives – especially given that we have about 100M contributions.

eventually contest the seat.

We instead proceed in two steps. First, we choose the key identifying variables, which we clean and homogenize, sometimes by fuzzy matching string segments. Second, we establish a set of explicit rules based on these variables that define an exact matching procedure of identification. Each step reflects a detailed inspection of the microdata and our contextual understanding of mistakes or inconsistencies that humans make in reporting contributions.[8]

Step 1 We focus on four main variables: *first-name*, *surname*, *street* (including house number), and *zipcode*. From our experience with the data, occupation and employer are too inconsistently reported to constitute safe grouping variables.

- First-names were cleaned of all prefixes, suffixes, grades and titles. In addition, we built an index of first-name variants (Rebecca, Beck, Becky,...).
- Surnames were fuzzy grouped within same addresses to account for typos.
- Street suffixes were homogenized (Drive, Dr, Drv,...) and street names (that include house numbers) fuzzy grouped by contributors' name. In addition, we created a variable that is the sole name of the street, to account for variation in the presence of suffixes, coordinates, etc. Building units were extracted from street strings (when applicable, i.e. not often).
- Zipcodes were forced to their 5-digit format.
- Cities' and states' names were cleaned manually.

Step 2 Two individuals were considered to be the same if they matched exactly on 3 main characteristics, and fuzzy matched on the fourth. In other words, two individuals were considered to be the same if they shared one of the following:

- *first-name*, *surname*, *full street*, and *zipcode*.
- *first-name variant index*, *fuzzy surname*, *full street* and *zipcode*.
- *first-name*, *surname*, *fuzzy street* and *zipcode*.
- *first-name*, *surname*, *street name*, and *city-state*.

[8]The reason why we do not proceed with a fuzzy matching on the whole data is twofold. First, computational considerations: fuzzy grouping on strings requires calculation of between-string distances and thus the computational task grows at $O(N^2)$. Given the size of our data and the length of the variables, it would require a lot of data segmentation. Second, the rules we specify are conservative and transparent: we expect the false positive rate to remain very small.

A.4.2 Characteristics

Geography We also used the cleaned addresses of contributors to obtain the geographic coordinates of contributors' residence. To do so, we used an MIT-licensed US address locator on ArcMap 10.1. Addresses that do not match (because erroneous or missing) were geolocalized based on their 5-digit zipcode, and, for the remaining ones, on their state. The respective share of contributor-cycles matching in each step are 82%, 15.5% and 2%.[9]

Once mapped, addresses localized at the building level were overlapped with GIS maps from the Census Bureau of the census blocks' boundaries (providing a unique census "GEOID" that can be used to obtain any census geography), as well as with maps of congressional districts for each electoral cycle. For addresses localized at the zipcode level, we used HUD-USPS crosswalks provided by the US Office for Policy Development and Research to obtain both county and congressional district information.[10]

Demographics We use the surname and address of each contributor to compute the probabilities that she identifies with each of the main ethnic categories (white, hispanic, black, asian, other). We followed the method proposed by Elliott et al. (2009), which is increasingly used in the political science literature (see e.g. Grumbach and Sahn, 2020). Assuming that names are uninformative of the residence once controlling for race (which Imai and Khanna (2016) has shown to be reasonable empirically), the posterior probability of identifying with ethnicity r =1,..,R can be written using Bayes' rule:

$$P(R_i = r|N_i = n, G_i = g) = \frac{P(G_i = g|R_i = r)P(R_i = r|N_i = n)}{\sum_{j=1}^{R} P(G_i = g|R_i = r_j)P(R_i = r_j|N_i = n)} \tag{1}$$

with

$$P(G_i = g|R_i = r) = \frac{P(R_i = r|G_i = g)P(G_i = g)}{\sum_{j=1}^{G} P(R_i = r|G_i = g_j)P(G_i = g_j)} \tag{2}$$

We use Census data (obtained through the NHGIS (Manson et al., 2019)) to compute the quantities $P(R_i = r|N_i = n)$, $P(R_i = r|G_i = g)$ and $P(G_i = g)$ for each census geography (i.e., block-, tract-, county- and state-levels). For contributors that have a surname listed in the census lists (about 87%), we apply Bayes' rule using the smallest geographical level for which we have geolocalization. This produces probabilities for about 84% of the contributors-years, 80% of which are estimated at the census block-level. Finally, we define a contributor ethnicity as the one, if any, that has an assigned probability larger than 50%.[11]

[9] About .5% of addresses are in foreign countries; their coordinates are left missing.

[10] We used this correspondence only for zipcodes of which more than 98% of the territory lies in the same county/congressional district.

[11] Varying this threshold does not alter our results

To obtain gender probabilities, we merged contributors' first names with the list of U.S. Social Security Administration historical baby names, using R package `gender` (Mullen, 2021). 97% of contributors have a first name in the list. We then defined the contributor gender as the one, if any, with assigned probability larger than 75%.

A.5 Processing the data on committees and candidates

A.5.1 Mapping between committees and candidates

All contributions in our data are recorded with the indication of a recipient committee. We then mapped these committees to the individual candidate they are connected to, if any.

All candidates must have one committee that is solely linked to their campaign, called the *principal* committee. In addition, they can have other *authorized* committees, either solo or shared with other candidates or parties, which can transfer unlimited funds across themselves and are all assimilated for the purpose of contribution limits.[12] Authorized committees shared by multiple candidates and/or parties are called *joint* committees. They are usually created to facilitate fundraising, as they are allowed to request large contributions, that are then split across committees' participants (candidates and/or parties), taking into account their respective limits[13].

As a result, the mapping between candidates and committees is m-to-m. There are at least two reasons why this is not ideal for our analysis. First, it is not clear how we should interpret a contribution that is made to several candidates at the same time (even assuming the donor is aware of all the candidates she gives to, which is not always sure). Second, not all committees indicate properly that a contribution is joint and its allocation among committee participants, rendering the attribution difficult. Hence, we did not link joint committees to their affiliated candidates (11% all committee-cycles, 4% all individual contributions), thereby limiting the mapping between candidates and committees to a 1-to-m setting.[14] This allowed us to map each contribution to at most one recipient candidate, using the crosswalks provided by the FEC in its "bulk files" section.

A.5.2 Candidates characteristics

Electoral data We obtained candidates' votes information from FEC official election results tables. The data is available up until the 2018 election-cycle; for the 2020 cycle, we used the CQ Voting database.

[12] Like individuals, all other committees have specific limits on how much they can contribute to a single candidates.

[13] This is possible since *McCutcheon v. FEC 2014*; before, contributions to joint committee counted towards the joint committee's limit.

[14] There are several joint committees that split their proceeds between one candidate and one party (such as TRUMP MAKE AMERICA GREAT AGAIN, between Donald Trump and the Republican Party): we link these to the relevant candidate.

Demographics The ethnicity of all candidates running during in an electoral cycle between 2006 and 2020 has been coded manually by research assistants using internet searches.[15] We also collected manually the gender of candidates whose first name is less than 99% predictive of their gender, based on the method described above to determine the gender of contributors.

[15]We do not use the same automatic method as with contributors because candidates are much more likely to be non-representative of their underlying population than donors.

B A model of campaign donors' motivations

B.1 The model

Consider a race featuring two candidates, A and B, and a donor i who has to choose how much to contribute to her preferred candidate, say A.[16] We denote by $q_i \geq 0$ her contribution to A. Her utility if she contributes q_i encompasses the three motives of campaign contributors mentioned in Section 3.1 of the main text:

$$u_i(q_i) = \Pr(A \text{ wins}|\rho_A, q_i)\, v(A, \theta_i, \delta_A) + (1 - \Pr(A \text{ wins}|\rho_A, q_i))\, v(B, \theta_i, \delta_B) + h(q_i, \theta_i, \delta_A, \rho_A) + d(q_i, \theta_i, \delta_A, \rho_A) - \frac{(q_i)^2}{2y_i}. \quad (3)$$

The first two terms capture the electoral motive: the donor cares about how her contribution may affect the outcome of the election. The probability that candidate A wins given the contribution q_i, $\Pr(A \text{ wins}|\rho_A, q_i)$, depends on the expected outcome of the race involving candidate A, captured by ρ_A. The difference in utility if candidate A wins instead of B, $v(A, \theta_i, \delta_A) - v(B, \theta_i, \delta_B)$, depends on various characteristics of the donor (e.g., ideology, race, gender), θ_i, various characteristics of the candidates (these characteristics can be personal – e.g., gender, race, and skills – and political – e.g., ideology, incumbency, committee membership, party leadership), δ_A and δ_B, and the match between these characteristics.

The third term captures the favor motive: the donor cares about the favor promises she can extract from the candidate. We allow the favor-utility, $h(\cdot)$, to depend on the size of the donor's contribution, q_i, on the donor's characteristics, θ_i, on the characteristics of the candidate, δ_A, and on the expected outcome of the election, ρ_A. We assume that $h(\cdot)$ is increasing and concave in q_i: extracting favor promises from a given candidate is increasingly expensive.

The fourth term captures the expressive motive: donors obtains consumption utility out of the act of contributing to the campaign of their preferred candidate. We allow this consumption utility, $d(q_i, \theta_i, \delta_A, \rho_A)$, to vary with the size of the donor's contribution, with her own characteristics and those of the candidate, and with the expected outcome of the election. We assume that $d(\cdot)$ is increasing and concave in q_i, as is natural for any consumption good.

Finally, the last term captures the cost of contributing, $\frac{(q_i)^2}{2y_i}$, which is assumed to be decreasing in the donor's income or wealth, y_i.[17]

[16] Below, we discuss an extension of the model in which we allow donors to give to more than one candidate in any given race.

[17] This assumption would stem out of a model in which donors have to choose between allocating resources to campaign contributions or other consumption goods, and the marginal utility of those consumption goods is decreasing.

The first order conditions give us:

$$q_i = y_i \left(\frac{\partial \Pr\left(A \text{ wins} | \rho_A, q_i\right)}{\partial q_i} V\left(\theta_i, \delta_A, \delta_B\right) + H\left(q_i, \theta_i, \delta_A, \rho_A\right) + D\left(q_i, \theta_i, \delta_A, \rho_A\right) \right) \ \forall i, \quad (4)$$

where $\frac{\partial \Pr(A \text{ wins}|\rho_A, q_i)}{\partial q_i}$ is the marginal change in the probability that A wins when donor i increases her contribution given that the expected outcome of the race in which A runs is ρ_A, $V\left(\theta_i, \delta_A, \delta_B\right) \equiv v\left(A, \theta_i, \delta_A\right) - v\left(B, \theta_i, \delta_B\right)$ is the utility differential experienced by donor i if A wins instead of B, $H\left(q_i, \theta_i, \delta_A, \rho_A\right) \equiv \frac{\partial h(q_i, \theta_i, \delta_A \rho_A)}{\partial q_i}$ is the marginal utility from the additional favor promise that donor i can extract from candidate A by increasing her contribution, and $D\left(q_i, \theta_i, \delta_A, \rho_A\right) \equiv \frac{\partial d(q_i, \theta_i, \delta_A, \rho_A)}{\partial q_i}$ is the marginal consumption value of a contribution.

From equation (4) , we have that, ceteris paribus, contributions are increasing in the income of the donor, independently of the motive driving those donations. This is quite natural: richer individuals simply have more resources available to contribute, hence the opportunity cost of one dollar of contribution is lower for them than for poorer individuals. This result implies that income is not a useful factor when it comes to differentiate the motives underlying donors' behavior; a point that has been made in the literature (Bouton et al., 2018). For the sake of expositional clarity, we will thus set $y_i = 1$ in the remainder of the section.

Note that we can easily use this setup to consider donor i's choice of how much to contribute to various candidates in different districts or states, once she has identified her preferred candidate in each race.In that case, the marginal dollar of contribution flows to the candidate with the highest marginal return. The different marginal returns take the same form as in equation (4) . In equilibrium, it must then be that the marginal returns of contributions to every candidate receiving a contribution from donor i are equal, and they are all equal to the marginal cost of contributing.

B.2 Comparative statics

We now present a number of comparative statics depending on the different motives of interest.

The electoral motive When donor i is motivated exclusively by the electoral motive, her equilibrium contribution to her preferred candidate A is:

$$q_i = \frac{\partial \Pr\left(A \text{ wins} | \rho_A, q_i\right)}{\partial q_i} V\left(\theta_i, \delta_A, \delta_B\right). \quad (5)$$

Electorally-motivated contributions are thus increasing in the marginal effect of a contribution on the probability that A wins, and in the utility differential if A wins instead of B. It is natural to assume that the marginal effect of a contribution on the probability that A wins, $\frac{\partial \Pr(A \text{ wins}|q_i)}{\partial q_i}$, is higher when the election is expected to be close than when it is expected to be a landslide victory. Hence, our model

predicts that electorally-motivated contributions increase in the closeness of the race.[18] The flip side of the coin is that donor i has no incentives to contribute to the campaign of a candidate sure to win or to lose.

Hall and Snyder (2015), building on the voting literature and Duverger's law (Duverger, 1954; Palfrey, 1988; Myerson and Weber, 1993; Cox, 1994; Fey, 1997), argue that, in races with more than two candidates, donors have incentives not to waste their contributions on candidates who do not finish among the top two. From equation (5) we see that our model produces this prediction if the marginal effect of a contribution on the probability that A wins drops close to zero when a candidate is not expected to finish among the top two.

The utility differential, $V(\theta_i, \delta_A, \delta_B)$, matters for obvious reasons. Importantly, it can be affected by the characteristics of the donor, the characteristics of the candidates, and how these characteristics match. The literature identifies various characteristics that affect the appeal of a candidate. As discussed by (Bonica, 2014) (p. 370), ideological proximity plays an important role: "[...] nearly all existing research on individual donors suggests that the choice of recipient represents a genuine expression of the donor's ideology (Ensley 2009; McCarty, Poole, and Rosenthal 1996)."

However, ideology is not the only relevant factor. Gender is another potentially important factor. The literature indeed identifies a "gender affinity effect" (Sanbonmatsu, 2002; King and Matland, 2003; Dolan, 2008): women (men) are expected to be more supportive of female (male) candidates, both in terms of votes and contributions. As argued in Dolan (2008) (p.79), there are various reasons for such an affinity effect. Those relevant for the electoral motive include feelings of group solidarity and of shared gender identity, and a desire for descriptive and/or substantive representation. Ethnicity is another relevant factor. The expected effect, and the reasons why it exists, are similar as with gender (see e.g. Grumbach and Sahn, 2020).[19]

The literature also highlights the role of geography in the behavior of donors (see e.g. Gimpel et al., 2006, 2008). The focus is on the importance of donors and candidates living in the same district or state. For electorally-motivated contributions, one argument is that spatial proximity (i.e., being in the same district or state) increases the chances that the donor and the candidate have aligned interests in terms of governmental resources flowing to the district, and of which projects in the district to spend those funds on. A candidate thus has a higher $v(A, \theta_i, \delta_A)$ if he lives in the same district as the donor than if he lives in another district. Another argument is that donors have better information about the candidates in their district or state. On reason is that local media devote more time and space to local candidates (Snyder and Stromberg 2010). In that case, the utility differential $V(\theta_i, \delta_A, \delta_B)$, is higher for same district/state candidates simply because for out-of-district/state candidates, donors may not

[18] As explained in Snyder (1990), donors "[...] that contribute in order to influence election outcomes rather than simply to buy favors will rationally contribute more in races that are expected to be close than in lopsided races (see Colantoni et al., 1975; Welch, 1980; Snyder, 1989)."

[19] In particular, (Grumbach and Sahn, 2020) mentions the following reasons: feelings of linked fate and empowerment, campaign appeals to coethnicity and the fact that "politicians from marginalized groups tend to exert greater effort to represent and improve the standing of their group in society (e.g., Broockman 2013; Dawson 1995; Logan 2018)."(p. 208)

have enough information to differentiate the candidates. Thus, all things equal, donors may have a tendency to donate more to in-district candidates, in comparison to out-of-district ones. Of course, the donor may still prefer to contribute to an out-of-district candidate if that candidate is a better match in terms of ideology, gender, or ethnicity, or if he is running in a closer race.

The favor motive When donor i is motivated exclusively by the favor motive, her equilibrium contribution to her preferred candidate A is implicitly defined by

$$q_i = H\left(q_i, \theta_i, \delta_A, \rho_A\right). \tag{6}$$

Given that $H\left(\cdot\right)$ is decreasing in q_i (by the concavity of $h\left(\cdot\right)$ in q_i), we have that $q_i^* > 0$ if $H\left(0, \theta_i, \delta_A, \rho_A\right) > 0$. Moreover, q_i^* is increasing in any characteristic of the donor, the candidate, and the race that increases the ability of the donor to extract a favor from the candidate for a given contribution. This is in line with the main insight from the literature: when the objective is to extract a favor from politicians, funds flow to politicians who can deliver the favor at the lowest cost (Denzau and Munger, 1986; Snyder, 1990).

The literature identifies various characteristics of politicians that make them more appealing from the perspective of donors driven by the favor motive. Incumbency is an important factor (see e.g. Snyder, 1992; Fouirnaies and Hall, 2014; Culberson et al., 2019), which is captured by the parameter δ_A in our model. One obvious reason is that incumbents are, by definition, in office. Hence, contributing to their campaign grants immediate access.[20]

The literature also predicts that favor-motivated contributions should flow to candidates more likely to win a race.[21] In the notation of our model, q_i^* should decrease in the closeness of the race, and increase when the candidate is likely to win, as captured by the parameter ρ_A.

Ideological, gender, and ethnic alignment may also influence positively favor-motivated donations. The common argument is that a necessary condition to get access and extract favor is to build a relationship of mutual trust and respect with politicians (Snyder, 1992; Morgan, 2004). Ideological commonality, as well as gender and ethnic alignment are factors facilitating the construction of such a relationship. The same is true for spatial proximity, which greatly facilitates interactions between donors and candidates. In our model, those effects appear through the positive effect on $H\left(\cdot\right)$ of a match between the characteristics of the donor, θ_i, and those of the candidate, δ_A.

An extension of our model in which we allow donors to give to more than one candidate in a given race delivers predictions about the so-called hedging behavior, i.e., donors contributing to more

[20] As explained in Bonica (2014), the literature also points to the attractiveness of specific types of incumbents: members of the majority party (Cox and Magar (1999)), party leaders, committee chairs, and members of particular committees (Grier and Munger, 1991; Snyder and Romer, 1994). The main reason is that these incumbents have more sway over policies, and are thus better able to deliver favors.

[21] This is the prediction of Snyder (1990)'s model of "investor contributors" who exchange contributions for policy favors. Under certain symmetry conditions, there is a positive relationship between the amount of contributions and the probability that a candidate wins the race.

than one candidate in a given race. This can happen in this extended version when the marginal favor promises that a donor can extract from two different candidates are similar (and sufficiently large). When candidates have similar tendencies to grant favor promises, this requires that the two candidates have similar probabilities of winning the race, and then that the race is close. As Bonica (2016) (p. 378) explain: "The suggested rationale for giving to opposing candidates is that when the outcome is uncertain, interested donors may wish to signal their support and willingness to work with both candidates so as to avoid siding with the loser and, as a result, risk being denied access to the eventual winner."Note that hedging is a behavior that is not easily explained by the electoral motive nor the expressive motive. This is thus one of the few patterns of contributions that, if found in the data, could allow us to distinguish between the different motives.

The expressive motive Finally, when donor i is motivated exclusively by the expressive motive, her equilibrium contributions to her preferred candidate A are implicitly defined by

$$q_i = D\left(q_i, \theta_i, \delta_A, \rho_A\right). \tag{7}$$

Given that $D\left(\cdot\right)$ is decreasing in q_i (by the concavity of $d\left(\cdot\right)$ in q_i), we have that $q_i^* > 0$ if $D\left(0, \theta_i, \delta_A, \rho_A\right) > 0$. Moreover, q_i^* is increasing in any characteristic of the donor, the candidate, and the race that increases the consumption value of a contribution. For instance, if $D\left(q_i, \theta_i, \delta_A, \rho_A\right)$ is weakly increasing in the closeness of the election, ρ_A, we have that donor i has stronger incentives to contribute to close races. One justification for this assumption is that close races attract more attention from citizens and the media, and hence the marginal consumption value of a contribution to candidates in close races is higher.[22]

However, note that even when $D\left(q_i, \theta_i, \delta_A, \rho_A\right)$ is dependent on ρ_A, a donor may contribute to the campaign of a sure loser or that of a sure winner. According to Snyder (1990), contributing to the campaigns of sure losers is strongly suggestive of an expressive motive. His argument is that such a behavior is not compatible with a rational investment strategy (i.e., the electoral and favor motives), and is thus suggestive that the donor is at least partly expressively motivated. Our model generates similar predictions: when $\Pr\left(A \text{ wins}|q_i\right)$ and $\frac{\partial \Pr(A \text{ wins}|q_i)}{\partial q_i}$ drop close to zero (which should be the case for a sure loser), electorally-motivated contributions and favor-motivated contributions drop to zero. By contrast, expressively-motivated contributions can still be positive.

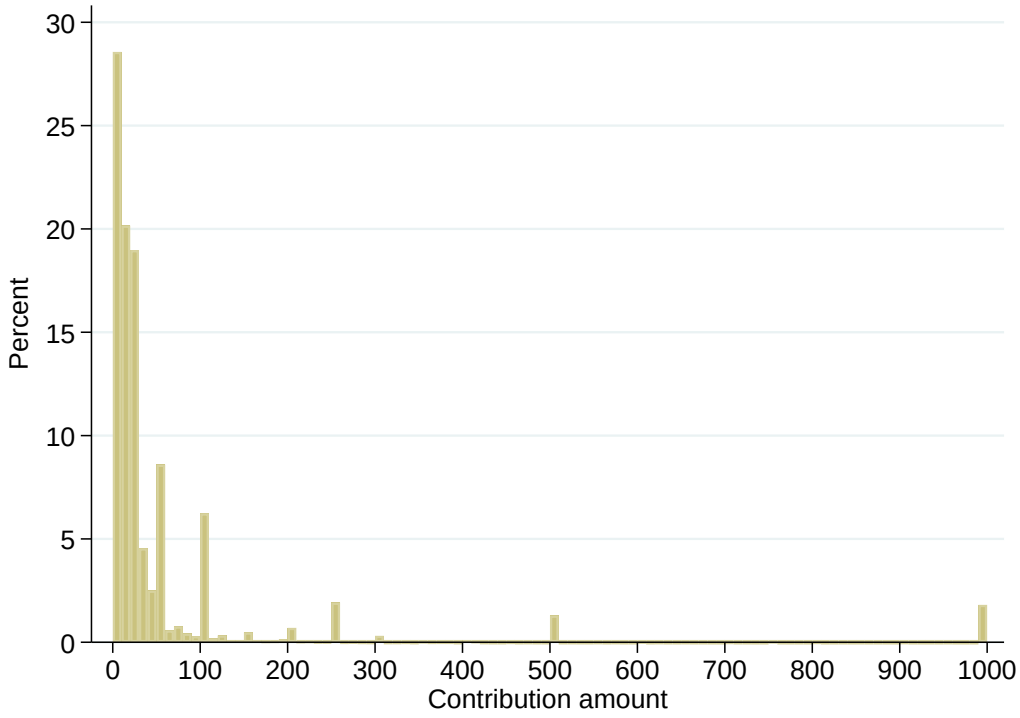
Equation (7) also clarifies the role of ideological, gender, ethnic and geographical alignment for expressively-motivated contributions. These contributions increase in such alignments if the marginal consumption of a contribution to candidate A, $D\left(q_i, \theta_i, \delta_A, \rho_A\right)$, increases when θ_i and δ_A match on those dimensions. Various of the reasons proposed by the literature for affinities between donors and

[22] Ansolabehere et al. (2003) suggest another channel: candidates increase their fundraising effort when the election is close and expressive donors respond to this effort. And indeed, Bouton et al. (2018) show formally that a closeness effect exists when expressively motivated donors react to candidates' fundraising effort and candidates care about winning the race (and hence about the marginal impact campaign spending has on the electoral outcome).

candidates along gender and ethnic dimensions are of an expressive nature (see the discussions in Cho, 2002; Grumbach and Sahn, 2020).

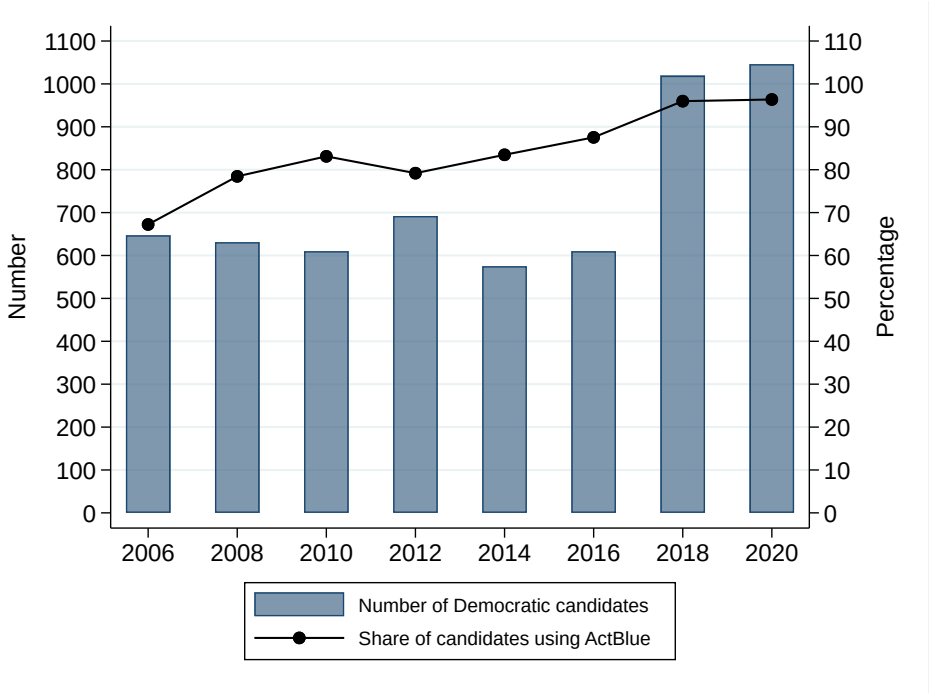
For the geographic alignment, one argument (see e.g. Gimpel et al., 2006) starts from the idea that expressively-motivated donors obtain utility from the act of contributing because this allows them to feel and show others that they are member of a specific social group and that they are fighting for a specific cause. Social interactions within local networks exacerbate those incentives, which can then naturally focus on local candidates and the local causes they stand for. In simple words, donors contribute to their local champion in order to be able to tell other guests at dinner parties than they too have contributed to the campaign. However, note that this argument could also apply to out-of-district champions, but it may prove more difficult for a social network to coordinate on such a candidate. The higher likelihood of meeting local candidates and their entourage can also increase the incentives to contribute to local candidates.

C Additional figures



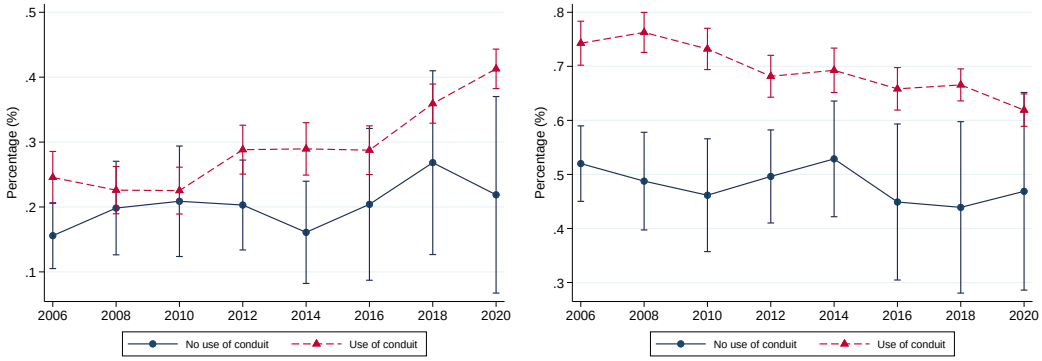
Notes: The figure plots the distribution of the amount of contributions made by individual donors and reported to the U.S. Federal Election Commission from 2006 to 2020. We use bins of \$10 and winsorize the variable at the 99th percentile (i.e. $\$1,000$).

Figure C.1: Distribution of the amount of contributions made by individuals donors and reported to the U.S. Federal Election Commission, 2006-2020



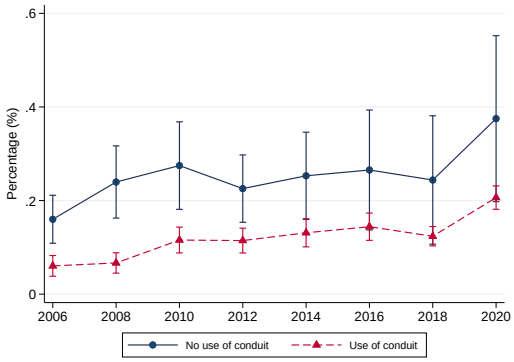
Notes: The figure represents the number of Democratic congressional candidates and the share of these candidates who use ActBlue by two-year electoral cycle.

Figure C.2: Share of Democratic congressional candidates using ActBlue

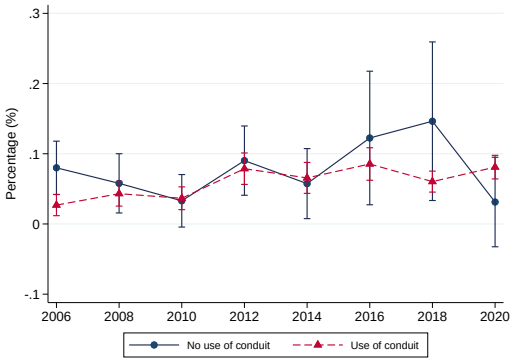


(a) **Share of female candidates**

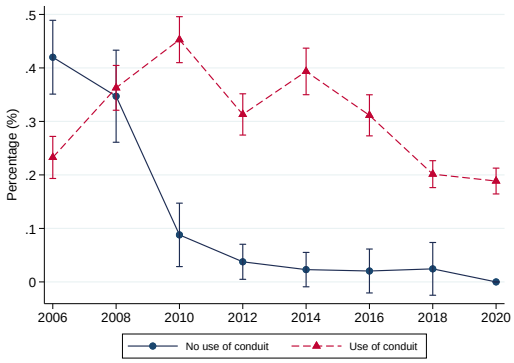
(b) **Share of White candidates**



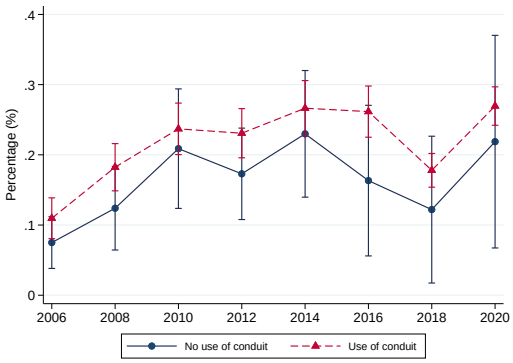
(c) **Share of Black candidates**



(d) **Share of Hispanic candidates**



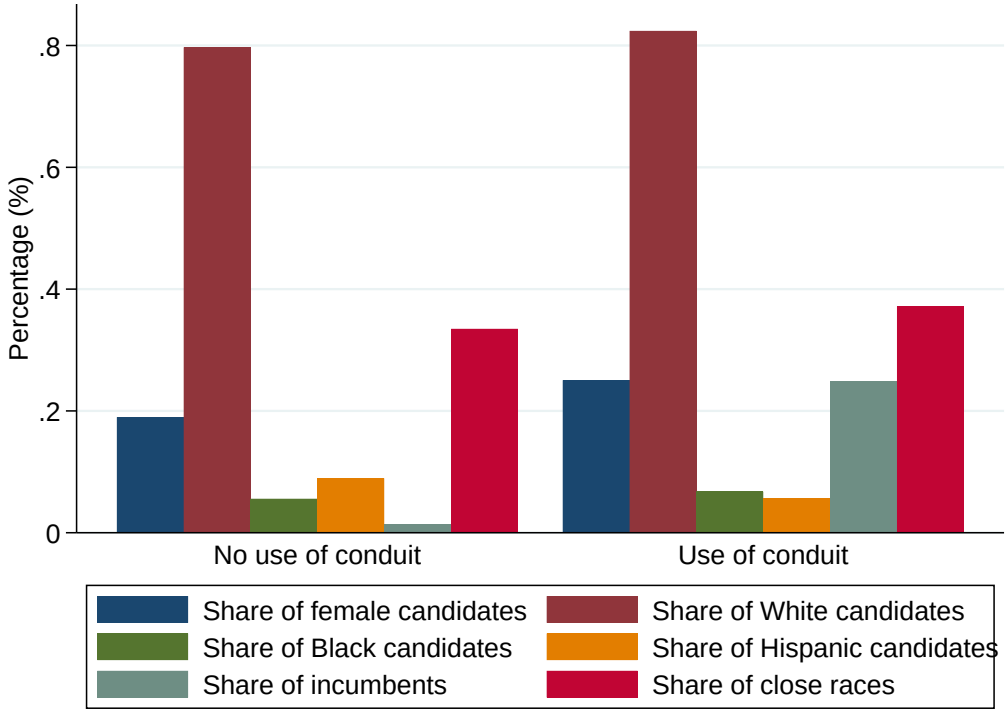
(e) **Share of incumbents**



(f) **Share of close races**

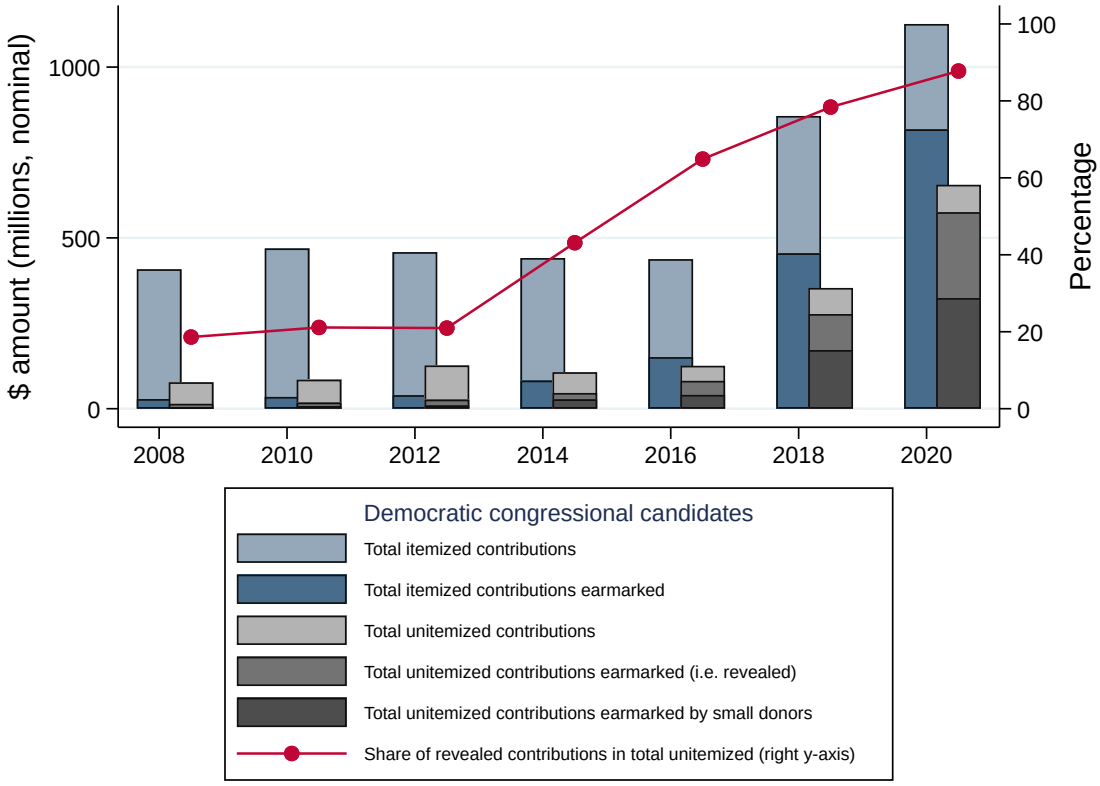
Notes: The figure plots the evolution of the characteristics of the Democratic candidates depending on whether they use conduits, 2006-2020.

Figure C.3: Characteristics of the Democratic candidates depending on whether they use conduits, 2006-2020



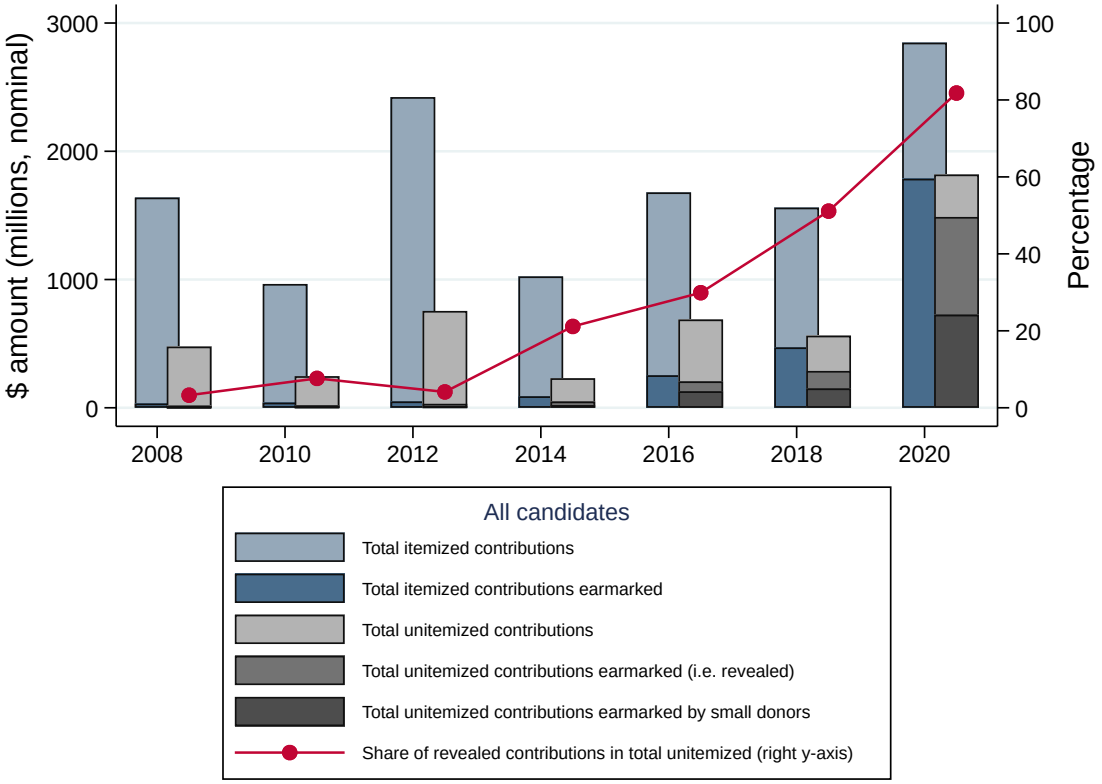
Notes: The figure plots the evolution of the characteristics of the Republican candidates depending on whether they use conduits in 2020.

Figure C.4: Characteristics of the Republican candidates depending on whether they use conduits, 2020



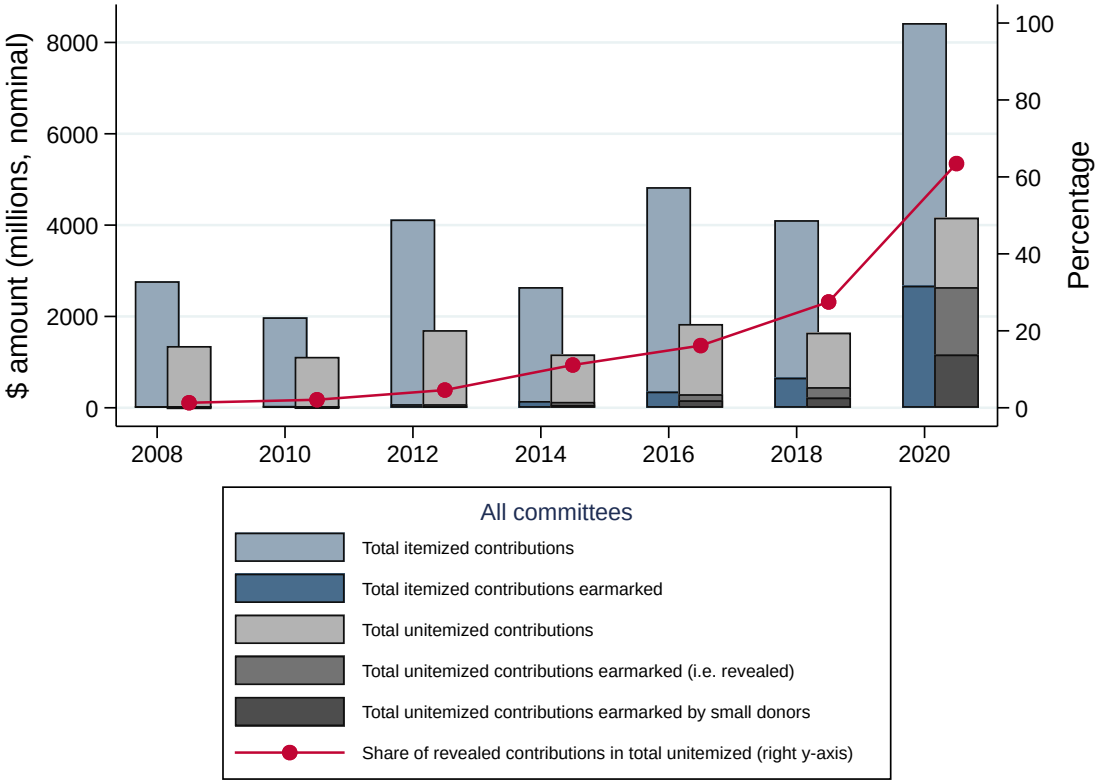
Notes: The figure plots the evolution of the donations received by Democratic congressional candidates. Light blue and light grey represent the aggregate contributions these candidates report in their financial summaries. Darker bars indicate the quantity of these contributions which are earmarked, as observed in our data, and the quantity of these contributions which are made by small donors.

Figure C.5: Contributions received by Democratic congressional candidates, depending on their type, 2008-2020



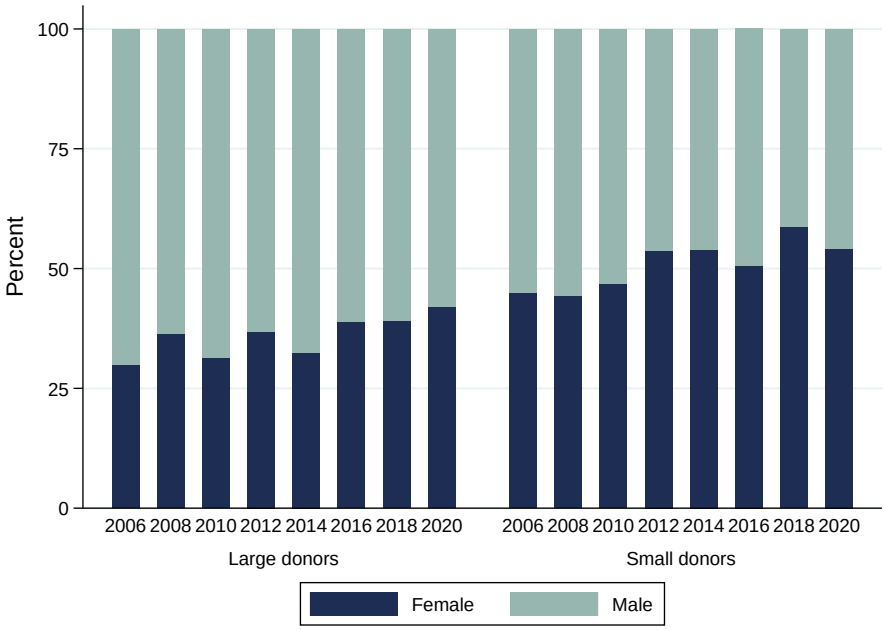
Notes: The figure plots the evolution of the donations received by all candidates. Light blue and light grey represent the aggregate contributions these candidates report in their financial summaries. Darker bars indicate the quantity of these contributions which are earmarked, as observed in our data, and the quantity of these contributions which are made by small donors.

Figure C.6: Contributions received by all candidates, depending on their type, 2008-2020



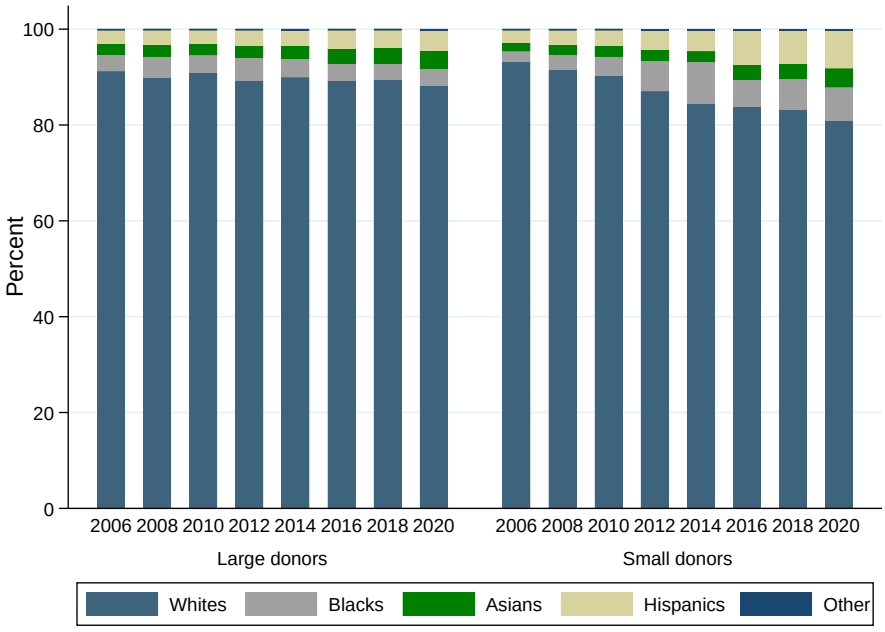
Notes: The figure plots the evolution of the donations received by all committees. Light blue and light grey represent the aggregate contributions these committees report in their financial summaries. Darker bars indicate the quantity of these contributions which are earmarked, as observed in our data, and the quantity of these contributions which are made by small donors.

Figure C.7: Contributions received by all committees, depending on their type, 2008-2020



Notes: The figure plots the share of female and male donors among small and large donors, for each electoral-cycle.

Figure C.8: Gender repartition of small and large donors

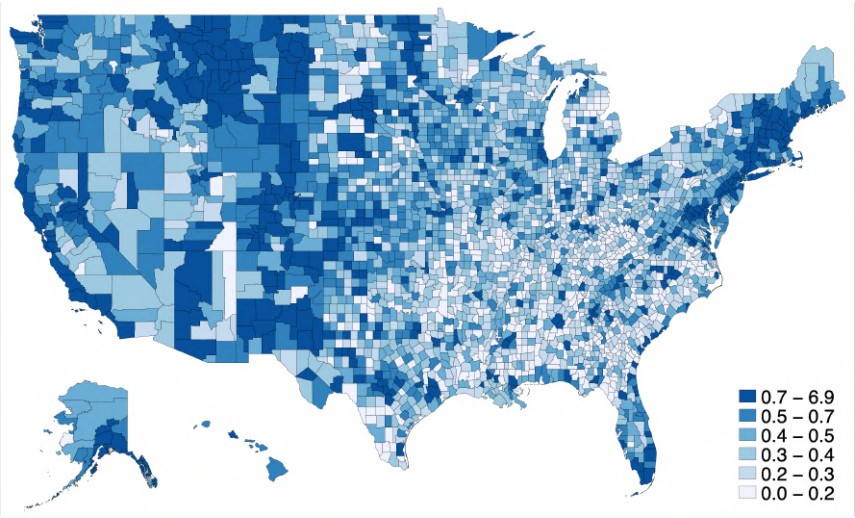


Notes: The figure plots the share of donors with different ethnicity among small and large donors, for each electoral-cycle.

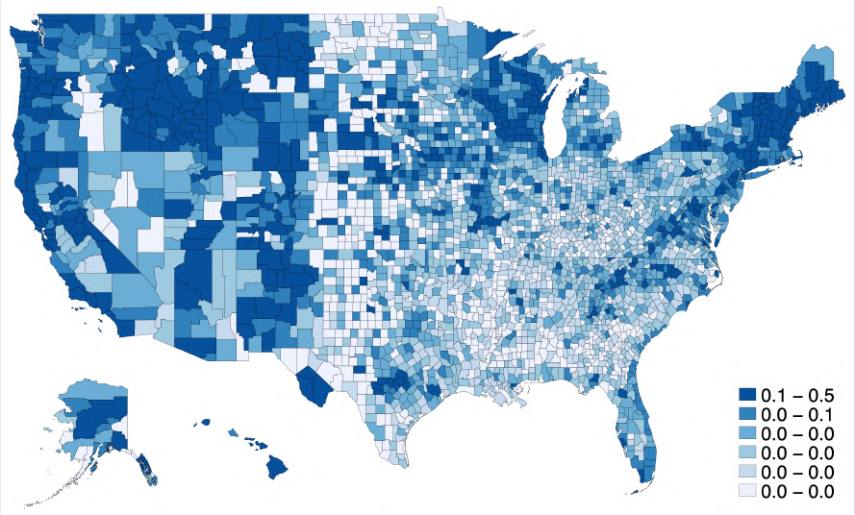
Figure C.9: Ethnicity distribution of small and large donors

Figure C.10: The geography of small and large donors, 2006

(a) **% of large donors in population**



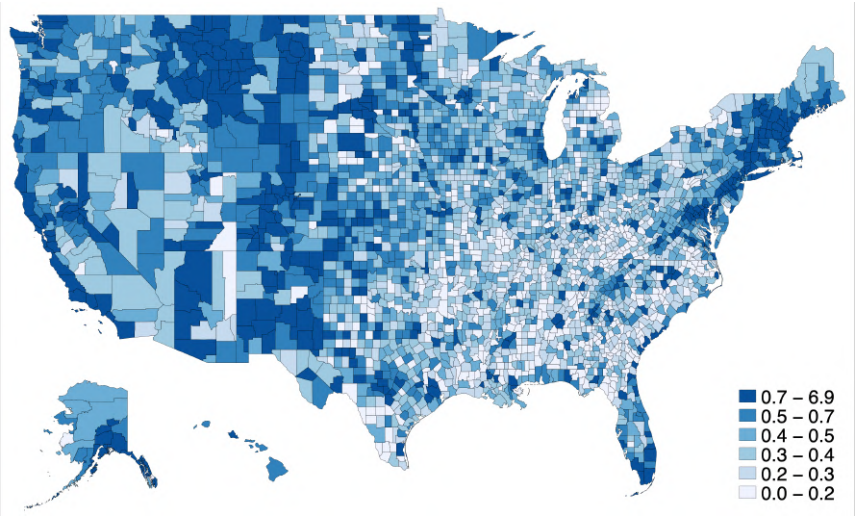
(b) **% of small donors in population**



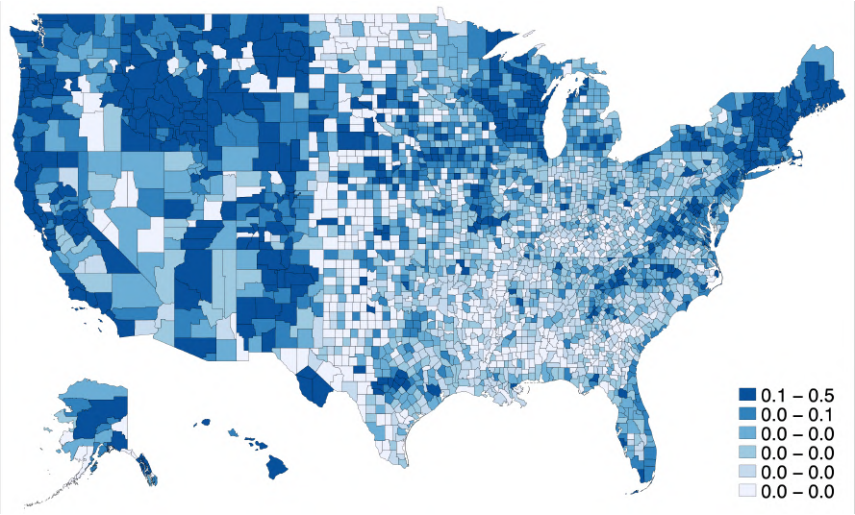
Notes: The figures map the small and large donors living in each US county during the 2006 electoral cycle, as a share of the county population. Small and large donors are defined in the text.

Figure C.11: The geography of small and large donors, 2008

(a) **% of large donors in population**



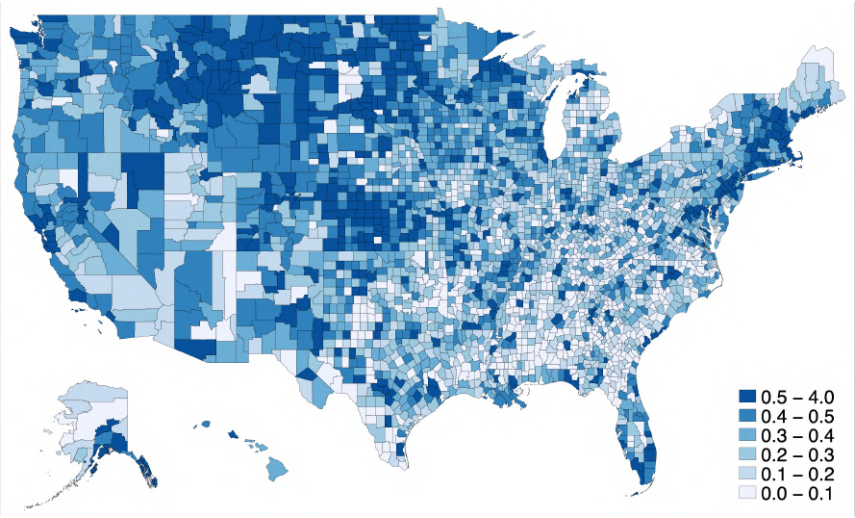
(b) **% of small donors in population**



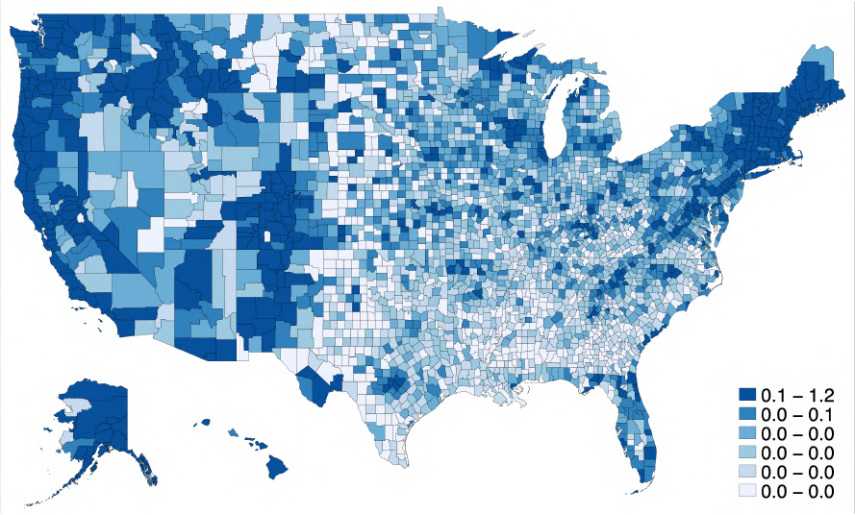
Notes: The figures map the small and large donors living in each US county during the 2008 electoral cycle, as a share of the county population. Small and large donors are defined in the text.

Figure C.12: The geography of small and large donors, 2010

(a) **% of large donors in population**



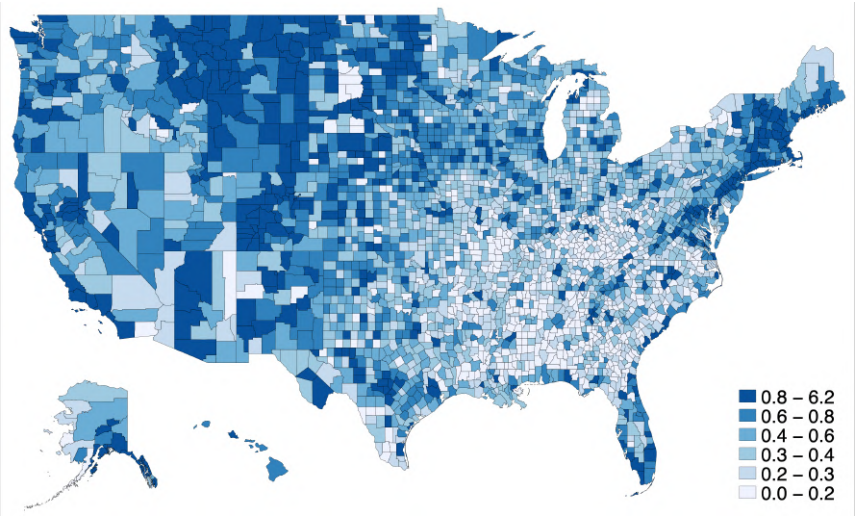
(b) **% of small donors in population**



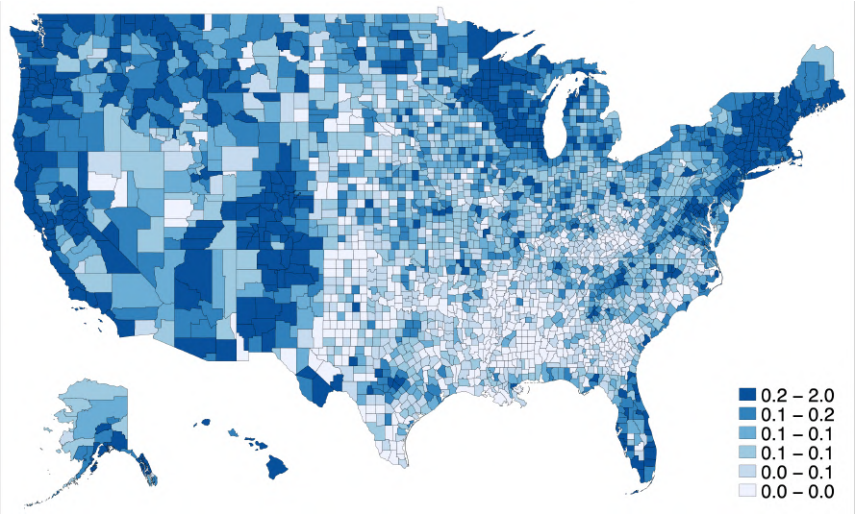
Notes: The figures map the small and large donors living in each US county during the 2010 electoral cycle, as a share of the county population. Small and large donors are defined in the text.

Figure C.13: The geography of small and large donors, 2012

(a) **% of large donors in population**



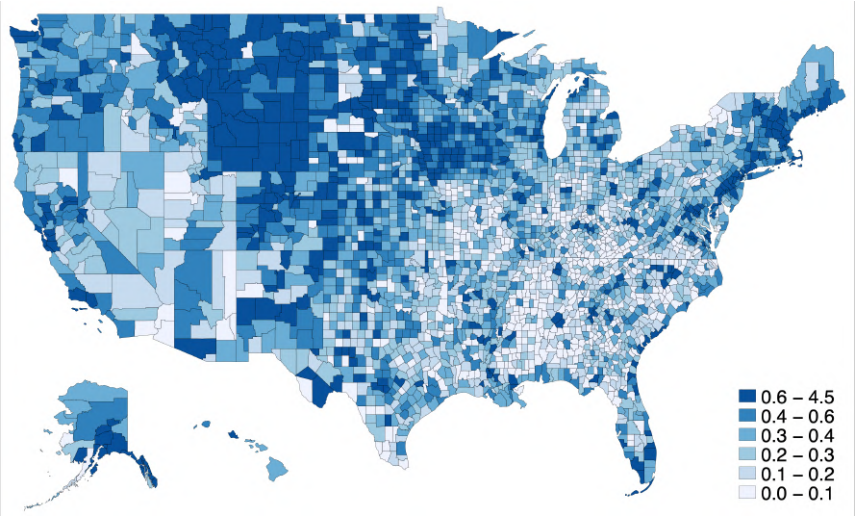
(b) **% of small donors in population**



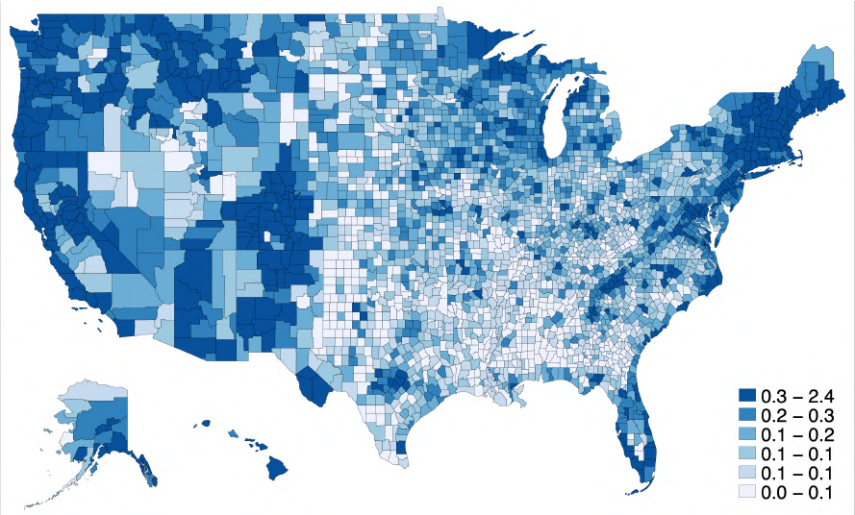
Notes: The figures map the small and large donors living in each US county during the 2012 electoral cycle, as a share of the county population. Small and large donors are defined in the text.

Figure C.14: The geography of small and large donors, 2014

(a) **% of large donors in population**



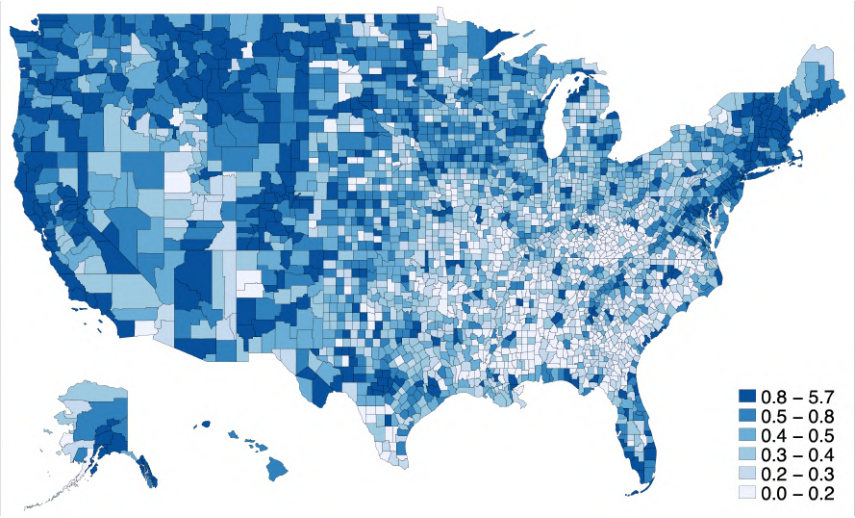
(b) **% of small donors in population**



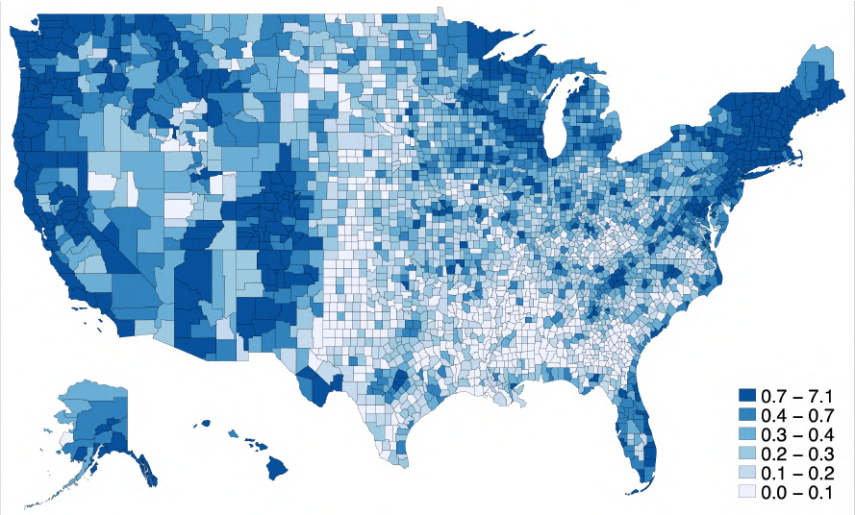
Notes: The figures map the small and large donors living in each US county during the 2014 electoral cycle, as a share of the county population. Small and large donors are defined in the text.

Figure C.15: The geography of small and large donors, 2016

(a) **% of large donors in population**



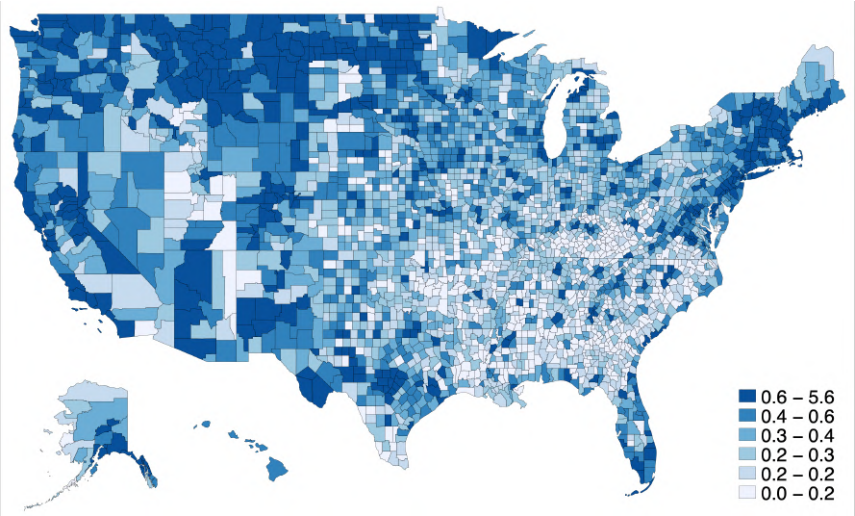
(b) **% of small donors in population**



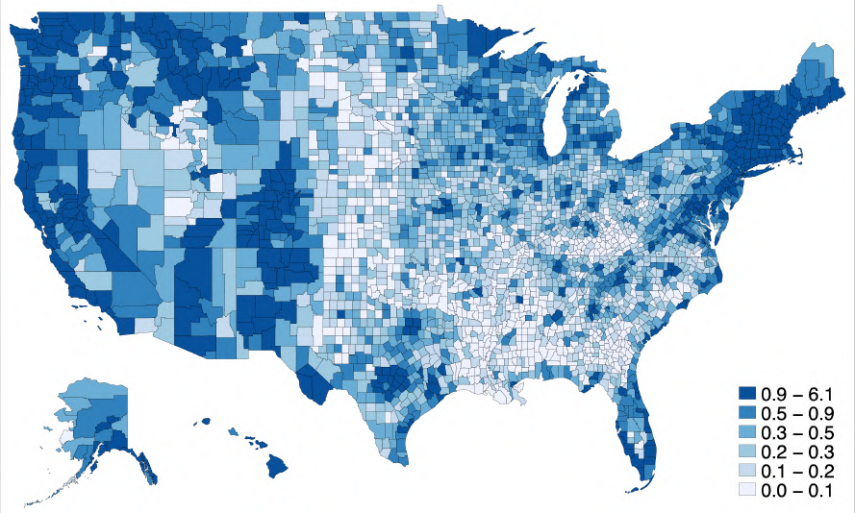
Notes: The figures map the small and large donors living in each US county during the 2016 electoral cycle, as a share of the county population. Small and large donors are defined in the text.

Figure C.16: The geography of small and large donors, 2018

(a) **% of large donors in population**



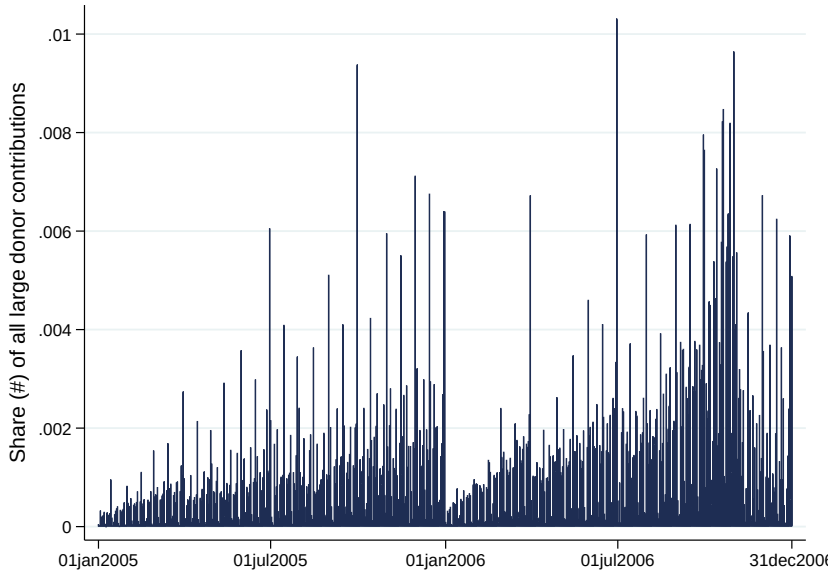
(b) **% of small donors in population**



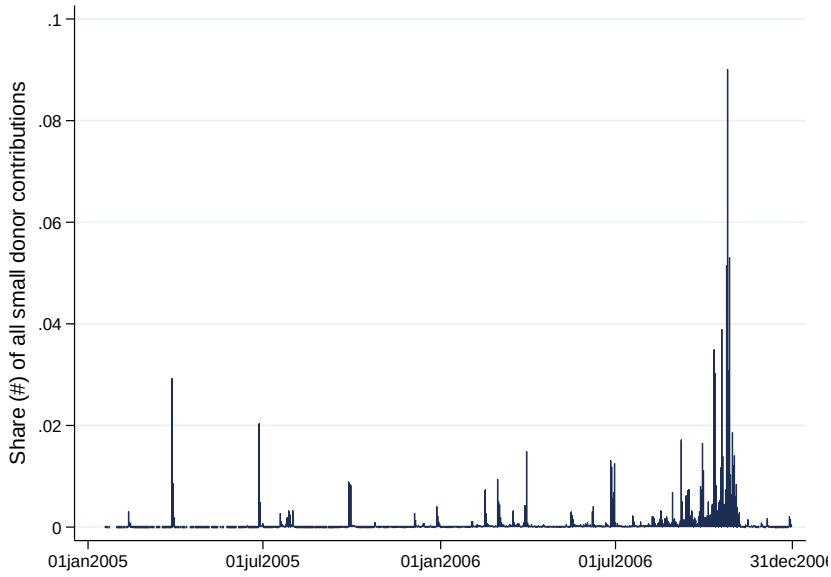
Notes: The figures map the small and large donors living in each US county during the 2018 electoral cycle, as a share of the county population. Small and large donors are defined in the text.

Figure C.17: The timing of small and large donors' contributions, 2006

(a) **Large Donors**



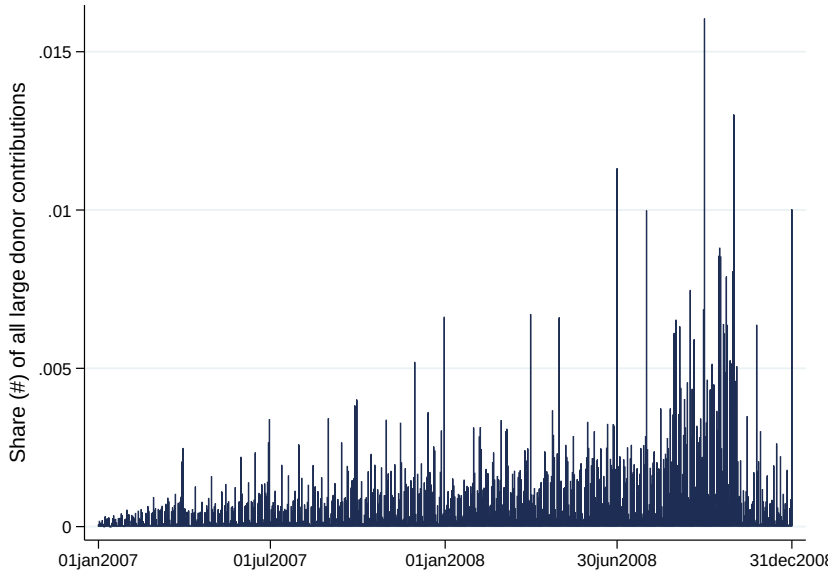
(b) **Small Donors**



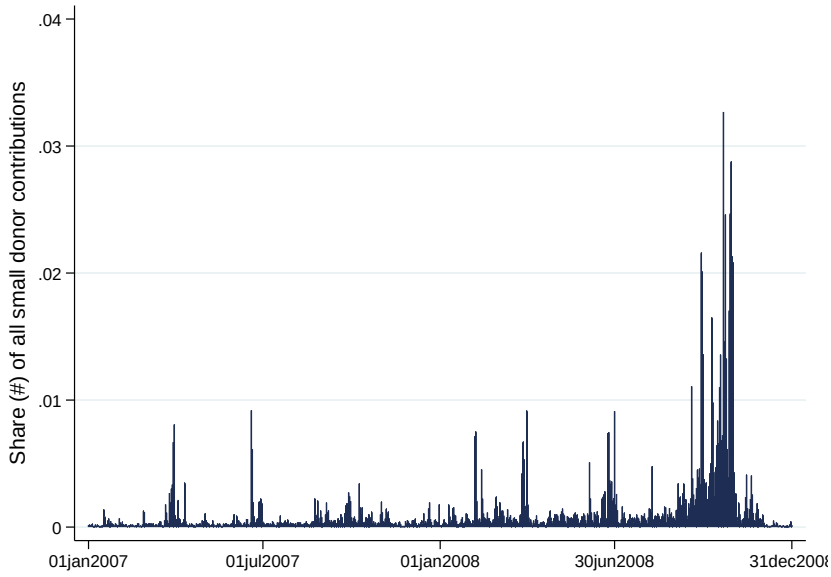
Notes: The figures plot the number of large and small donors' contributions on each day of the 2006 election cycle, as a share of the total contributions made over the full cycle. Small and large donors are defined in the text.

Figure C.18: The timing of small and large donors' contributions, 2008

(a) **Large Donors**



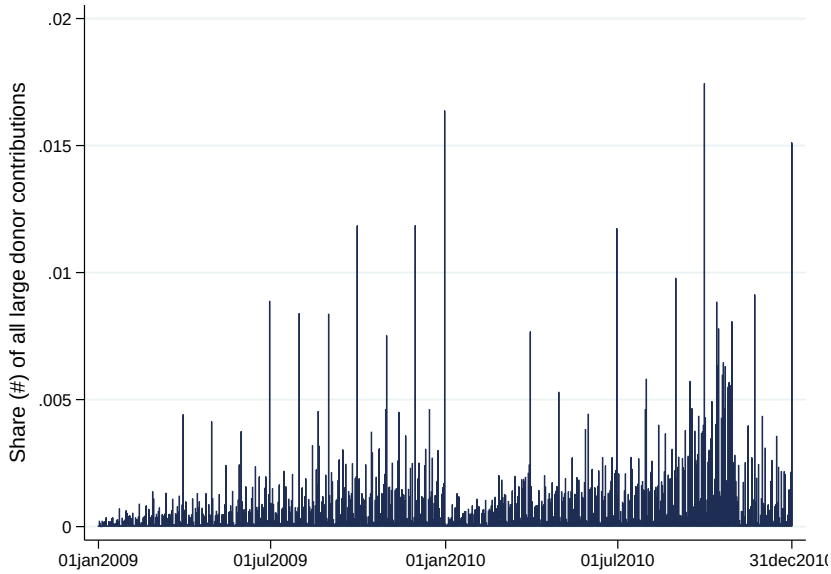
(b) **Small Donors**



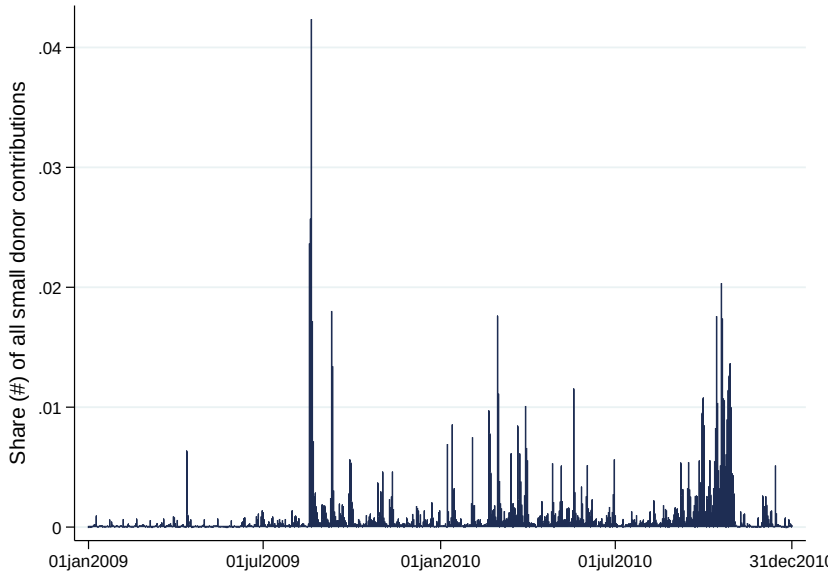
Notes: The figures plot the number of large and small donors' contributions on each day of the 2008 election cycle, as a share of the total contributions made over the full cycle. Small and large donors are defined in the text.

Figure C.19: The timing of small and large donors' contributions, 2010

(a) **Large Donors**



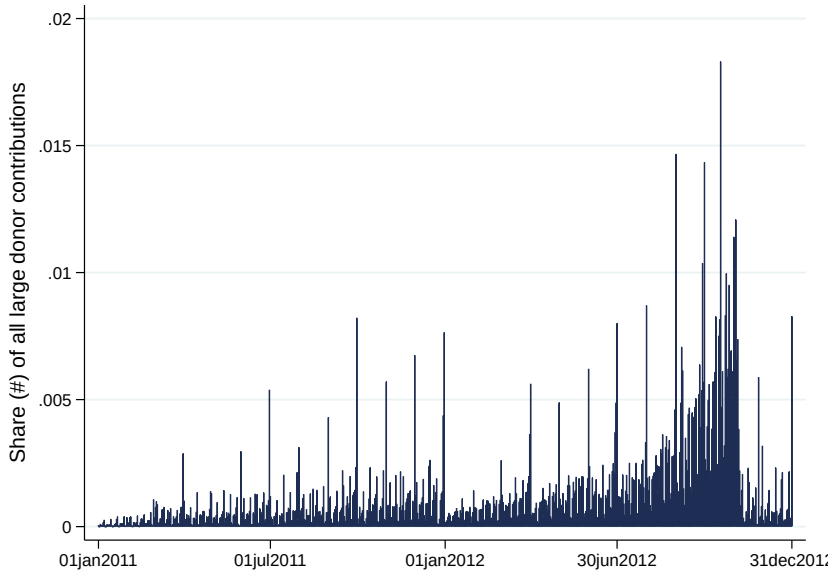
(b) **Small Donors**



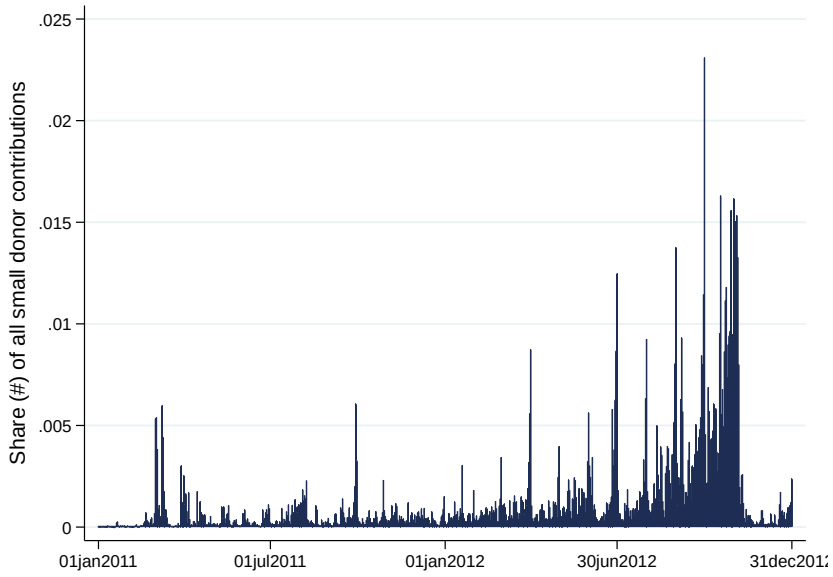
Notes: The figures plot the number of large and small donors' contributions on each day of the 2010 election cycle, as a share of the total contributions made over the full cycle. Small and large donors are defined in the text.

Figure C.20: The timing of small and large donors' contributions, 2012

(a) **Large Donors**



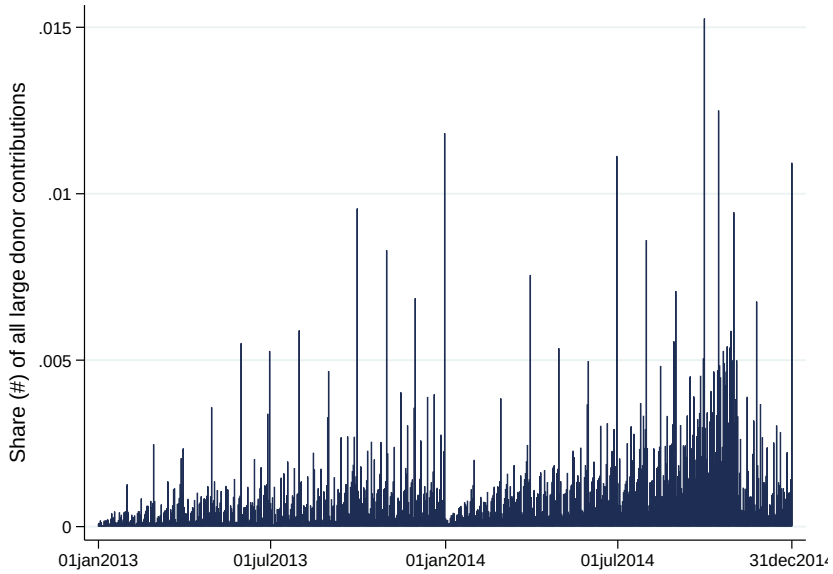
(b) **Small Donors**



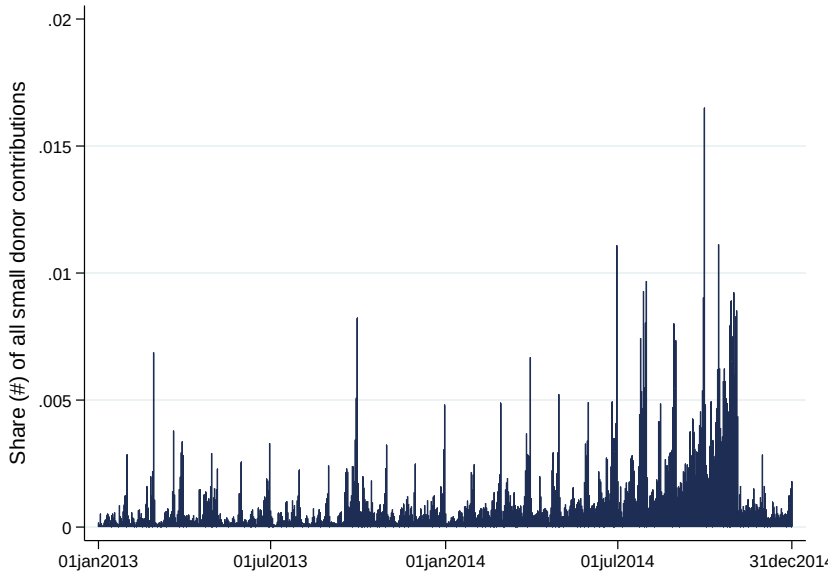
Notes: The figures plot the number of large and small donors' contributions on each day of the 2012 election cycle, as a share of the total contributions made over the full cycle. Small and large donors are defined in the text.

Figure C.21: The timing of small and large donors' contributions, 2014

(a) **Large Donors**



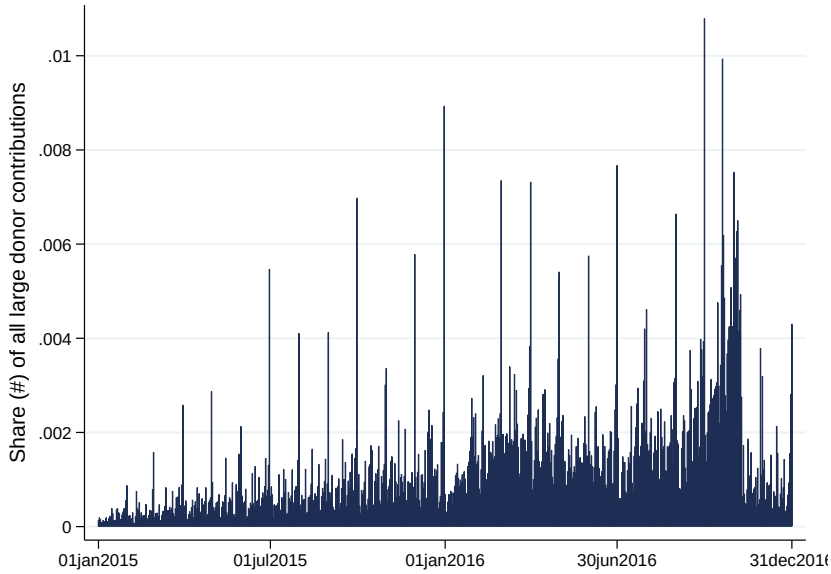
(b) **Small Donors**



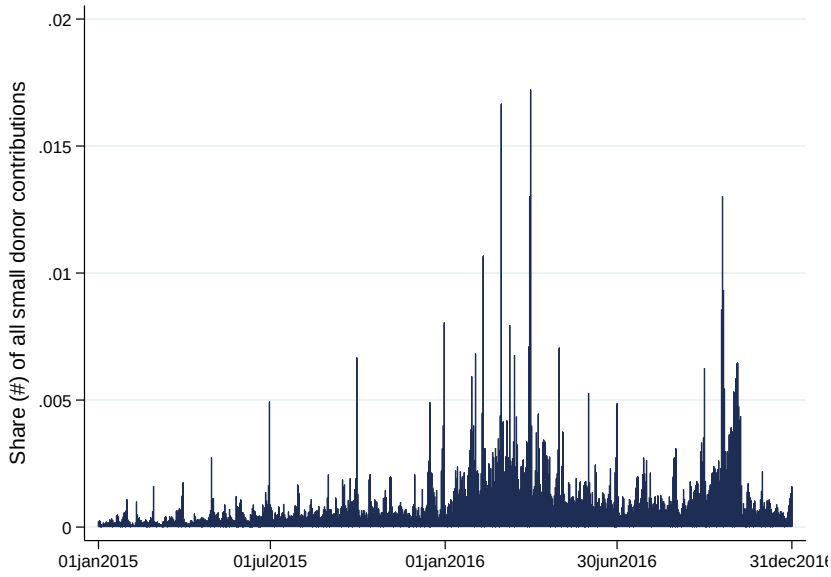
Notes: The figures plot the number of large and small donors' contributions on each day of the 2014 election cycle, as a share of the total contributions made over the full cycle. Small and large donors are defined in the text.

Figure C.22: The timing of small and large donors' contributions, 2016

(a) **Large Donors**



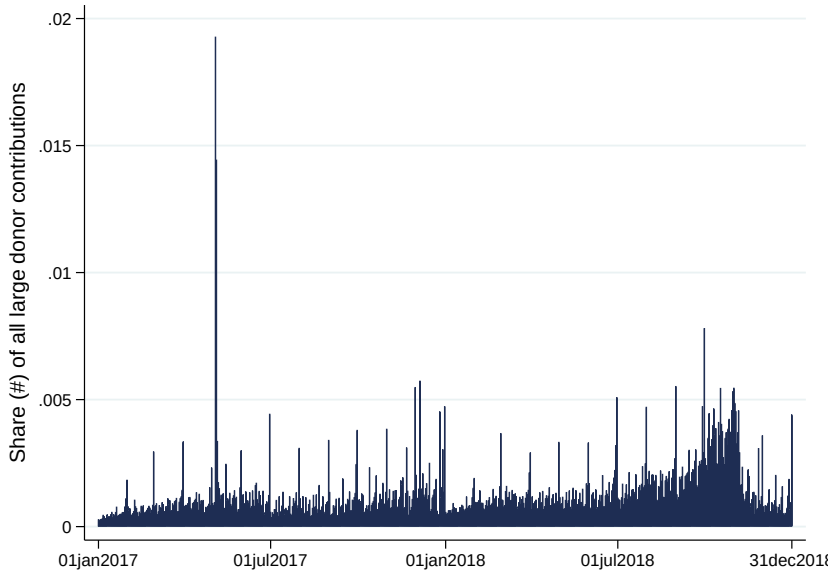
(b) **Small Donors**



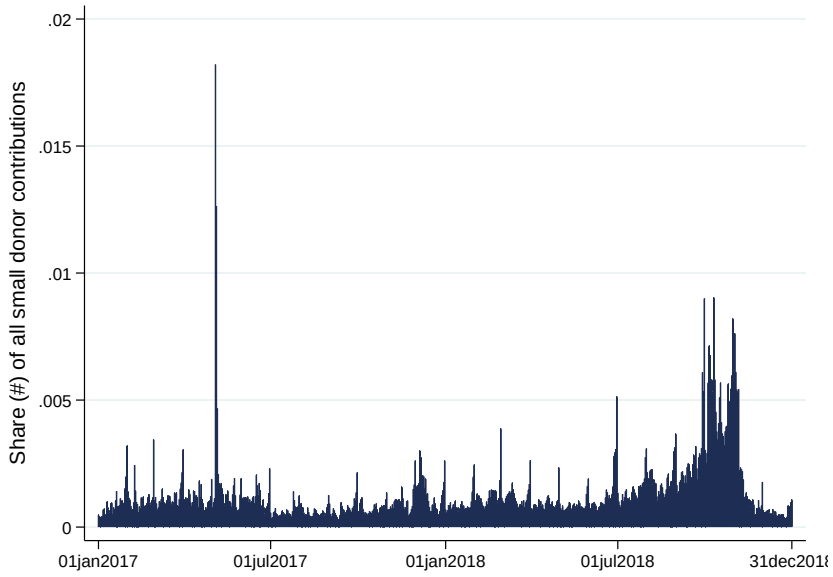
Notes: The figures plot the number of large and small donors' contributions on each day of the 2016 election cycle, as a share of the total contributions made over the full cycle. Small and large donors are defined in the text.

Figure C.23: The timing of small and large donors' contributions, 2018

(a) **Large Donors**

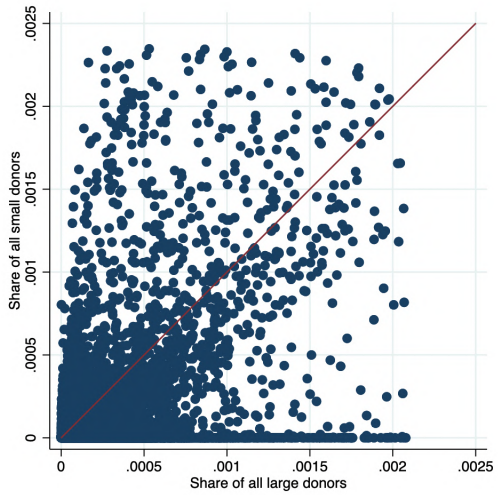


(b) **Small Donors**

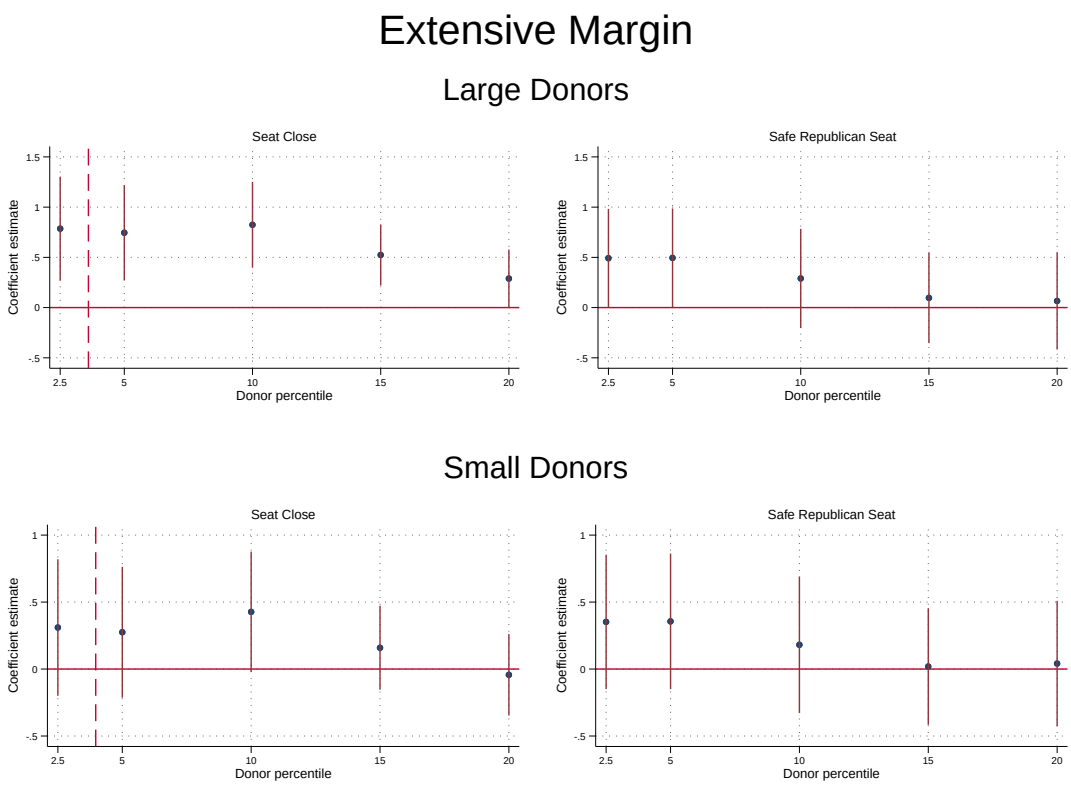


Notes: The figures plot the number of large and small donors' contributions on each day of the 2018 election cycle, as a share of the total contributions made over the full cycle. Small and large donors are defined in the text.

Figure C.24: The shares of all small and large donors in each committee, 2006-2020

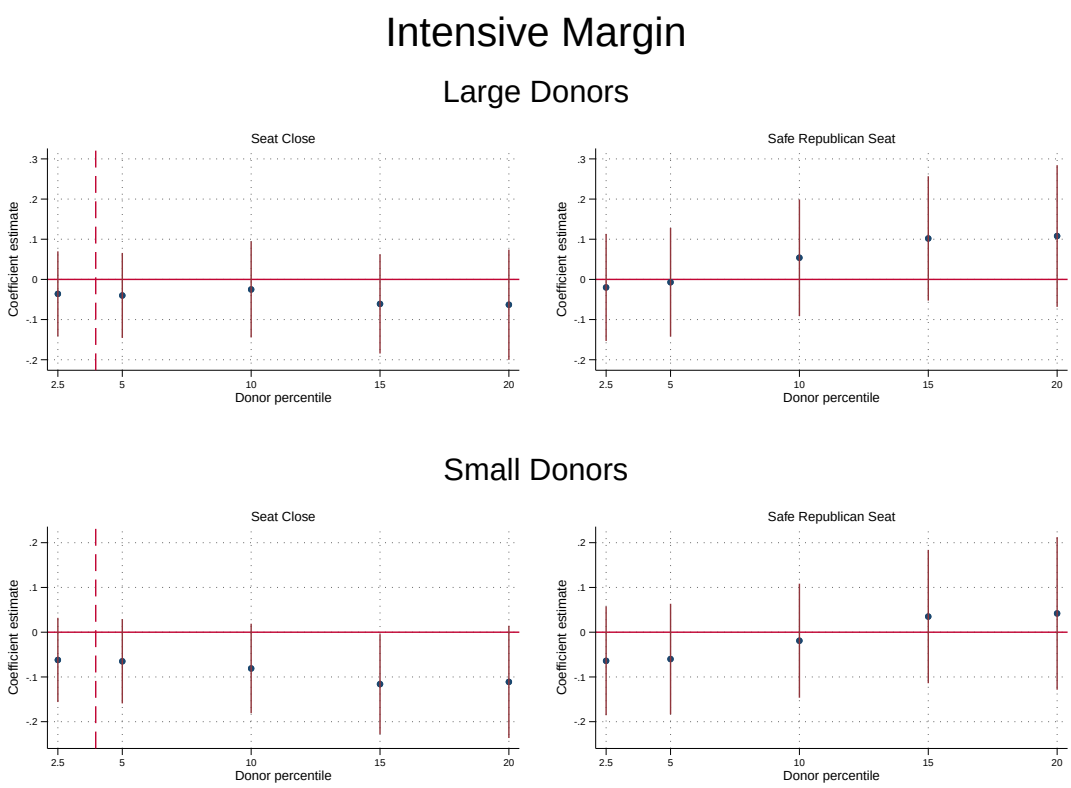


Notes: The figure plots, for each committee and at each electoral cycle from 2006 to 2020, the relationship between the share of large donors contributing to this committee (out of the total amount of large donors in that same cycle) on the x-axis, and the share of small donors to this committee (out of the total amount of small donors) on the y-axis. For the sake of readability, these shares are winzorised at their 99th percentile (which correspond to .0021 and .0023, respectively).



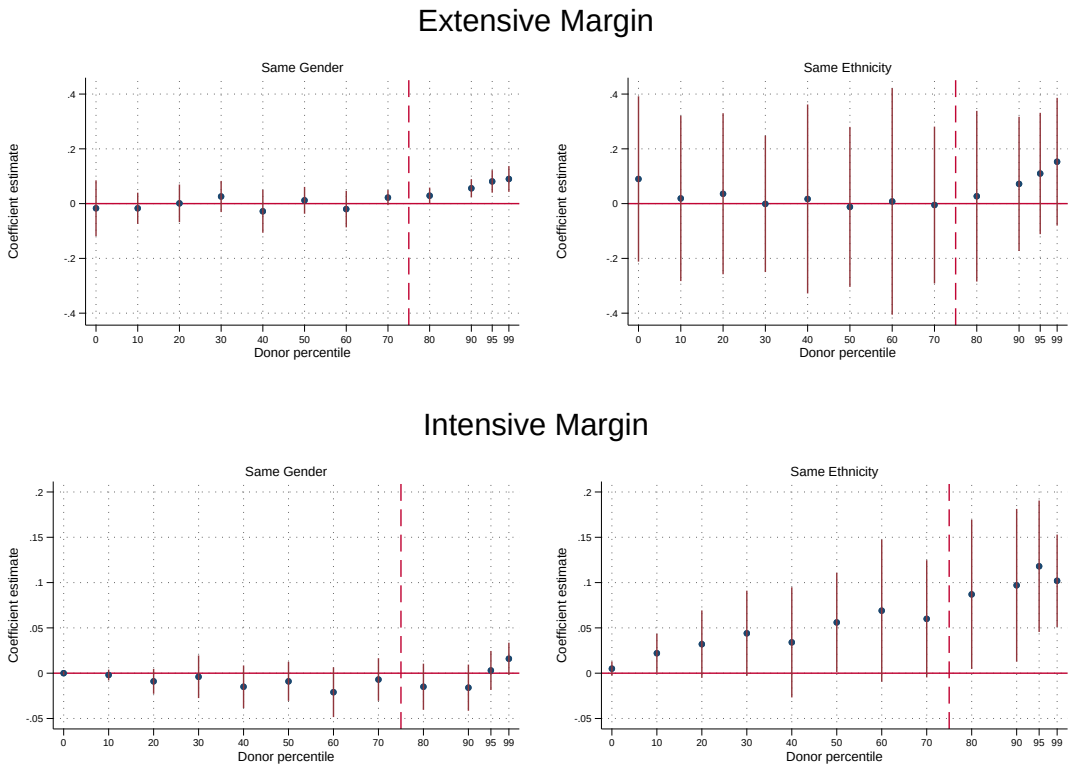
Notes: The figure plots the values and 95% confidence intervals of the "Close Seat" and "Safe Republican Seat" coefficients obtained from estimating Equation 1 for different definitions of closeness, indicated on the x-axis: the x-value represents the votes-margin threshold under which a race is deemed "close". All other covariates of Table 5 are included in the regression.

Figure C.25: The role of Closeness – Robustness of Effect to Different Thresholds – Extensive Margin – General Elections – 2012-2020



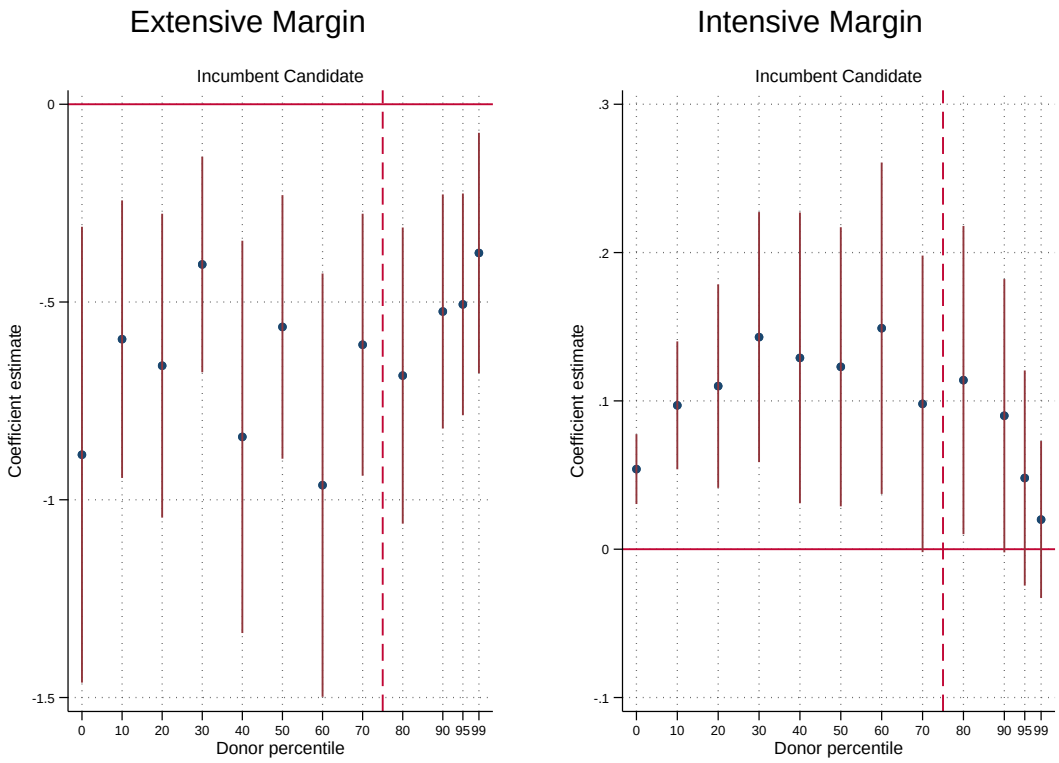
Notes: The figure plots the values and 95% confidence intervals of the "Close Seat" and "Safe Republican Seat" coefficients obtained from estimating Equation 1 for different definitions of closeness, indicated on the x-axis: the x-value represents the votes-margin threshold under which a race is deemed "close". All other covariates of Table 5 are included in the regression.

Figure C.26: The role of Closeness – Robustness of Effect to Different Thresholds – Intensive Margin – General Elections – 2012-2020



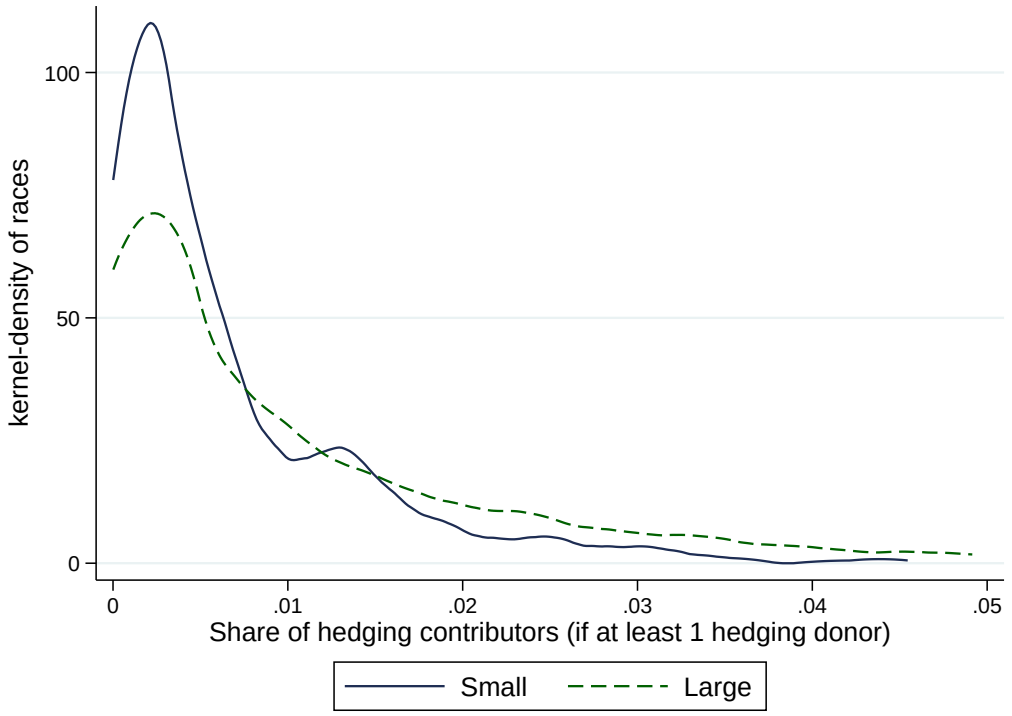
Notes: The figure plots the values and 95% confidence intervals of the "Match gender" and "Match race" coefficients obtained from estimating equation 1 for different deciles of donors, based on the distribution of the maximum contributions made to any candidate during an electoral cycle. A donor making a maximum contribution of $200, the threshold used to split our sample between small and large contributors in the regression tables, would locate in the 8th decile. The estimations include Election Year, State, House/Senate and Contributor fixed effects.

Figure C.27: The importance of gender and ethnicity: Estimations by donors' deciles, general elections, Democratic candidates, 2012-2020



Notes: The figure plots the values and 95% confidence intervals of the "Incumbent Candidate" coefficient obtained from estimating equation 1 for different deciles of donors, based on the distribution of the maximum contributions made to any candidate during an electoral cycle. A donor making a maximum contribution of $200, the threshold used to split our sample between small and large contributors in the regression tables, would locate in the 8th decile. The estimations include Election Year, State, House/Senate and Contributor fixed effects.

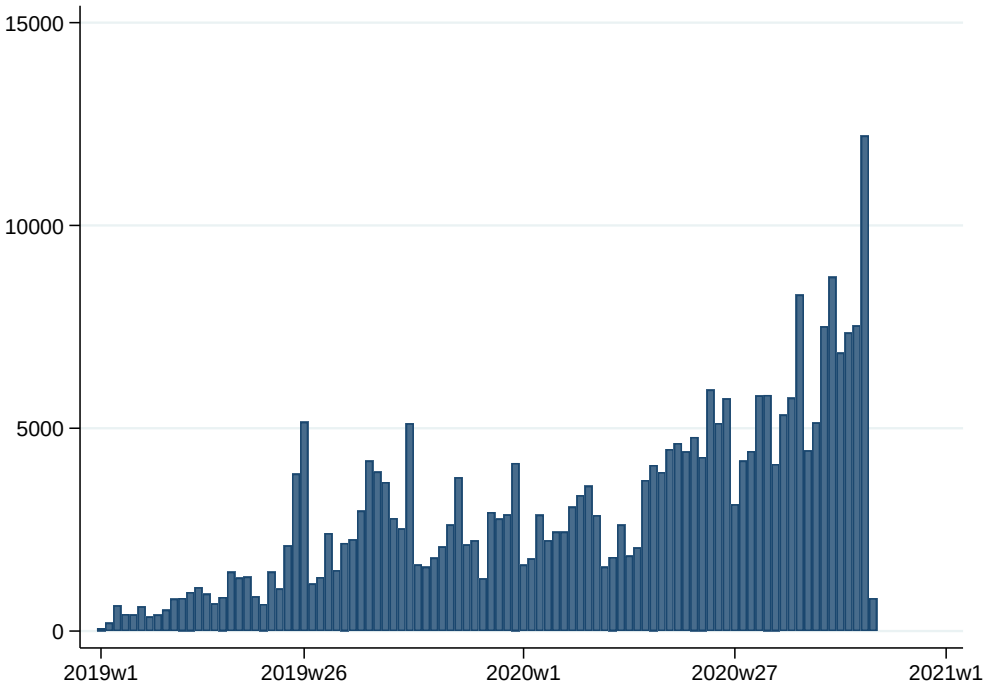
Figure C.28: The importance of incumbency: Estimations by donors' deciles, general elections, Democratic candidates, 2012-2020



Notes: The figure plots the share of contributors who hedge, i.e. give to two or more candidates in the same district, during primary elections, among small vs. large donors. An observation is a district-year. Only districts with at least one donor hedging are shown.

Figure C.29: Share of hedging contributors among small vs. large donors, Primary elections, 2012-2020

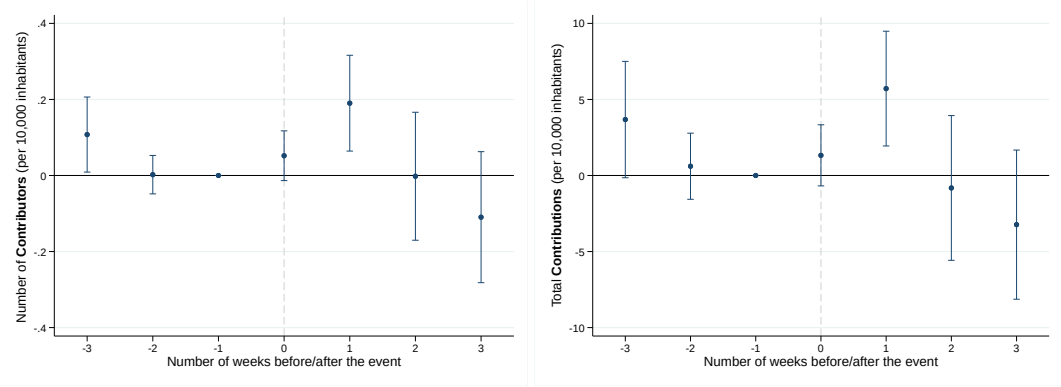
Figure C.30: Total number of social media ads running each week, 2020



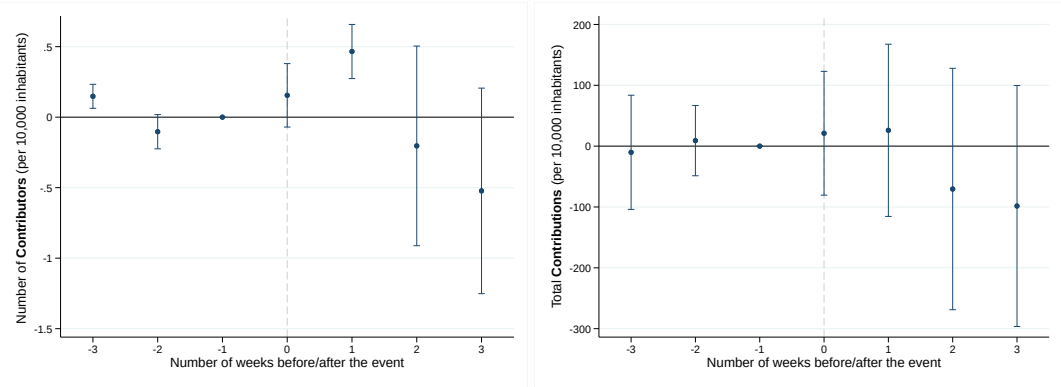
Notes: The figure plots the number of ads made on Facebook or Instagram by congressional candidates each week of the 2020 two-year election cycle.

Figure C.31: Effects of social media ads on campaign contributions, Republican candidates, 2020 General Election

(a) **Small Donors**



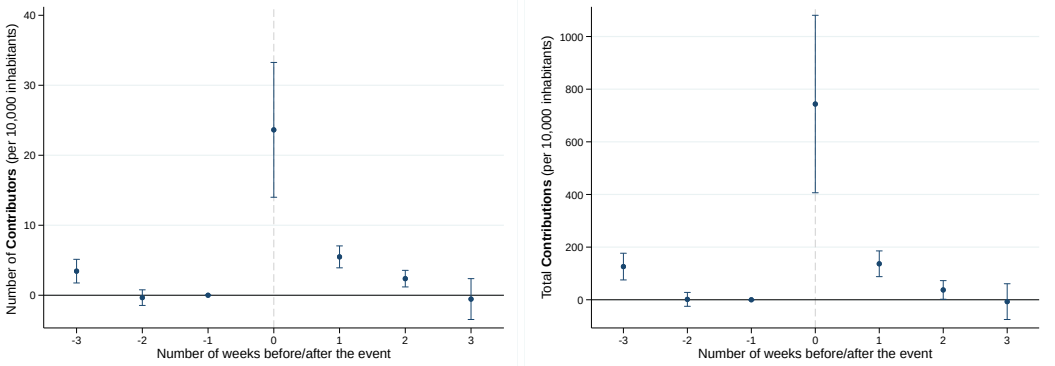
(b) **Large Donors**



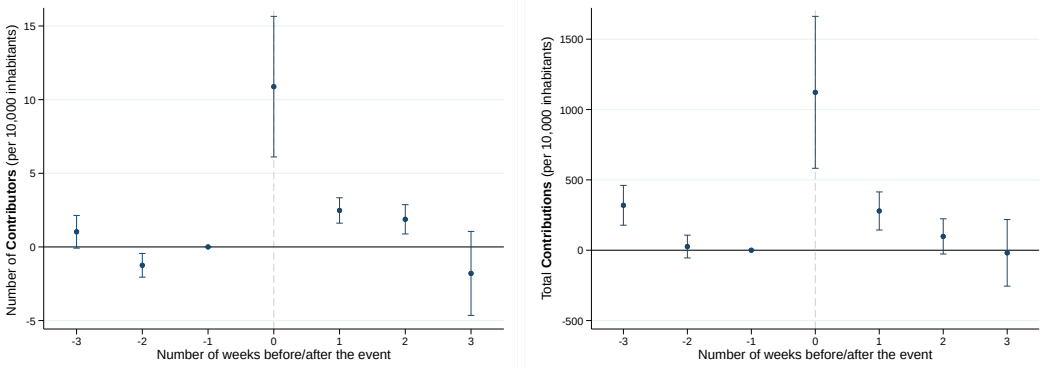
Notes: The figure shows point estimates and 95% confidence intervals associated with the leads and lags variables defined in equation 4.2; that is, indicator variables taking the value of one on weeks 3/2/1/.. before/after the week of the corresponding ad-event. Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Republican candidates for the general election who ran at least one ad on Meta's platform during the 2020 election cycle. Estimations also include "4-" and "4+" indicator variables, as well as candidate x event fixed effects and week x state fixed effects. In left figures, the dependent variable is the number of unique contributors from the corresponding state donating that week to the candidate posting the ad, per 10,000 state inhabitants. In right figures, it is the total dollar amount of contributions made that week from the corresponding state to the candidate posting the ad, per 10,000 state inhabitants. Standard errors are clustered at the event level. See Appendix Table D.27 for a table visualisation of these results.

Figure C.32: Effects of social media ads on campaign contributions, Democratic candidates, 2020 General Election, Conduit-hyperlink ads only

(a) **Small Donors**



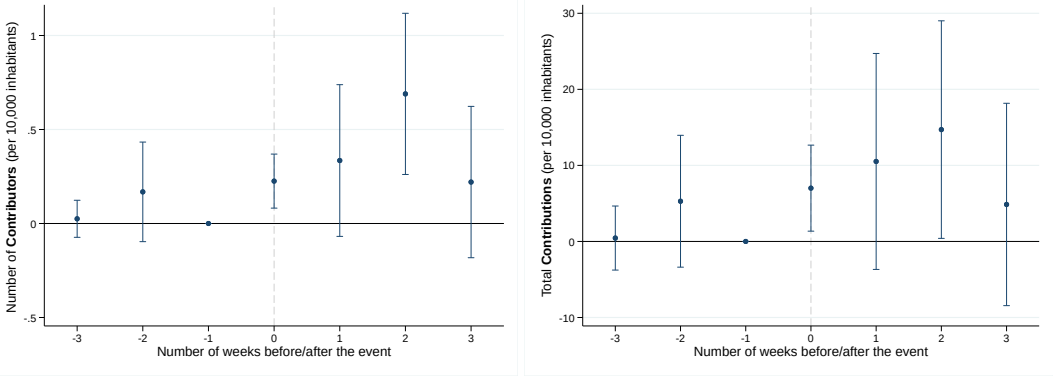
(b) **Large Donors**



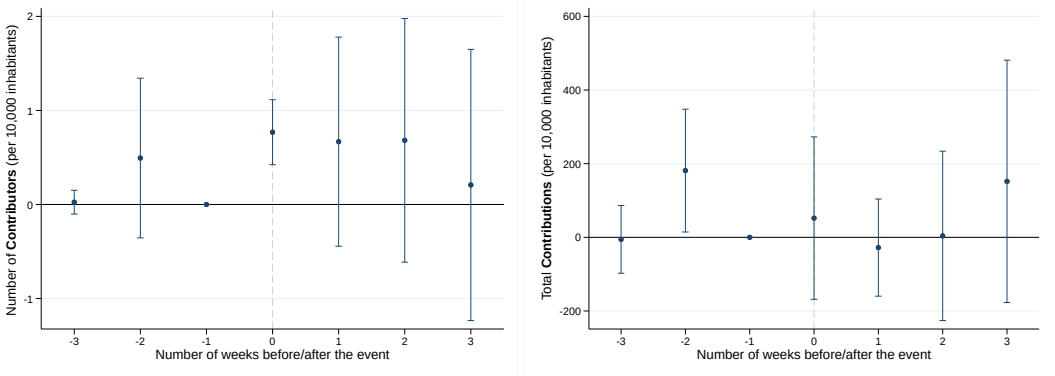
Notes: TThe figure shows point estimates and 95% confidence intervals associated with the leads and lags variables defined in equation 4.2; that is, indicator variables taking the value of one on weeks 3/2/1/.. before/after the week of the corresponding ad-event. Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Democratic candidates for the general election who ran at least one ad on Meta's platform during the 2020 election cycle, considering only ads of which the hyperlink lead to an Actblue or Winred webpage. Estimations also include "4-" and "4+" indicator variables, as well as candidate x event fixed effects and week x state fixed effects. In left figures, the dependent variable is the number of unique contributors from the corresponding state donating that week to the candidate posting the ad, per 10,000 state inhabitants. In right figures, it is the total dollar amount of contributions made that week from the corresponding state to the candidate posting the ad, per 10,000 state inhabitants. Standard errors are clustered at the event level. See Appendix Table D.28 for a table visualisation of these results.

Figure C.33: Effects of social media ads on campaign contributions, Republican candidates, 2020 General Election, Conduit-hyperlink ads only

(a) **Small Donors**



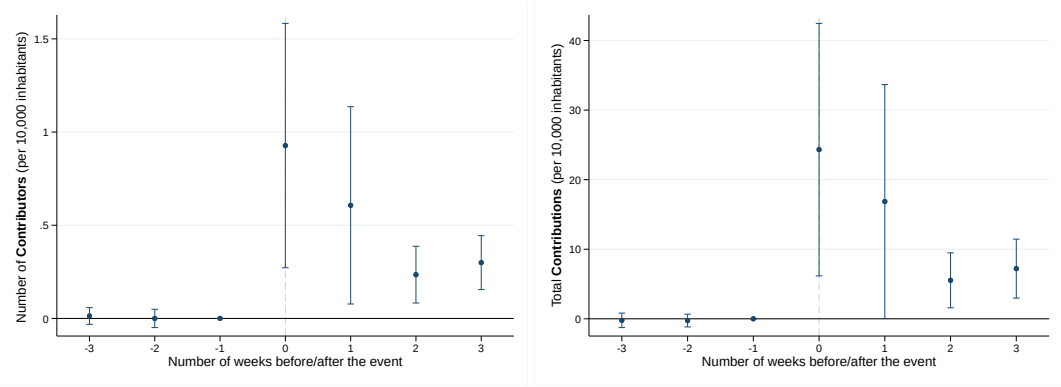
(b) **Large Donors**



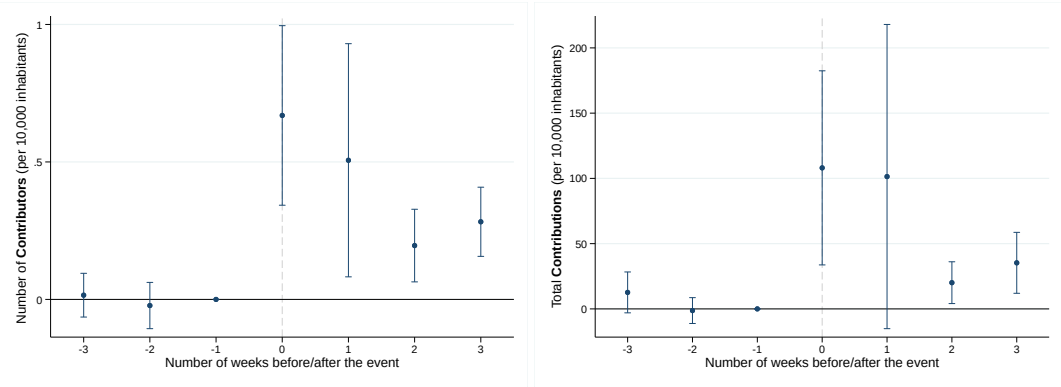
Notes: The figure shows point estimates and 95% confidence intervals associated with the leads and lags variables defined in equation 4.2; that is, indicator variables taking the value of one on weeks 3/2/1/.. before/after the week of the corresponding ad-event. Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Republican candidates for the general election who ran at least one ad on Meta's platform during the 2020 election cycle, considering only ads of which the hyperlink lead to an Actblue or Winred webpage. Estimations also include "4-" and "4+" indicator variables, as well as candidate x event fixed effects and week x state fixed effects. In left figures, the dependent variable is the number of unique contributors from the corresponding state donating that week to the candidate posting the ad, per 10,000 state inhabitants. In right figures, it is the total dollar amount of contributions made that week from the corresponding state to the candidate posting the ad, per 10,000 state inhabitants. Standard errors are clustered at the event level. See Appendix Table D.28 for a table visualisation of these results.

Figure C.34: Effects of social media ads on campaign contributions, Democratic candidates, 2020 Primary Elections

(a) **Small Donors**



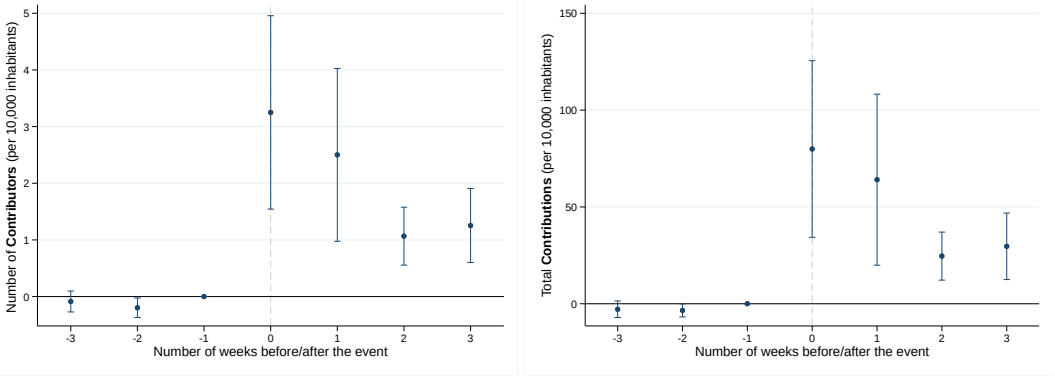
(b) **Large Donors**



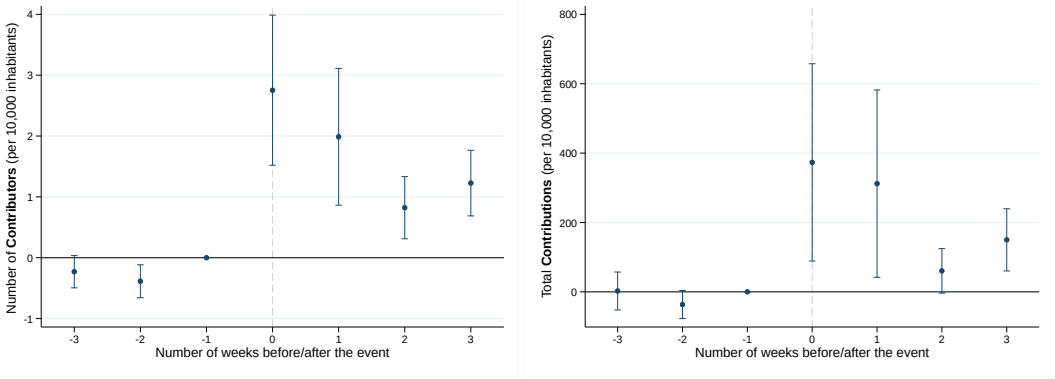
Notes: The figure shows point estimates and 95% confidence intervals associated with the leads and lags variables defined in equation 4.2; that is, indicator variables taking the value of one on weeks 3/2/1/.. before/after the week of the corresponding ad-event. Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Democratic candidates for the primary elections who ran at least one ad on Meta's platform during the 2020 election cycle. Estimations also include "4-" and "4+" indicator variables, as well as candidate x event fixed effects and week x state fixed effects. In left figures, the dependent variable is the number of unique contributors from the corresponding state donating that week to the candidate posting the ad, per 10,000 state inhabitants. In right figures, it is the total dollar amount of contributions made that week from the corresponding state to the candidate posting the ad, per 10,000 state inhabitants. Standard errors are clustered at the event level. See Appendix Table D.29 for a table visualisation of these results.

Figure C.35: Effects of social media ads on campaign contributions, Democratic candidates, 2020 Primary Elections, Conduit-hyperlink ads only

(a) **Small Donors**



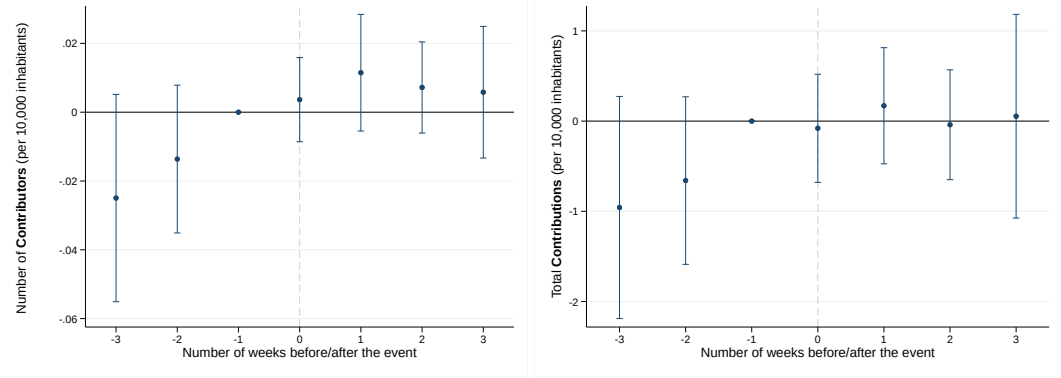
(b) **Large Donors**



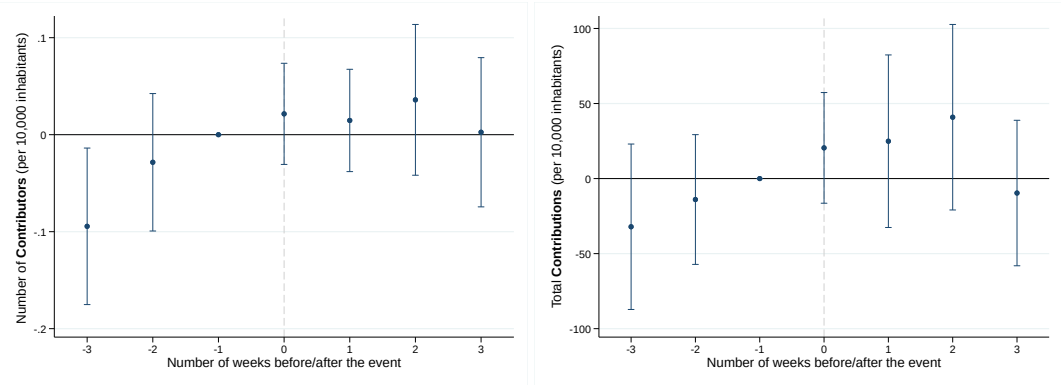
Notes: The figure shows point estimates and 95% confidence intervals associated with the leads and lags variables defined in equation 4.2; that is, indicator variables taking the value of one on weeks 3/2/1/.. before/after the week of the corresponding ad-event. Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Democratic candidates for the primary elections who ran at least one ad on Meta's platform during the 2020 election cycle, considering only ads of which the hyperlink lead to an Actblue or Winred webpage. Estimations also include "4-" and "4+" indicator variables, as well as candidate x event fixed effects and week x state fixed effects. In left figures, the dependent variable is the number of unique contributors from the corresponding state donating that week to the candidate posting the ad, per 10,000 state inhabitants. In right figures, it is the total dollar amount of contributions made that week from the corresponding state to the candidate posting the ad, per 10,000 state inhabitants. Standard errors are clustered at the event level. See Appendix Table D.30 for a table visualisation of these results.

Figure C.36: Effects of social media ads on campaign contributions, Republican candidates, 2020 Primary Election

(a) **Small Donors**



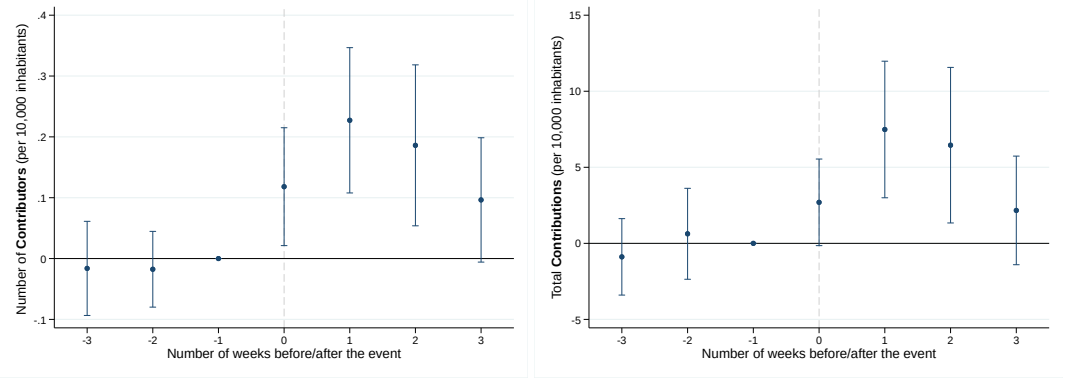
(b) **Large Donors**



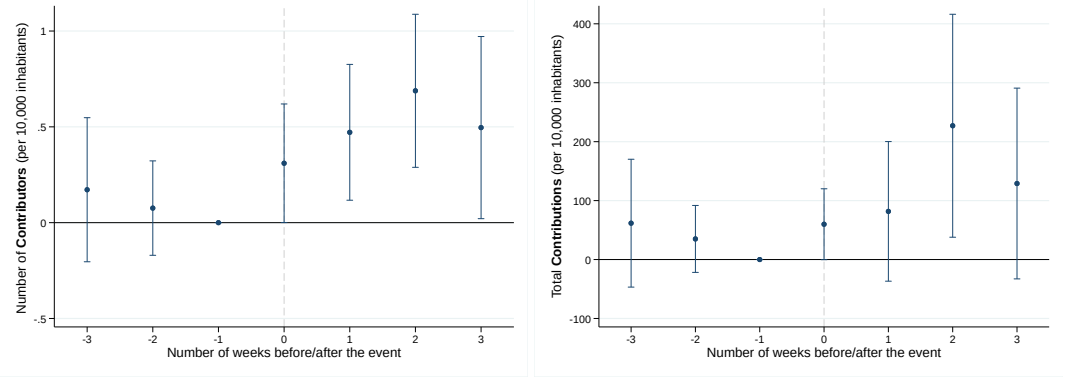
Notes: The figure shows point estimates and 95% confidence intervals associated with the leads and lags variables defined in equation 4.2; that is, indicator variables taking the value of one on weeks 3/2/1/.. before/after the week of the corresponding ad-event. Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Republican candidates for the primary elections who ran at least one ad on Meta's platform during the 2020 election cycle. Estimations also include "4-" and "4+" indicator variables, as well as candidate x event fixed effects and week x state fixed effects. In left figures, the dependent variable is the number of unique contributors from the corresponding state donating that week to the candidate posting the ad, per 10,000 state inhabitants. In right figures, it is the total dollar amount of contributions made that week from the corresponding state to the candidate posting the ad, per 10,000 state inhabitants. Standard errors are clustered at the event level. See Appendix Table D.29 for a table visualisation of these results.

Figure C.37: Effects of social media ads on campaign contributions, Republican candidates, 2020 Primary Elections, Conduit-hyperlink ads only

(a) **Small Donors**



(b) **Large Donors**



Notes: The figure shows point estimates and 95% confidence intervals associated with the leads and lags variables defined in equation 4.2; that is, indicator variables taking the value of one on weeks 3/2/1/.. before/after the week of the corresponding ad-event, multiplied by the number of impressions per inhabitant of the ad-event. Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Republican candidates for the primary elections who ran at least one ad on Meta's platform during the 2020 election cycle, considering only ads of which the hyperlink lead to an Actblue or Winred webpage. The dependent variable includes all contributions to the candidate posting the ad. Estimations also include "4-" and "4+" indicator variables, as well as candidate x event fixed effects and week x state fixed effects. In left figures, the dependent variable is the number of unique contributors from the corresponding state donating that week to the candidate posting the ad, per 10,000 state inhabitants. In right figures, it is the total dollar amount of contributions made that week from the corresponding state to the candidate posting the ad, per 10,000 state inhabitants. Standard errors are clustered at the event level. See Appendix Table D.30 for a table visualisation of these results.

D Additional tables

Table D.1: Missing values of the variables of interest, 2012-2020

Variable	Missing
Seat Close	0.11%
Seat Close (Primary)	0.25%
Same Gender	3.78%
Same Race	16.0%
Same District	7.80%
Same State	6.94%

Notes: The table indicates the share of observations for which the value of each variable is unavailable. An observation is a candidate-contributor pair at each electoral cycle. The time period is 2012-2020.

Table D.2: The determinants of campaign donations: Ex-post measure of closeness, extensive margin, general elections, Democratic candidates, 2012-2020

	Large		Small	
	(1)	(2)	(4)	(6)
Close Seat	1.366***	1.363***	0.925***	0.917***
	(0.210)	(0.211)	(0.203)	(0.203)
Safe Republican Seat	-0.064	-0.044	0.023	0.045
	(0.266)	(0.267)	(0.260)	(0.261)
Incumbent Candidate	-0.576**	-0.564**	-0.499**	-0.491**
	(0.189)	(0.188)	(0.184)	(0.183)
In Same State	1.617***	1.581***	0.617***	0.605***
	(0.124)	(0.123)	(0.077)	(0.083)
In Same District	24.495***	24.553***	18.653***	18.678***
	(1.629)	(1.650)	(2.862)	(2.885)
Same Gender	0.014	0.031	-0.006	-0.009
	(0.015)	(0.017)	(0.028)	(0.030)
Same Ethnicity	0.002	-0.016	0.003	-0.025
	(0.107)	(0.159)	(0.102)	(0.155)
Election Year FE	✓	✓	✓	✓
State FE	✓	✓	✓	✓
House/Senate FE	✓	✓	✓	✓
Contributor FE		✓		✓
Seat-Year FE				
Sample Mean	0.868	0.868	0.624	0.624
R-sq	0.070	0.086	0.068	0.079
R-sq (within)	0.033	0.034	0.025	0.025
Observations	1,003,104,252	1,003,104,252	1,697,099,635	1,697,099,635

Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is an indicator variable equal to 100 for each donor-candidate pair for which we observe at least one contribution during the cycle. For each donor that makes at least one contribution during the cycle, we then identify all the candidates this donor did not make a contribution to, and set the dependent variable of the corresponding pairs to 0. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Closeness is defined using the ex-post vote margin (i.e. the vote margin of the same-year election). Standard errors are shown in parentheses and two-way clustered at the candidate and donor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.3: The determinants of campaign donations: Ex-post measure of closeness, Intensive Margin, General elections, Democratic candidates, 2012-2020

	Large		Small	
	(1)	(2)	(4)	(6)
Close Seat	0.002	0.038	-0.115	-0.031
	(0.056)	(0.048)	(0.072)	(0.042)
Safe Republican Seat	0.131	0.155*	0.213	0.139*
	(0.095)	(0.062)	(0.133)	(0.068)
Incumbent Candidate	0.270***	0.139**	0.147	0.111**
	(0.061)	(0.046)	(0.094)	(0.043)
In Same State	1.387***	0.692***	0.796***	0.435***
	(0.069)	(0.042)	(0.062)	(0.031)
In Same District	0.451***	0.676***	0.332**	0.436***
	(0.076)	(0.045)	(0.106)	(0.041)
Same Gender	0.080	-0.011	0.019	-0.009
	(0.042)	(0.011)	(0.034)	(0.009)
Same Ethnicity	0.094***	0.093**	0.062**	0.043
	(0.022)	(0.035)	(0.021)	(0.023)
Election Year FE	✓	✓	✓	✓
State FE	✓	✓	✓	✓
House/Senate FE	✓	✓	✓	✓
Contributor FE		✓		✓
Seat-Year FE				
Sample Mean	4.287	4.150	2.994	2.814
R-sq	0.161	0.738	0.176	0.775
R-sq (within)	0.126	0.094	0.098	0.076
Observations	8,707,859	7,869,765	10,597,215	8,502,972

Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes all pairs for which we observe non-zero contributions. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Closeness is defined using the ex-post vote margin (i.e. the vote margin of the same-year election). Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.4: The determinants of campaign donations: Contributor-Candidate Fixed Effects, Intensive Margin, General elections, Democratic candidates, 2012-2020

	Large	Small
	(1)	(2)
Close Seat	0.062	0.072
	(0.107)	(0.103)
Safe Republican Seat	0.172	0.212
	(0.175)	(0.148)
Incumbent Candidate	-0.014	0.003
	(0.069)	(0.068)
In Same District	0.032***	0.153**
	(0.042)	(0.052)
Election Year FE	✓	✓
State FE		
House/Senate FE		
Contributor FE		
Seat-Year FE		
Contributor-Candidate FE	✓	✓
Sample Mean	5.566	3.711
R-sq	0.874	0.771
R-sq (within)	0.002	0.004
Observations	422,564	96,936

Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes all pairs for which we observe non-zero contributions. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.5: The determinants of campaign donations: Ideology, extensive margin, general elections, Democratic candidates, 2012-2018

	Large		Small	
	(1)	(2)	(4)	(5)
Close Seat	0.377**	0.372**	0.001	-0.003
	(0.135)	(0.136)	(0.174)	(0.178)
Safe Republican Seat	-0.115	-0.121	-0.209	-0.213
	(0.170)	(0.170)	(0.194)	(0.191)
Incumbent Candidate	-0.394*	-0.396*	-0.499**	-0.500**
	(0.169)	(0.169)	(0.179)	(0.179)
In Same State	1.756***	1.729***	0.640***	0.636***
	(0.133)	(0.132)	(0.116)	(0.127)
In Same District	27.612***	27.671***	22.972***	23.001***
	(1.980)	(2.002)	(4.221)	(4.254)
Same Gender	0.041*	0.072***	0.025	0.021
	(0.017)	(0.021)	(0.022)	(0.026)
Same Ethnicity	0.063	0.091	0.061	0.085
	(0.059)	(0.096)	(0.057)	(0.101)
Ideology Score	-0.542**	-0.540**	-0.348*	-0.346*
	(0.192)	(0.192)	(0.159)	(0.160)
Ideology Score Sq.	-0.122**	-0.122**	-0.077*	-0.077*
	(0.045)	(0.045)	(0.036)	(0.036)
Election Year FE	✓	✓	✓	✓
State FE	✓	✓	✓	✓
House/Senate FE	✓	✓	✓	✓
Contributor FE		✓		✓
Seat-Year FE				
Sample Mean	0.741	0.741	0.523	0.523
R-sq	0.061	0.079	0.060	0.071
R-sq (within)	0.043	0.044	0.040	0.041
Observations	581,312,611	581,312,611	902,725,658	902,725,658

Notes: Models are estimated using OLS. The time period is 2012-2018. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is an indicator variable equal to 100 for each donor-candidate pair for which we observe at least one contribution during the cycle. For each donor that makes at least one contribution during the cycle, we then identify all the candidates this donor did not make a contribution to, and set the dependent variable of the corresponding pairs to 0. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and donor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.6: The determinants of campaign donations: Ideology, intensive margin, general elections, Democratic candidates, 2012-2018

	Large		Small	
	(1)	(2)	(4)	(6)
Close Seat	-0.018	-0.007	-0.064	-0.033
	(0.087)	(0.057)	(0.074)	(0.046)
Safe Republican Seat	0.132	0.089	0.136	0.062
	(0.107)	(0.069)	(0.102)	(0.051)
Incumbent Candidate	0.238**	0.259***	0.272***	0.194***
	(0.075)	(0.050)	(0.081)	(0.046)
In Same State	1.678***	0.807***	0.960***	0.490***
	(0.060)	(0.039)	(0.058)	(0.033)
In Same District	0.337***	0.646***	0.108	0.479***
	(0.080)	(0.053)	(0.170)	(0.045)
Same Gender	0.091**	-0.011	0.012	-0.009
	(0.034)	(0.007)	(0.019)	(0.006)
Same Ethnicity	0.094**	0.101*	0.086*	0.045
	(0.032)	(0.046)	(0.035)	(0.034)
Ideology Score	0.493	-0.148	-0.012	-0.071
	(0.297)	(0.087)	(0.103)	(0.042)
Ideology Score Sq.	-0.037	0.086*	0.132**	0.071**
	(0.120)	(0.040)	(0.050)	(0.025)
Election Year FE	✓	✓	✓	✓
State FE	✓	✓	✓	✓
House/Senate FE	✓	✓	✓	✓
Contributor FE		✓		✓
Seat-Year FE				
Sample Mean	4.282	4.028	2.993	2.729
R-sq	0.233	0.769	0.223	0.765
R-sq (within)	0.181	0.112	0.128	0.100
Observations	4,306,447	3,727,642	4,721,934	3,486,549

Notes: Models are estimated using OLS. The time period is 2012-2018. An observation is a candidate-contributor pair at each electoral cycle. The sample includes all pairs for which we observe non-zero contributions. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.7: The determinants of campaign donations: Extensive margin, primary elections, Democratic candidates, 2012-2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	0.233***	0.230***		0.126*	0.124*	
	(0.068)	(0.068)		(0.051)	(0.052)	
Safe Republican Seat	0.114	0.110		0.078	0.077	
	(0.059)	(0.060)		(0.044)	(0.045)	
Close Primary Seat	-0.267	-0.268		-0.231*	-0.232*	
	(0.160)	(0.160)		(0.109)	(0.109)	
Incumbent Candidate	0.260***	0.258***		0.154*	0.153*	
	(0.066)	(0.066)		(0.074)	(0.074)	
Top 2 Primary Cand.	0.426***	0.426***	0.512***	0.306***	0.306***	0.367***
	(0.058)	(0.058)	(0.063)	(0.047)	(0.047)	(0.055)
In Same State	0.971***	0.991***	0.961***	0.412***	0.422***	0.407***
	(0.061)	(0.063)	(0.056)	(0.032)	(0.034)	(0.029)
In Same District	10.172***	10.200***	10.351***	7.155***	7.174***	7.180***
	(1.419)	(1.422)	(1.269)	(0.940)	(0.942)	(0.846)
Same Gender	0.015	0.028**	0.032**	0.020	0.022	0.016
	(0.009)	(0.010)	(0.011)	(0.011)	(0.012)	(0.010)
Same Ethnicity	0.059	0.071	0.115***	0.023	0.027	0.045*
	(0.038)	(0.052)	(0.034)	(0.029)	(0.039)	(0.022)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Candidate-Year FE			✓			✓
Sample Mean	0.373	0.373	0.373	0.224	0.224	0.224
R-sq	0.022	0.032	0.054	0.016	0.021	0.049
R-sq (within)	0.016	0.016	0.016	0.011	0.011	0.011
Observations	125,256,898	125,256,898	125,256,898	179,462,029	179,462,029	179,462,029

Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is an indicator variable equal to 100 for each donor-candidate pair for which we observe at least one contribution during the cycle. For each donor that makes at least one contribution during the cycle, we then identify all the candidates this donor did not make a contribution to, and set the dependent variable of the corresponding pairs to 0. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and donor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.8: The determinants of campaign donations: Intensive margin, primary elections, Democratic candidates, 2012-2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	-0.287***	-0.217***		-0.286***	-0.158***	
	(0.065)	(0.059)		(0.071)	(0.042)	
Safe Republican Seat	-0.419***	-0.183*		-0.157	-0.096*	
	(0.096)	(0.071)		(0.100)	(0.049)	
Close Primary Seat	-0.072	-0.036		-0.047	-0.010	
	(0.112)	(0.058)		(0.075)	(0.034)	
Incumbent Candidate	0.249***	0.123**		0.138*	0.106**	
	(0.065)	(0.045)		(0.061)	(0.035)	
Top 2 Primary Cand.	-0.833***	-0.090	-0.423***	-0.773***	-0.110	-0.502***
	(0.154)	(0.075)	(0.088)	(0.138)	(0.077)	(0.097)
In Same State	1.661***	0.692***	0.749***	0.796***	0.377***	0.389***
	(0.074)	(0.037)	(0.035)	(0.064)	(0.025)	(0.023)
In Same District	0.309***	0.590***	0.664***	0.309***	0.448***	0.505***
	(0.082)	(0.050)	(0.046)	(0.074)	(0.035)	(0.032)
Same Gender	0.128***	-0.017	-0.012	0.006	-0.013	-0.008
	(0.026)	(0.010)	(0.007)	(0.014)	(0.008)	(0.005)
Same Ethnicity	0.146**	0.082	0.113***	0.099*	0.055	0.089***
	(0.047)	(0.048)	(0.022)	(0.039)	(0.029)	(0.020)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Candidate-Year FE			✓			✓
Sample Mean	4.256	4.019	4.019	2.996	2.703	2.702
R-sq	0.224	0.757	0.779	0.228	0.745	0.767
R-sq (within)	0.170	0.091	0.103	0.134	0.078	0.086
Observations	466,591	398,755	398,689	401,881	269,808	269,673

Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes all pairs for which we observe non-zero contributions. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.9: The determinants of campaign donations: Extensive+intensive margins, primary elections, Democratic candidates, 2012-2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	0.009**	0.009**		0.003*	0.003	
	(0.003)	(0.003)		(0.002)	(0.002)	
Safe Republican Seat	0.005	0.004		0.002	0.002	
	(0.003)	(0.003)		(0.001)	(0.001)	
Close Primary Seat	-0.013	-0.013		-0.007*	-0.007*	
	(0.007)	(0.007)		(0.004)	(0.004)	
Incumbent Candidate	0.013***	0.013***		0.005*	0.005*	
	(0.003)	(0.003)		(0.002)	(0.002)	
Top 2 Primary Cand.	0.016***	0.016***	0.017***	0.008***	0.008***	0.008***
	(0.003)	(0.003)	(0.002)	(0.001)	(0.001)	(0.001)
In Same State	0.055***	0.056***	0.055***	0.015***	0.016***	0.015***
	(0.003)	(0.004)	(0.003)	(0.001)	(0.001)	(0.001)
In Same District	0.616***	0.617***	0.626***	0.281***	0.281***	0.282***
	(0.085)	(0.085)	(0.078)	(0.037)	(0.037)	(0.034)
Same Gender	0.001***	0.001***	0.002***	0.001	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Same Ethnicity	0.004*	0.005*	0.007***	0.001	0.001	0.002**
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Candidate-Year FE			✓			✓
Sample Mean	0.016	0.016	0.016	0.007	0.007	0.007
R-sq	0.030	0.035	0.053	0.021	0.022	0.049
R-sq (within)	0.024	0.025	0.025	0.016	0.016	0.016
Observations	125,256,898	125,256,898	125,256,898	179,462,029	179,462,029	179,462,029

Notes: Models are estimated using OLS. The time period is 2012-2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels.* $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.10: The determinants of campaign donations: Ideology, Twitter-based measure, Extensive Margins, General elections, Democratic candidates, 2020

	Large		Small	
	(1)	(2)	(4)	(5)
Close Seat	0.950**	0.928**	0.510	0.488
	(0.310)	(0.313)	(0.272)	(0.276)
Safe Republican Seat	0.127	0.226	0.089	0.173
	(0.396)	(0.398)	(0.356)	(0.360)
Incumbent Candidate	-0.490	-0.430	-0.316	-0.267
	(0.312)	(0.312)	(0.274)	(0.275)
In Same State	1.438***	1.376***	0.547***	0.515***
	(0.143)	(0.142)	(0.068)	(0.068)
In Same District	20.410***	20.434***	13.283***	13.284***
	(1.739)	(1.767)	(1.438)	(1.459)
Same Gender	-0.006	-0.004	-0.010	-0.013
	(0.023)	(0.023)	(0.039)	(0.040)
Same Ethnicity	0.011	-0.050	0.037	-0.012
	(0.165)	(0.240)	(0.140)	(0.207)
Ideology Score	-1.317	-1.378	0.325	0.360
	(0.888)	(0.914)	(1.100)	(1.124)
Ideology Score Sq.	-0.772*	-0.825*	0.180	0.167
	(0.382)	(0.395)	(0.417)	(0.435)
Election Year FE	✓	✓	✓	✓
State FE	✓	✓	✓	✓
House/Senate FE	✓	✓	✓	✓
Contributor FE		✓		✓
Seat-Year FE				
Sample Mean	0.751	0.751	0.734	0.734
R-sq	0.060	0.079	0.094	0.109
R-sq (within)	0.041	0.042	0.010	0.012
Observations	231,402,012	231,402,012	835,350,117	835,350,117

Notes: Models are estimated using OLS. The time period is 2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is an indicator variable equal to 100 for each donor-candidate pair for which we observe at least one contribution during the cycle. For each donor that makes at least one contribution during the cycle, we then identify all the candidates this donor did not make a contribution to, and set the dependent variable of the corresponding pairs to 0. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and donor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.11: The determinants of campaign donations: Ideology, Twitter-based measure, Intensive Margins, General elections, Democratic candidates, 2020

	Large		Small	
	(1)	(2)	(4)	(6)
Close Seat	-0.036	-0.121	0.510	0.488
	(0.073)	(0.097)	(0.272)	(0.276)
Safe Republican Seat	0.096	-0.059	0.089	0.173
	(0.089)	(0.099)	(0.356)	(0.360)
Incumbent Candidate	0.048	0.014	-0.316	-0.267
	(0.069)	(0.065)	(0.274)	(0.275)
In Same State	0.904***	0.520***	0.547***	0.515***
	(0.066)	(0.044)	(0.068)	(0.068)
In Same District	0.596***	0.723***	13.283***	13.284***
	(0.076)	(0.049)	(1.438)	(1.459)
Same Gender	0.059	-0.007	-0.010	-0.013
	(0.074)	(0.018)	(0.039)	(0.040)
Same Ethnicity	0.089***	0.057	0.037	-0.012
	(0.019)	(0.030)	(0.140)	(0.207)
Ideology Score	-0.236	-0.079	0.325	0.360
	(0.579)	(0.302)	(1.100)	(1.124)
Ideology Score Sq.	-0.263	-0.056	0.180	0.167
	(0.241)	(0.113)	(0.417)	(0.435)
Election Year FE	✓	✓	✓	✓
State FE	✓	✓	✓	✓
House/Senate FE	✓	✓	✓	✓
Contributor FE		✓		✓
Seat-Year FE				
Sample Mean	4.284	4.189	0.734	0.734
R-sq	0.100	0.748	0.094	0.109
R-sq (within)	0.066	0.072	0.010	0.012
Observations	4,674,403	4,157,006	835,350,117	835,350,117

Notes: Models are estimated using OLS. The time period is 2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes all pairs for which we observe non-zero contributions. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.12: Summary statistics on electoral and matching demographic characteristics, General Elections, Republican Congressional Candidates, 2020

	Candidates	Large donors	Small donors
	Share	Share	Share
Electoral characteristics			
Close Races	0.302	0.454	0.346
Sure Winners	0.274	0.041	0.036
Sure Losers	0.424	0.506	0.618
Incumbents	0.427	0.580	0.662
Matching characteristics			
Gender		0.517	0.490
Race		0.720	0.725
District		0.062	0.072
Observations	354	3,343,861	1,236,063

Notes: The table gives summary statistics on electoral and matching demographic characteristics of candidates and donors. Electoral cycle 2020. An observation is a candidate-cycle in the first column, and a contributor-candidate-cycle pair in the second and third columns. Shares are computed based on all relevant population with non-missing values. Small and large donors are defined in the text.

Table D.13: Extensive Margin, General elections, only Republican candidates, 2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	1.146***	1.180***		0.244	0.267	
	(0.348)	(0.350)		(0.198)	(0.196)	
Safe Republican Seat	0.945	0.992		0.395	0.426	
	(0.693)	(0.693)		(0.395)	(0.395)	
Incumbent Candidate	0.096	0.112		0.082	0.094	
	(0.536)	(0.537)		(0.313)	(0.314)	
In Same State	0.855***	0.827***	0.838***	0.345***	0.349***	0.349***
	(0.110)	(0.107)	(0.104)	(0.064)	(0.064)	(0.061)
In Same District	15.598***	15.667***	15.484***	8.391***	8.398***	8.346***
	(1.546)	(1.557)	(1.556)	(1.200)	(1.201)	(1.153)
Same Gender	-0.161***	-0.125	-0.104**	-0.042*	-0.052	-0.061**
	(0.047)	(0.074)	(0.034)	(0.019)	(0.028)	(0.022)
Same Ethnicity	-0.265*	-0.492*	-0.027	-0.134*	-0.288*	-0.001
	(0.112)	(0.249)	(0.029)	(0.055)	(0.124)	(0.025)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Seat-Year FE			✓			✓
Sample Mean	1.036	1.036	1.036	0.460	0.460	0.460
R-sq	0.056	0.090	0.158	0.050	0.055	0.149
R-sq (within)	0.011	0.011	0.009	0.006	0.006	0.006
Observations	303,754,330	303,754,330	303,754,330	239,783,685	239,783,685	239,783,685

Notes: Models are estimated using OLS. The time period is 2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is an indicator variable equal to 100 for each donor-candidate pair for which we observe at least one contribution during the cycle. For each donor that makes at least one contribution during the cycle, we then identify all the candidates this donor did not make a contribution to, and set the dependent variable of the corresponding pairs to 0. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and donor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.14: Intensive Margin, General elections, Republican candidates, 2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	-1.097***	-0.478**		-0.307	-0.078	
	(0.253)	(0.175)		(0.180)	(0.088)	
Safe Republican Seat	-0.054	0.315		0.360	0.370**	
	(0.292)	(0.244)		(0.200)	(0.119)	
Incumbent Candidate	-0.265	-0.217		-0.402***	-0.242*	
	(0.165)	(0.177)		(0.121)	(0.116)	
In Same State	1.153***	0.501***	0.611***	0.336***	0.164***	0.228***
	(0.144)	(0.054)	(0.054)	(0.074)	(0.028)	(0.026)
In Same District	0.534**	0.476***	0.492***	0.263**	0.216***	0.202***
	(0.191)	(0.076)	(0.080)	(0.089)	(0.037)	(0.040)
Same Gender	0.174***	-0.049***	-0.056***	0.059***	-0.032***	-0.035***
	(0.043)	(0.013)	(0.008)	(0.016)	(0.007)	(0.007)
Same Ethnicity	0.011	-0.259	0.007	0.015	-0.102*	0.007
	(0.044)	(0.140)	(0.015)	(0.021)	(0.050)	(0.009)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Seat-Year FE			✓			✓
Sample Mean	4.435	4.246	4.246	3.951	3.761	3.761
R-sq	0.280	0.713	0.764	0.124	0.696	0.713
R-sq (within)	0.109	0.071	0.044	0.043	0.031	0.016
Observations	3,146,794	2,718,524	2,718,519	1,102,578	613,804	613,786

Notes: Models are estimated using OLS. The time period is 2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes all pairs for which we observe non-zero contributions. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.15: Extensive and Intensive Margin, General elections, Republican candidates, 2020

	Large			Small		
	(1)	(2)	(3)	(4)	(5)	(6)
Close Seat	0.042*	0.044*		0.009	0.010	
	(0.017)	(0.017)		(0.008)	(0.008)	
Safe Republican Seat	0.044	0.047		0.017	0.018	
	(0.037)	(0.037)		(0.017)	(0.017)	
Incumbent Candidate	0.005	0.006		0.003	0.003	
	(0.029)	(0.029)		(0.013)	(0.013)	
In Same State	0.047***	0.046***	0.046***	0.014***	0.014***	0.014***
	(0.006)	(0.006)	(0.006)	(0.003)	(0.003)	(0.002)
In Same District	0.938***	0.941***	0.932***	0.366***	0.366***	0.364***
	(0.088)	(0.089)	(0.088)	(0.053)	(0.053)	(0.051)
Same Gender	-0.005*	-0.006	-0.005**	-0.001	-0.002	-0.002*
	(0.003)	(0.004)	(0.002)	(0.001)	(0.001)	(0.001)
Same Ethnicity	-0.012*	-0.024*	-0.001	-0.005*	-0.011*	-0.000
	(0.005)	(0.012)	(0.001)	(0.002)	(0.005)	(0.001)
Election Year FE	✓	✓		✓	✓	
State FE	✓	✓		✓	✓	
House/Senate FE	✓	✓		✓	✓	
Contributor FE		✓	✓		✓	✓
Seat-Year FE			✓			✓
Sample Mean	0.046	0.046	0.046	0.018	0.018	0.018
R-sq	0.066	0.086	0.165	0.051	0.055	0.153
R-sq (within)	0.015	0.015	0.015	0.006	0.007	0.007
Observations	303,754,330	303,754,330	303,754,330	239,783,685	239,783,685	239,783,685

Notes: Models are estimated using OLS. The time period is 2020. An observation is a candidate-contributor pair at each electoral cycle. The sample includes, for each contributor who gave during a cycle, all the possible pairs of that cycle. The dependent variable is the inverse hyperbolic sine transformation of the total amount contributed by the donor to the candidate during the general election. Regressors are described in the text. For each characteristic, we create and control for an indicator equal to one when the characteristic is missing, and set the corresponding matching variable to 0. Standard errors are shown in parentheses and two-way clustered at the candidate and contributor levels. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.16: Effects of TV ads on electoral outcomes

(a) **Presidential elections**

	Turnout			Dem-Rep Votes		
	(1)	(2)	(3)	(4)	(5)	(6)
	2012	2016	2012-2016	2012	2016	2012-2016
All Parties Ads (Total number, in 1000s)	0.04	0.04	-0.02			
	(0.03)	(0.04)	(0.02)			
Dem-Rep Difference in Ads				0.33***	0.10	0.11
				(0.09)	(0.13)	(0.11)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓
County FE			✓			✓
Controls	✓	✓	✓	✓	✓	✓
Lagged Dep.	✓	✓		✓	✓	
R-sq (within)	0.847	0.822	0.016	0.968	0.958	0.147
Observations	5,058	5,058	10,116	5,058	5,058	10,116
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	55.46	54.99	55.23	-23.34	-36.40	-29.87

(b) **Congressional elections**

	Turnout					Dem-Rep Votes				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	2012	2014	2016	2018	2012-2018	2012	2014	2016	2018	2012-2018
All Parties Local Ads (Total number, in 1000s)	0.06	0.09***	0.00	0.06***	0.03					
	(0.08)	(0.03)	(0.02)	(0.02)	(0.02)					
Dem-Rep Difference in Local Ads						0.46	1.32***	1.00***	0.50**	0.97***
						(0.61)	(0.43)	(0.32)	(0.23)	(0.20)
County-Pair x Year x Office FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
County x Office FE					✓					✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lagged Dep.	✓	✓	✓	✓		✓	✓	✓	✓	
R-sq (within)	0.628	0.684	0.737	0.789	0.021	0.611	0.773	0.762	0.838	0.021
Observations	6,038	6,384	6,274	5,948	24,600	6,038	6,384	6,274	5,948	24,600
Clusters	440+46	412+44	439+44	433+43	450+46	440+46	412+44	439+44	433+43	450+46
Mean DepVar	53.46	35.06	48.68	45.17	45.47	-23.16	-32.69	-35.51	-27.40	-29.76

Notes: Models are estimated using OLS. An observation is a county x election cycle x office type. In Panel a, the sample includes all county-pairs in the 2012 and 2016 presidential elections. In Panel b, we combine House and Senate races for the 2012 to 2018 elections. The sample includes all county-pairs with border-counties located in the same congressional district, for House races, and all county-pairs in which a Senate race took place. In columns (1) to (3), the dependent variable is turnout; in columns (4) to (6), the difference between the Democratic and Republican candidate's vote shares. Controls include all other political ads aired in the county (for presidential elections, these are House, Senate, governor and other down-ballot races' ads; for senatorial elections, presidential, House, non-local Senate, governor and other down-ballot races' ads; and for House elections, presidential, Senate, non-local House, governor and other down-ballot races' ads), measured in the same way as the main dependent variable (the sum of all parties ads in columns (1) to (3), and the difference between Democratic and Republican ads in columns (4) to (6)), together with a set of socio-demographic characteristics of the county (total population, share of high-school dropouts, share of college graduates, share of ethnic minorty population, share of foreign born population, media household income, share of population below poverty level and employment-to-population ratio). Single-cycle estimations (columns (1),(2),(4) and (5) in Panel a, and columns (1) to (4) and (6) to (9) in Panel b) include the value of the dependent variable in the previous election cycle ("lagged") as a control. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.17: Effects of TV ads on electoral outcomes (without control variables)

(a) **Presidential elections**

	Turnout			Dem-Rep Votes		
	(1) 2012	(2) 2016	(3) 2012-2016	(4) 2012	(5) 2016	(6) 2012-2016
All Parties Ads (Total number, in 1000s)	0.02	0.05	-0.01			
	(0.02)	(0.03)	(0.02)			
Dem-Rep Difference in Ads				0.26***	-0.00	0.11
				(0.09)	(0.17)	(0.13)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓
County FE			✓			✓
Controls						
Lagged Dep.	✓	✓		✓	✓	
R-sq (within)	0.838	0.782	0.000	0.962	0.895	0.001
Observations	5,058	5,058	10,116	5,058	5,058	10,116
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	55.46	54.99	55.23	-23.34	-36.40	-29.87

(b) **Congressional elections**

	Turnout					Dem-Rep Votes				
	(1) 2012	(2) 2014	(3) 2016	(4) 2018	(5) 2012-2018	(6) 2012	(7) 2014	(8) 2016	(9) 2018	(10) 2012-2018
All Parties Local Ads (Total number, in 1000s)	0.08	0.07**	0.03	0.06***	0.04					
	(0.08)	(0.03)	(0.02)	(0.01)	(0.03)					
Dem-Rep Difference in Local Ads						0.30	1.37***	1.05***	0.18	0.94***
						(0.63)	(0.46)	(0.35)	(0.24)	(0.19)
County-Pair x Year x Office FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
County x Office FE					✓					✓
Controls										
Lagged Dep.	✓	✓	✓	✓		✓	✓	✓	✓	
R-sq (within)	0.530	0.668	0.690	0.781	0.001	0.487	0.753	0.690	0.789	0.007
Observations	6,038	6,384	6,274	5,948	24,600	6,038	6,384	6,274	5,948	24,600
Clusters	440+46	412+44	439+44	433+43	450+46	440+46	412+44	439+44	433+43	450+46
Mean DepVar	53.46	35.06	48.68	45.17	45.47	-23.16	-32.69	-35.51	-27.40	-29.76

Notes: Models are estimated using OLS. An observation is a county x election cycle x office type. In Panel a, the sample includes all county-pairs in the 2012 and 2016 presidential elections. In Panel b, we combine House and Senate races for the 2012 to 2018 elections. The sample includes all county-pairs with border-counties located in the same congressional district, for House races, and all county-pairs in which a Senate race took place. In columns (1) to (3), the dependent variable is turnout; in columns (4) to (6), the difference between the Democratic and Republican candidate's vote shares. Single-cycle estimations (columns (1),(2),(4) and (5) in Panel a, and columns (1) to (4) and (6) to (9) in Panel b) include the value of the dependent variable in the previous election cycle ("lagged") as a control. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.18: Effects of TV ads on campaign contributions (without control variables)

(a) **Presidential elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Democratic Ads (Total number, in 1000s)	0.16	0.18	-0.02	-63.63	-63.59	-0.04
	(0.12)	(0.13)	(0.03)	(191.47)	(191.60)	(0.53)
Republican Ads	-0.02	-0.03	0.01	428.71	428.70	0.01
	(0.15)	(0.16)	(0.03)	(428.30)	(428.33)	(0.69)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Controls						
R-sq (within)	0.004	0.004	0.001	0.009	0.009	0.000
Observations	10,116	10,116	10,116	10,116	10,116	10,116
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	6.71	6.26	0.45	1,776.57	1,766.79	9.77

(b) **Congressional elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Democratic Ads (Total number, in 1000s)	0.18	0.04	0.14**	-9.56	-18.64	9.09**
	(0.11)	(0.05)	(0.07)	(72.24)	(70.22)	(4.22)
Republican Ads	-0.17	-0.05	-0.12	-1.78	6.80	-8.58*
	(0.12)	(0.06)	(0.08)	(77.27)	(75.74)	(4.27)
County-Pair x Year x Office FE	✓	✓	✓	✓	✓	✓
County x Office FE	✓	✓	✓	✓	✓	✓
Controls						
R-sq (within)	0.001	0.000	0.001	0.000	0.000	0.002
Observations	24,600	24,600	24,600	24,600	24,600	24,600
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	6.74	3.06	3.68	1,000.78	863.02	137.76

Notes: Models are estimated using OLS. An observation is a county x election cycle x office type. In Panel a, the sample includes all county-pairs in the 2012 and 2016 presidential elections. In Panel b, we combine House and Senate races for the 2012 to 2018 elections. The sample includes all county-pairs with border-counties located in the same congressional district, for House races, and all county-pairs in which a Senate race took place. The dependent variable considers all contributions to Democratic candidates. In columns (1) to (3), it is the number of unique contributors over the last 60 days of the election, per 10,000 inhabitants in the county; in columns (4) to (6), it is the total dollar amount of contributions over the last 60 days of the election, per 10,000 inhabitants in the county. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.19: Summary statistics on county-level political advertising and campaign contributions, 2012-2018

(a) **60-day totals, 60-day period before General Election**

	Mean	Median	sd	Min	Max	N
Democratic Ads (in 1000s)						
– Presidential	1.68	0.01	3.45	0.00	19.67	10,116
– Senate	2.40	1.23	3.00	0.00	16.95	13,157
– Senate (Local)	1.93	0.73	2.75	0.00	16.95	13,157
– House	1.67	0.16	2.95	0.00	19.64	12,508
– House (Local)	0.31	0.00	1.01	0.00	11.14	12,508
– Non-federal	1.68	0.49	2.40	0.00	16.39	18,862
Number of Contributors (per 10,000 inhabitants)						
– Presidential	6.71	3.82	10.02	0.00	138.87	10,116
– Senate	8.42	3.91	14.15	0.00	282.63	13,157
– Senate (Local)	5.07	1.96	10.43	0.00	282.63	13,157
– House	4.86	1.66	10.57	0.00	175.37	12,508
– House (Local)	2.71	0.00	8.36	0.00	151.59	12,508
Dollar Contributions (per 10,000 inhabitants)						
– Presidential	1,777	648	6,368	0	290,788	10,116
– Senate	1,076	347	2,556	0	61,818	13,157
– Senate (Local)	631	146	1,609	0	47,594	13,157
– House	908	112	4,870	0	209,808	12,508
– House (Local)	509	0	2,886	0	132,409	12,508

(b) **Monthly totals, 10-month period before General Election period**

	Mean	Median	sd	Min	Max	N
Democratic Ads (in 1000s)						
– Presidential	0.37	0.00	1.06	0.00	11.47	101,160
– Senate	0.37	0.00	0.91	0.00	10.15	131,570
– Senate (Local)	0.30	0.00	0.81	0.00	10.15	131,570
– House	0.21	0.00	0.80	0.00	12.37	125,080
– House (Local)	0.04	0.00	0.26	0.00	7.35	125,080
– Non-federal	0.25	0.00	0.80	0.00	13.94	188,620
Number of Contributors (per 10,000 inhabitants)						
– Presidential	5.22	1.94	11.78	0.00	418.20	101,160
– Senate	2.98	1.11	6.26	0.00	298.05	131,570
– Senate (Local)	1.88	0.37	4.72	0.00	267.21	131,570
– House	1.88	0.43	4.94	0.00	175.47	125,080
– House (Local)	0.89	0.00	3.56	0.00	135.50	125,080
Dollar Contributions (per 10,000 inhabitants)						
– Presidential	530	144	2,326	0	290,233	101,160
– Senate	276	40	931	0	54,972	131,570
– Senate (Local)	187	10	691	0	54,061	131,570
– House	238	7	1,592	0	185,187	125,080
– House (Local)	133	0	985	0	131,970	125,080

Notes: An observation is a county x election cycle in Panel a, and a county x month in Panel b. The samples include all county-pairs in which a race took place, for each election over the 2012-2018 period. For House races, the sample includes only county-pairs with border-counties located in the same congressional district.

Table D.20: Effects of TV ads on electoral outcomes

(a) **Senate elections**

	Turnout					Dem-Rep Votes				
	(1) 2012	(2) 2014	(3) 2016	(4) 2018	(5) 2012-2018	(6) 2012	(7) 2014	(8) 2016	(9) 2018	(10) 2012-2018
All Parties Local Ads (Total number, in 1000s)	0.09	0.11	-0.02	0.04	0.03					
	(0.12)	(0.07)	(0.06)	(0.04)	(0.04)					
Dem-Rep Difference in Local Ads						0.46	0.83**	0.86**	0.36	0.85***
						(0.54)	(0.39)	(0.34)	(0.25)	(0.19)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
County FE					✓					✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lagged Dep.	✓	✓	✓	✓		✓	✓	✓	✓	
R-sq (within)	0.518	0.646	0.693	0.760	0.023	0.621	0.764	0.805	0.894	0.026
Observations	3,102	3,686	3,328	3,012	13,128	3,102	3,686	3,328	3,012	13,128
Clusters	325+30	319+31	322+31	318+27	450+46	325+30	319+31	322+31	318+27	450+46
Mean DepVar	53.85	33.28	48.22	46.60	44.98	-14.22	-33.47	-24.13	-21.76	-23.87

(b) **House elections**

	Turnout					Dem-Rep Votes				
	(1) 2012	(2) 2014	(3) 2016	(4) 2018	(5) 2012-2018	(6) 2012	(7) 2014	(8) 2016	(9) 2018	(10) 2012-2018
All Parties Local Ads (Total number, in 1000s)	0.05	0.20	-0.06	0.05	0.02					
	(0.09)	(0.15)	(0.07)	(0.04)	(0.04)					
Dem-Rep Difference in Local Ads						0.65	2.39	1.81	0.91*	1.23**
						(1.65)	(1.58)	(1.37)	(0.51)	(0.56)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
County FE					✓					✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lagged Dep.	✓	✓	✓	✓		✓	✓	✓	✓	
R-sq (within)	0.770	0.706	0.794	0.838	0.023	0.730	0.677	0.718	0.788	0.028
Observations	2,946	2,946	2,946	2,946	11,784	2,946	2,944	2,946	2,946	11,782
Clusters	388+42	388+42	388+42	388+42	388+42	388+42	388+42	388+42	388+42	388+42
Mean DepVar	52.88	34.33	49.20	43.55	44.99	-32.84	-37.38	-48.36	-33.42	-38.00

Notes: Models are estimated using OLS. An observation is a county x election cycle x office type. The time period is 2012-2018. In Panel a, the sample includes all county-pairs x cycles where at Senate election takes place. In Panel b, the sample includes all county-pairs with border-counties located in the same congressional district. Other notes as in Table D.16. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.21: Effects of TV ads on electoral outcomes, all ads

	Turnout					Dem-Rep Votes				
	(1) 2012	(2) 2014	(3) 2016	(4) 2018	(5) 2012-2018	(6) 2012	(7) 2014	(8) 2016	(9) 2018	(10) 2012-2018
All Parties All Ads (Total number, in 1000s)	-0.02	-0.00	0.04	0.01	0.01					
	(0.03)	(0.03)	(0.02)	(0.01)	(0.01)					
Dem-Rep Difference in All Ads						0.20	0.66**	0.92***	0.14	0.45***
						(0.48)	(0.29)	(0.25)	(0.12)	(0.12)
County-Pair x Year x Office FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
County x Office FE					✓					✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lagged Dep.	✓	✓	✓	✓		✓	✓	✓	✓	
R-sq (within)	0.628	0.682	0.737	0.789	0.021	0.611	0.776	0.763	0.838	0.018
Observations	6,038	6,384	6,274	5,912	24,564	6,038	6,382	6,274	5,912	24,562
Clusters	440+46	412+44	439+44	427+42	450+46	440+46	412+44	439+44	427+42	450+46
Mean DepVar	53.46	35.06	48.68	45.23	45.48	-23.16	-32.69	-35.51	-27.29	-29.74

Notes: Models are estimated using OLS. An observation is a county x election cycle x office type. We combine House and Senate races for the 2012 to 2018 elections. Controls include all other political ads aired in the county (for presidential elections, these are House, Senate, governor and other down-ballot races' ads; for senatorial elections, presidential, House, governor and other down-ballot races' ads; and for House elections, presidential, Senate, governor and other down-ballot races' ads), measured in the same way as the main dependent variable (the sum of all parties ads in columns (1) to (5), and the difference between Democratic and Republican ads in columns (6) to (10)), together with a set of socio-demographic characteristics of the county (total population, share of high-school dropouts, share of college graduates, share of ethnic minorty population, share of foreign born population, media household income, share of population below poverty level and employment-to-population ratio). Other notes as Panel b of Table D.16. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.22: Effects of TV ads on campaign contributions in Senate and House elections

(a) **Senate elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Democratic Ads (Total number, in 1000s)	0.08	-0.10	0.18	-23.54	-35.97	12.44*
	(0.16)	(0.08)	(0.13)	(27.17)	(25.52)	(6.69)
Republican Ads	-0.06	0.11	-0.17	18.38	30.40	-12.02*
	(0.18)	(0.10)	(0.13)	(31.51)	(29.48)	(6.14)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.051	0.034	0.058	0.028	0.024	0.055
Observations	12,816	12,816	12,816	12,816	12,816	12,816
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	8.52	3.65	4.86	1,085.94	908.42	177.52

(b) **House elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Democratic Ads (Total number, in 1000s)	0.25*	0.13**	0.12	3.12	-3.38	6.50
	(0.13)	(0.06)	(0.07)	(115.97)	(112.61)	(5.22)
Republican Ads	-0.32**	-0.21**	-0.11	-19.22	-13.01	-6.21
	(0.16)	(0.08)	(0.10)	(156.73)	(152.76)	(6.36)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.031	0.016	0.031	0.013	0.012	0.030
Observations	11,784	11,784	11,784	11,784	11,784	11,784
Clusters	388+42	388+42	388+42	388+42	388+42	388+42
Mean DepVar	4.81	2.42	2.39	908.17	813.65	94.51

Notes: Models are estimated using OLS. An observation is a county x election cycle x office type. The time period is 2012-2018. In Panel a, the sample includes all county-pairs x cycles where at Senate election takes place. In Panel b, the sample includes all county-pairs with border-counties located in the same congressional district. Other notes as in Table 8. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.23: Effects of *local* TV ads on campaign contributions to *local* Democratic candidates

(a) **Congressional elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Local Democratic Ads (Total number, in 1000s)	0.16	-0.02	0.18*	-10.56	-18.80	8.24*
	(0.17)	(0.13)	(0.09)	(69.46)	(67.12)	(4.64)
Local Republican Ads	0.02	0.09	-0.06	24.56	28.11	-3.55
	(0.18)	(0.15)	(0.09)	(60.94)	(58.81)	(4.26)
County-Pair x Year x Office FE	✓	✓	✓	✓	✓	✓
County x Office FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.021	0.009	0.029	0.005	0.004	0.021
Observations	24,600	24,600	24,600	24,600	24,600	24,600
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	4.00	1.97	2.02	580.57	504.98	75.60

(b) **Senate elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Local Democratic Ads (Total number, in 1000s)	0.15	-0.06	0.22***	-8.22	-19.43	11.21***
	(0.15)	(0.13)	(0.06)	(34.23)	(34.22)	(3.49)
Republican Ads	0.07	0.18	-0.11*	39.20	45.51	-6.31**
	(0.19)	(0.17)	(0.07)	(30.11)	(30.55)	(2.71)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.032	0.024	0.040	0.013	0.012	0.032
Observations	12,816	12,816	12,816	12,816	12,816	12,816
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	5.18	2.46	2.72	645.08	551.47	93.61

(c) **House elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Local Democratic Ads (Total number, in 1000s)	0.10	0.19	-0.09	-35.94	-26.70	-9.23
	(0.74)	(0.35)	(0.43)	(357.94)	(340.47)	(21.44)
Republican Ads	-0.16	-0.43	0.27	-63.09	-77.24	14.15
	(0.85)	(0.44)	(0.50)	(375.14)	(356.47)	(25.45)
County-Pair x Year FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.021	0.017	0.021	0.009	0.008	0.019
Observations	11,784	11,784	11,784	11,784	11,784	11,784
Clusters	388+42	388+42	388+42	388+42	388+42	388+42
Mean DepVar	2.71	1.45	1.26	510.42	454.41	56.01

Notes: Models are estimated using OLS. An observation is a county x election cycle x office type. The time period is 2012-2018. In Panel a, we combine House and Senate races for the 2012 to 2018 elections. The sample includes all county-pairs with border-counties located in the same congressional district, for House races, and all county-pairs in which a Senate race took place. In Panel b, we focus on Senate elections; in Panel c, on House elections. The dependent variable considers contributions to local Democratic Congressional candidates in Panel a; local Democratic Senate candidates in Panel b; and local Democratic House candidates in Panel c. Controls include all other political ads aired in the county (for senatorial elections, presidential, House, non-local Senate, governor and other down-ballot races' ads; and for House elections, presidential, Senate, non-local House, governor and other down-ballot races' ads), measured in the same way as the main dependent variable and for both Democratic and Republican candidates, together with a set of socio-demographic characteristics of the county (total population, share of high-school dropouts, share of college graduates, share of ethnic minorty population, share of foreign born population, media household income, share of population below poverty level and employment-to-population ratio). Other notes as in Table 8. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.24: Effects of TV ads on campaign contributions, monthly observations

(a) **Presidential elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Democratic Ads (Total number, in 1000s)	0.13	0.10	0.03	167.12	166.78	0.33
	(0.11)	(0.08)	(0.09)	(101.80)	(102.61)	(1.89)
Republican Ads (Total number, in 1000s)	0.02	0.08	-0.06	35.09	35.60	-0.52
	(0.18)	(0.10)	(0.11)	(47.98)	(47.70)	(2.56)
County-Pair x Month FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.000	0.001	0.000	0.004	0.004	0.000
Observations	101,160	101,160	101,160	101,160	101,160	101,160
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	5.22	3.14	2.08	530.06	482.37	47.69

(b) **Congressional elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Democratic Ads (Total number, in 1000s)	0.13	0.04	0.09*	-40.40	-44.88	4.48*
	(0.11)	(0.07)	(0.05)	(68.60)	(67.71)	(2.48)
Republican Ads	-0.08	-0.03	-0.05	-17.43	-14.19	-3.24*
	(0.08)	(0.05)	(0.04)	(17.36)	(15.84)	(1.91)
County-Pair x Month x Office FE	✓	✓	✓	✓	✓	✓
County x Office FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.000	0.000	0.000	0.001	0.001	0.001
Observations	246,440	246,440	246,440	246,440	246,440	246,440
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	2.46	1.34	1.11	258.98	231.26	27.72

Notes: Models are estimated using OLS. An observation is a county x month x office type. The time period is the last 10 months of each 2012 to 2018 election cycles. In Panel a, the sample includes all county-pairs in the 2012 and 2016 presidential elections. In Panel b, we combine House and Senate races for the 2012 to 2018 elections. The sample includes all county-pairs with border-counties located in the same congressional district, for House races, and all county-pairs in which a Senate race took place. The dependent variable considers contributions to all Democratic Congressional candidates. In columns (1) to (3), it is the number of unique contributors during the month, per 10,000 inhabitants in the county; in columns (4) to (6), it is the total dollar amount of contributions during the month, per 10,000 inhabitants in the county. Controls include all other political ads aired in the county (for presidential elections, these are House, Senate, governor and other down-ballot races' ads; for senatorial elections, presidential, House, governor and other down-ballot races' ads; and for House elections, presidential, Senate, governor and other down-ballot races' ads), measured in the same way as the main dependent variable and for both Democratic and Republican candidates. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.25: Effects of TV ads on campaign contributions, monthly observations, with lags

(a) **Presidential elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Democratic Ads (Total number, in 1000s)	-0.03	0.05	-0.08	140.03	142.22	-2.19
	(0.11)	(0.07)	(0.09)	(86.73)	(88.24)	(2.31)
Republican Ads (Total number, in 1000s)	-0.18	0.06	-0.24	60.81	66.58	-5.77
	(0.19)	(0.09)	(0.16)	(63.15)	(63.84)	(5.14)
Dem. Ads t-1	0.26**	0.07	0.19***	24.63	20.36	4.26**
	(0.10)	(0.06)	(0.07)	(21.74)	(21.02)	(1.68)
Rep. Ads t-1	0.14	0.03	0.12	-5.65	-9.62	3.97
	(0.23)	(0.09)	(0.16)	(17.02)	(17.66)	(5.14)
County-Pair x Month FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.001	0.001	0.001	0.004	0.004	0.001
Observations	94,638	94,638	94,638	94,638	94,638	94,638
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	5.18	3.21	1.97	543.54	497.76	45.78

(b) **Congressional elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Democratic Ads (Total number, in 1000s)	0.12	0.03	0.09	-39.83	-43.41	3.58
	(0.15)	(0.08)	(0.07)	(85.78)	(84.21)	(2.99)
Republican Ads	-0.06	-0.02	-0.05	-41.04**	-37.93**	-3.11*
	(0.08)	(0.05)	(0.04)	(19.36)	(18.57)	(1.74)
Dem. Ads t-1	0.01	0.01	-0.00	-2.66	-3.89	1.23
	(0.11)	(0.07)	(0.05)	(31.53)	(30.03)	(2.26)
Rep. Ads t-1	-0.03	-0.02	-0.01	33.02	33.36	-0.33
	(0.05)	(0.03)	(0.03)	(22.12)	(22.07)	(0.91)
County-Pair x Month x Office FE	✓	✓	✓	✓	✓	✓
County x Office FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.000	0.000	0.001	0.001	0.001	0.001
Observations	230,384	230,384	230,384	230,384	230,384	230,384
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	2.55	1.39	1.16	270.52	241.47	29.05

Notes: Models are estimated using OLS. An observation is a county x month x office type. The time period is the last 10 months of each 2012 to 2018 election cycles. Ads in "t-1" are ads of the previous month. The controls for all other ads also include these lags. Other notes as in Table D.24. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.26: Effects of *local* TV ads on campaign contributions to *local* Democratic candidates, monthly observations

(a) **Congressional elections**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Local Democratic Ads (Total number, in 1000s)	0.10	-0.02	0.12	-15.18	-18.72	3.54
	(0.14)	(0.07)	(0.07)	(21.53)	(20.06)	(2.69)
Local Republican Ads	-0.07	-0.00	-0.07	4.83	7.00	-2.17
	(0.10)	(0.07)	(0.05)	(18.86)	(18.13)	(1.85)
County-Pair x Month x Office FE	✓	✓	✓	✓	✓	✓
County x Office FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.000	0.000	0.001	0.000	0.000	0.000
Observations	246,440	246,440	246,440	246,440	246,440	246,440
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	1.42	0.82	0.60	162.70	146.62	16.08

(b) **Congressional elections, with lags**

	Contributors			Contributions		
	(1) All	(2) Large	(3) Small	(4) All	(5) Large	(6) Small
Local Democratic Ads (Total number, in 1000s)	0.15	-0.01	0.16*	-7.65	-12.62	4.97
	(0.16)	(0.08)	(0.08)	(23.21)	(21.24)	(3.09)
Local Republican Ads	-0.00	0.03	-0.04	6.76	7.51	-0.75
	(0.09)	(0.07)	(0.04)	(19.73)	(19.11)	(1.51)
Local Dem. Ads t-1	-0.07	-0.02	-0.05	-12.68	-10.82	-1.86
	(0.10)	(0.05)	(0.05)	(12.04)	(10.53)	(1.90)
Local Rep. Ads t-1	-0.10*	-0.05*	-0.04	-2.32	-0.31	-2.01**
	(0.06)	(0.03)	(0.03)	(5.87)	(5.71)	(0.99)
County-Pair x Month x Office FE	✓	✓	✓	✓	✓	✓
County x Office FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
R-sq (within)	0.000	0.000	0.001	0.000	0.000	0.001
Observations	230,384	230,384	230,384	230,384	230,384	230,384
Clusters	450+46	450+46	450+46	450+46	450+46	450+46
Mean DepVar	1.48	0.85	0.63	169.78	152.89	16.88

Notes: Models are estimated using OLS. An observation is a county x month x office type. The dependent variable considers local contributions only (i.e. those made to the Democratic candidate running in the county). Controls include all other political ads aired in the county (for presidential elections, these are House, Senate, governor and other down-ballot races' ads; for senatorial elections, presidential, House, non-local Senate, governor and other down-ballot races' ads; and for House elections, presidential, Senate, non-local House, governor and other down-ballot races' ads), measured in the same way as the main dependent variable and for both Democratic and Republican candidates. Other notes as in Table D.25. Standard errors are shown in parentheses and clustered at the state and media market border levels. * p<0.10, ** p<0.05, *** p<0.01.

Table D.27: Effects of social media ads on campaign contributions, 2020 General Election

(a) **Democratic candidates**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Week -4 and before	-1.76***	-1.04***	-0.72***	-127.82***	-109.40***	-18.42***
	(0.33)	(0.17)	(0.17)	(26.24)	(24.75)	(4.04)
Week -3	-0.05	-0.07	0.02	0.91	-1.04	1.96
	(0.25)	(0.13)	(0.13)	(17.02)	(14.87)	(3.28)
Week -2	-0.19	-0.06	-0.13	-32.98*	-30.01	-2.97
	(0.21)	(0.11)	(0.11)	(17.95)	(18.43)	(2.82)
Week 0	2.46***	0.78**	1.68***	138.06**	85.64**	52.42***
	(0.93)	(0.33)	(0.61)	(55.67)	(36.99)	(19.35)
Week 1	0.80***	0.36**	0.44***	12.16	1.20	10.96***
	(0.29)	(0.15)	(0.16)	(35.22)	(31.62)	(4.22)
Week 2	0.67***	0.28**	0.38***	-3.44	-9.29	5.84**
	(0.25)	(0.13)	(0.12)	(33.07)	(30.96)	(2.72)
Week 3	0.24	0.04	0.19	-31.08	-36.21	5.13
	(0.30)	(0.15)	(0.16)	(37.82)	(35.46)	(3.96)
Week 4 and after	-0.54	-0.33*	-0.21	-75.72**	-70.56**	-5.16
	(0.33)	(0.17)	(0.17)	(37.29)	(34.26)	(4.64)
Week x State FE	✓	✓	✓	✓	✓	✓
Ad-Event FE	✓	✓	✓	✓	✓	✓
R-sq (within)	0.0015	0.0024	0.0009	0.0018	0.0015	0.0025
Observations	1,568,112	1,568,112	1,568,112	1,568,112	1,568,112	1,568,112
Clusters	15,078	15,078	15,078	15,078	15,078	15,078
Mean DepVar	0.023	0.013	0.010	1.182	1.021	0.161

(b) **Republican candidates**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Week -4 and before	-1.09*	-0.88*	-0.20*	-172.52	-166.55	-5.97*
	(0.56)	(0.45)	(0.11)	(121.94)	(119.08)	(3.10)
Week -3	0.26***	0.15***	0.11**	-6.50	-10.18	3.68*
	(0.08)	(0.04)	(0.05)	(46.48)	(47.86)	(1.95)
Week -2	-0.10	-0.10*	0.00	9.69	9.08	0.61
	(0.08)	(0.06)	(0.03)	(29.61)	(29.47)	(1.11)
Week 0	0.21	0.15	0.05	22.52	21.19	1.32
	(0.13)	(0.11)	(0.03)	(52.06)	(51.90)	(1.02)
Week 1	0.66***	0.47***	0.19***	31.72	26.01	5.71***
	(0.16)	(0.10)	(0.06)	(70.96)	(72.20)	(1.92)
Week 2	-0.21	-0.20	-0.00	-71.30	-70.48	-0.82
	(0.44)	(0.36)	(0.09)	(103.24)	(101.21)	(2.43)
Week 3	-0.63	-0.52	-0.11	-101.64	-98.41	-3.23
	(0.46)	(0.37)	(0.09)	(103.25)	(101.02)	(2.50)
Week 4 and after	-0.33	-0.28	-0.05	-135.48	-133.49	-1.98
	(0.46)	(0.37)	(0.09)	(107.13)	(104.87)	(2.53)
Week x State FE	✓	✓	✓	✓	✓	✓
Ad-Event FE	✓	✓	✓	✓	✓	✓
R-sq (within)	0.0027	0.0031	0.0015	0.0024	0.0023	0.0012
Observations	1,427,712	1,427,712	1,427,712	1,427,712	1,427,712	1,427,712
Clusters	13,728	13,728	13,728	13,728	13,728	13,728
Mean DepVar	0.016	0.013	0.003	1.441	1.365	0.076

Notes: Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Democratic (Panel (a)) or Republican (Panel (b)) candidates for the general election who ran at least one ad on Meta's platform during the 2020 election cycle. The dependent variable includes all contributions to the candidate posting the ad. In columns (1) to (3), it is the number of unique contributors from the corresponding state donating that week, per 10,000 state inhabitants; in columns (4) to (6), it is the total dollar amount of contributions made that week from the corresponding state, per 10,000 state inhabitants. The independent variables are a series of leads and lags indicator variables multiplied by the number of impressions per inhabitants of the ad-event. Standard errors are shown in parentheses and clustered at the event level. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.28: Effects of social media ads on campaign contributions, 2020 General Election, Conduit-hyperlink ads only

(a) **Democratic candidates**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Week -4 and before	-13.69***	-8.03***	-5.66***	-649.73***	-515.58***	-134.15***
	(2.05)	(1.09)	(0.98)	(95.31)	(76.56)	(22.13)
Week -3	4.47***	1.03*	3.44***	445.43***	319.39***	126.04***
	(1.34)	(0.57)	(0.86)	(93.84)	(72.16)	(25.87)
Week -2	-1.59*	-1.25***	-0.34	27.70	26.17	1.53
	(0.93)	(0.41)	(0.57)	(47.46)	(41.29)	(13.44)
Week 0	34.51***	10.88***	23.63***	1,865.92***	1,122.33***	743.59***
	(7.27)	(2.44)	(4.91)	(441.37)	(275.47)	(171.98)
Week 1	7.96***	2.48***	5.48***	415.70***	278.99***	136.70***
	(1.14)	(0.44)	(0.80)	(83.79)	(69.11)	(24.94)
Week 2	4.25***	1.88***	2.37***	135.46*	98.12	37.33**
	(1.07)	(0.51)	(0.60)	(76.48)	(63.78)	(18.05)
Week 3	-2.34	-1.80	-0.55	-25.54	-18.50	-7.04
	(2.91)	(1.45)	(1.49)	(148.20)	(120.84)	(34.65)
Week 4 and after	-4.63*	-3.27**	-1.36	-174.85	-164.30	-10.55
	(2.73)	(1.42)	(1.34)	(145.40)	(116.23)	(32.48)
Week x State FE	✓	✓	✓	✓	✓	✓
Ad-Event FE	✓	✓	✓	✓	✓	✓
R-sq (within)	0.0094	0.0118	0.0076	0.0099	0.0071	0.0219
Observations	1,093,872	1,093,872	1,093,872	1,093,872	1,093,872	1,093,872
Clusters	10,518	10,518	10,518	10,518	10,518	10,518
Mean DepVar	0.035	0.019	0.015	1.767	1.506	0.261

(b) **Republican candidates**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Week -4 and before	-2.75***	-2.23***	-0.53***	-380.11**	-364.64**	-15.47***
	(0.97)	(0.78)	(0.20)	(154.57)	(149.29)	(5.90)
Week -3	0.05	0.02	0.03	-5.12	-5.57	0.45
	(0.11)	(0.06)	(0.05)	(46.32)	(46.93)	(2.15)
Week -2	0.66	0.49	0.17	186.49**	181.21**	5.29
	(0.56)	(0.43)	(0.14)	(88.56)	(85.05)	(4.42)
Week 0	0.99***	0.77***	0.23***	59.13	52.12	7.01**
	(0.22)	(0.18)	(0.07)	(111.83)	(112.52)	(2.89)
Week 1	1.00	0.67	0.33	-17.36	-27.88	10.52
	(0.76)	(0.57)	(0.21)	(69.45)	(67.27)	(7.24)
Week 2	1.37	0.68	0.69***	18.65	3.94	14.71**
	(0.86)	(0.66)	(0.22)	(122.78)	(117.30)	(7.30)
Week 3	0.43	0.21	0.22	156.88	152.01	4.86
	(0.93)	(0.74)	(0.21)	(173.51)	(167.82)	(6.79)
Week 4 and after	0.05	-0.15	0.20	-188.42	-191.88	3.46
	(0.80)	(0.62)	(0.21)	(157.02)	(153.05)	(6.69)
Week x State FE	✓	✓	✓	✓	✓	✓
Ad-Event FE	✓	✓	✓	✓	✓	✓
R-sq (within)	0.0054	0.0057	0.0040	0.0038	0.0038	0.0027
Observations	636,168	636,168	636,168	636,168	636,168	636,168
Clusters	6,117	6,117	6,117	6,117	6,117	6,117
Mean DepVar	0.029	0.023	0.006	2.530	2.373	0.157

Notes: Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Democratic (Panel (a)) or Republican (Panel (b)) candidates for the general election who ran at least one ad on Meta's platform during the 2020 election cycle, considering only ads of which the hyperlink lead to an Actblue or Winred webpage. The dependent variable includes all contributions to the candidate posting the ad. In columns (1) to (3), it is the number of unique contributors from the corresponding state donating that week, per 10,000 state inhabitants; in columns (4) to (6), it is the total dollar amount of contributions made that week from the corresponding state, per 10,000 state inhabitants. The independent variables are a series of leads and lags indicator variables multiplied by the number of impressions per inhabitants of the ad-event. Standard errors are shown in parentheses and clustered at the event level. * p<0.10, ** p<0.05, *** p<0.01.

Table D.29: Effects of social media ads on campaign contributions, 2020 Primary Elections

(a) **Democratic candidates**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Week -4 and before	-0.34	-0.23*	-0.11	-24.04	-20.90	-3.14
	(0.23)	(0.14)	(0.10)	(15.19)	(13.01)	(2.25)
Week -3	0.03	0.02	0.01	12.42	12.64	-0.22
	(0.06)	(0.04)	(0.02)	(8.15)	(7.99)	(0.53)
Week -2	-0.02	-0.02	-0.00	-1.53	-1.28	-0.25
	(0.07)	(0.04)	(0.03)	(5.25)	(5.05)	(0.47)
Week 0	1.60***	0.67***	0.93***	132.38***	108.07***	24.31***
	(0.48)	(0.17)	(0.33)	(42.40)	(37.94)	(9.26)
Week 1	1.11**	0.51**	0.61**	118.26*	101.41*	16.86**
	(0.49)	(0.22)	(0.27)	(67.97)	(59.47)	(8.58)
Week 2	0.43***	0.20***	0.23***	25.62***	20.09**	5.53***
	(0.14)	(0.07)	(0.08)	(9.87)	(8.17)	(2.01)
Week 3	0.58***	0.28***	0.30***	42.51***	35.30***	7.21***
	(0.14)	(0.06)	(0.07)	(13.56)	(11.91)	(2.16)
Week 4 and after	1.83***	0.95***	0.88***	107.02***	87.64***	19.37***
	(0.46)	(0.25)	(0.22)	(29.81)	(25.03)	(4.94)
Week x State FE	✓	✓	✓	✓	✓	✓
Ad-Event FE	✓	✓	✓	✓	✓	✓
R-sq (within)	0.0080	0.0139	0.0045	0.0134	0.0134	0.0102
Observations	5,320,952	5,320,952	5,320,952	5,320,952	5,320,952	5,320,952
Clusters	51,163	51,163	51,163	51,163	51,163	51,163
Mean DepVar	0.019	0.011	0.008	1.057	0.935	0.122

(b) **Republican candidates**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Week -4 and before	-0.30***	-0.24***	-0.06***	-37.45	-35.32	-2.12***
	(0.09)	(0.07)	(0.02)	(24.58)	(24.15)	(0.79)
Week -3	-0.12**	-0.09**	-0.02	-33.06	-32.10	-0.96
	(0.05)	(0.04)	(0.02)	(28.27)	(28.12)	(0.63)
Week -2	-0.04	-0.03	-0.01	-14.62	-13.96	-0.66
	(0.04)	(0.04)	(0.01)	(22.18)	(22.05)	(0.47)
Week 0	0.03	0.02	0.00	20.37	20.45	-0.08
	(0.03)	(0.03)	(0.01)	(18.84)	(18.81)	(0.31)
Week 1	0.03	0.01	0.01	25.06	24.89	0.17
	(0.03)	(0.03)	(0.01)	(29.37)	(29.33)	(0.33)
Week 2	0.04	0.04	0.01	40.84	40.88	-0.04
	(0.04)	(0.04)	(0.01)	(31.63)	(31.53)	(0.31)
Week 3	0.01	0.00	0.01	-9.58	-9.64	0.05
	(0.04)	(0.04)	(0.01)	(24.88)	(24.72)	(0.58)
Week 4 and after	1.52***	1.15***	0.37***	188.72***	177.12***	11.60***
	(0.11)	(0.09)	(0.03)	(26.92)	(26.23)	(1.04)
Week x State FE	✓	✓	✓	✓	✓	✓
Ad-Event FE	✓	✓	✓	✓	✓	✓
R-sq (within)	0.0198	0.0214	0.0134	0.0241	0.0240	0.0128
Observations	3,649,568	3,649,568	3,649,568	3,649,568	3,649,568	3,649,568
Clusters	35,092	35,092	35,092	35,092	35,092	35,092
Mean DepVar	0.017	0.013	0.004	1.566	1.473	0.092

Notes: Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Democratic (Panel (a)) or Republican (Panel (b)) candidates for the primary elections who ran at least one ad on Meta's platform during the 2020 election cycle. The dependent variable includes all contributions to the candidate posting the ad. In columns (1) to (3), it is the number of unique contributors from the corresponding state donating that week, per 10,000 state inhabitants; in columns (4) to (6), it is the total dollar amount of contributions made that week from the corresponding state, per 10,000 state inhabitants. The independent variables are a series of leads and lags indicator variables multiplied by the number of impressions per inhabitants of the ad-event. Standard errors are shown in parentheses and clustered at the event level. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

Table D.30: Effects of social media ads on campaign contributions, 2020 Primary Election, Conduit-hyperlink ads only

(a) **Democratic candidates**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Week -4 and before	-3.31***	-1.87***	-1.44***	-226.04***	-192.96***	-33.08***
	(1.11)	(0.58)	(0.53)	(70.24)	(59.06)	(11.47)
Week -3	-0.32	-0.23*	-0.09	-0.31	2.52	-2.83
	(0.23)	(0.14)	(0.09)	(28.79)	(27.90)	(2.18)
Week -2	-0.58***	-0.39***	-0.20**	-39.95*	-36.52*	-3.43**
	(0.22)	(0.14)	(0.09)	(21.23)	(20.67)	(1.72)
Week 0	6.00***	2.75***	3.25***	453.12***	373.20**	79.92***
	(1.46)	(0.63)	(0.87)	(161.89)	(145.09)	(23.26)
Week 1	4.49***	1.99***	2.50***	375.98**	311.92**	64.06***
	(1.34)	(0.57)	(0.78)	(158.91)	(137.77)	(22.52)
Week 2	1.89***	0.82***	1.07***	85.07**	60.46*	24.61***
	(0.52)	(0.26)	(0.26)	(38.40)	(32.77)	(6.33)
Week 3	2.48***	1.23***	1.25***	179.60***	149.94***	29.66***
	(0.60)	(0.27)	(0.33)	(51.71)	(45.77)	(8.76)
Week 4 and after	9.80***	4.74***	5.06***	492.77***	388.28***	104.50***
	(1.59)	(0.79)	(0.81)	(97.03)	(80.72)	(16.95)
Week x State FE	✓	✓	✓	✓	✓	✓
Ad-Event FE	✓	✓	✓	✓	✓	✓
R-sq (within)	0.0259	0.0385	0.0173	0.0329	0.0308	0.0308
Observations	3,572,088	3,572,088	3,572,088	3,572,088	3,572,088	3,572,088
Clusters	34,347	34,347	34,347	34,347	34,347	34,347
Mean DepVar	0.028	0.016	0.012	1.478	1.286	0.192

(b) **Republican candidates**

	Contributors			Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Large	Small	All	Large	Small
Week -4 and before	-1.32***	-1.02***	-0.30***	-109.00**	-99.65**	-9.36***
	(0.23)	(0.18)	(0.05)	(43.05)	(42.21)	(1.64)
Week -3	0.16	0.17	-0.02	60.81	61.70	-0.89
	(0.22)	(0.19)	(0.04)	(56.04)	(55.33)	(1.28)
Week -2	0.06	0.08	-0.02	35.61	34.98	0.63
	(0.15)	(0.13)	(0.03)	(29.06)	(28.97)	(1.53)
Week 0	0.43**	0.31**	0.12**	62.61**	59.91*	2.70*
	(0.20)	(0.16)	(0.05)	(30.87)	(30.68)	(1.45)
Week 1	0.70***	0.47***	0.23***	89.21	81.73	7.49***
	(0.23)	(0.18)	(0.06)	(61.54)	(60.43)	(2.29)
Week 2	0.87***	0.69***	0.19***	233.49**	227.04**	6.45**
	(0.25)	(0.20)	(0.07)	(96.84)	(96.50)	(2.61)
Week 3	0.59**	0.50**	0.10*	131.18	129.01	2.17
	(0.28)	(0.24)	(0.05)	(83.66)	(82.57)	(1.82)
Week 4 and after	3.32***	2.53***	0.79***	405.01***	379.41***	25.59***
	(0.49)	(0.39)	(0.10)	(74.17)	(71.04)	(3.52)
Week x State FE	✓	✓	✓	✓	✓	✓
Ad-Event FE	✓	✓	✓	✓	✓	✓
R-sq (within)	0.0391	0.0402	0.0317	0.0353	0.0339	0.0338
Observations	934,336	934,336	934,336	934,336	934,336	934,336
Clusters	8,984	8,984	8,984	8,984	8,984	8,984
Mean DepVar	0.039	0.031	0.008	3.641	3.431	0.210

Notes: Models are estimated using OLS. An observation is a candidate x state x event x week. The sample includes all congressional Democratic (Panel (a)) or Republican (Panel (b)) candidates for the primary elections who ran at least one ad on Meta's platform during the 2020 election cycle, considering only ads of which the hyperlink lead to an Actblue or Winred webpage. The dependent variable includes all contributions to the candidate posting the ad. In columns (1) to (3), it is the number of unique contributors from the corresponding state donating that week, per 10,000 state inhabitants; in columns (4) to (6), it is the total dollar amount of contributions made that week from the corresponding state, per 10,000 state inhabitants. The independent variables are a series of leads and lags indicator variables multiplied by the number of impressions per inhabitants of the ad-event. Standard errors are shown in parentheses and clustered at the event level. * p<0.10, ** p<0.05, *** p<0.01.

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