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# Does Negative Advertising Affect Giving Behavior? Evidence from Campaign Contributions<sup>☆</sup>

Sarah Niebler<sup>1</sup>, Carly Urban<sup>2</sup>

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## Abstract

This paper contributes to a growing literature that explains why individuals contribute to political campaigns. We build a panel dataset that follows contributors from primary to general elections to quantify the persistence of giving in political contests. Those who gave to winning candidates in the primary were most likely to contribute again in the general election. Next, we use an instrumental variables strategy to document that within party negative advertising decreases the probability that individuals contribute to their preferred party in the general election, regardless of whether they initially contributed to a winning or losing primary candidate.

*Keywords:* Campaign Contributions; Negative Advertising; Primary Elections; Fundraising; Donations

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## 1. Introduction

In the 2011-2012 federal elections for U.S. Presidential, House, and Senate offices, over 1.2 million individuals contributed money to political campaigns (Center for Responsive Politics, 2012). This represented roughly \$2.8 billion dollars of small donations ranging from \$200 to \$2,500. While contributions are critical to finance a successful campaign, the literature examining the determinants of individual-level contributions remains scant (Ansolabehere et al., 2003; Fremeth et al., 2013; Gimpel and Lee, 2008; Gordon et al., 2007;

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Urban and Niebler, 2014).<sup>3</sup>

This paper contributes to a growing literature that seeks to understand why individuals contribute to political campaigns, and more broadly, to the literature explaining why individuals give to charitable causes. Meer (2013) finds that giving small amounts to charity early in life results in loyal giving as one ages. However, it is not clear how this translates to political giving. Are campaign contributions similarly persistent as the identity of candidates changes over time? Using contributions across three U.S. Presidential races, we first determine if individuals exhibit persistence in giving within a specific race and within a specific party across the primary and general election. Second, we look at how winners and losers affect persistent giving behavior. While this has yet to be explored in political contests,<sup>4</sup> Anderson (2012) finds that alumni donations are higher after a school's sports team wins. Further, Meer and Rosen (2009) find that this relationship is amplified when the individual has a direct tie to the winning team. We explore the relevance of these findings to the political market, where we determine if general election contributions are higher for individuals who gave to a winning primary candidate than those who contributed to a losing candidate. If the contributor is tied to the party, the probability of contributing in the general election should be independent of whether the individual gave to a winning or losing candidate in the primary. However, if the individual is tied to a specific candidate, he may not support the party's nominee once his candidate is no longer in the race.

Third, we look at one factor that is unique to political donations that could change the persistent behavior of contributions: negative advertising in primary contests.<sup>5</sup> In the 2012 Presidential Election, over 90 percent of televised advertisements were negative in the final two weeks of the general election campaign, meaning the ads spent some time attacking at least one

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<sup>3</sup>While presidential campaigns are predominantly financed through individual-level contributions, most papers focus on the determinants of Political Action Committee (PAC) giving and the potential for PAC contributions to improve access or influence voting behavior. Stratmann (2005) provides an excellent review of this literature.

<sup>4</sup>Henderson et al. (2010) use panel survey data to look at the probability individuals who voted for losing primary candidates come back to their bases in the general election.

<sup>5</sup>Okten and Weisbrod (2000) look at the effects of advertising on donations in private nonprofit markets, though there is no negative advertising in that market.

opponent.<sup>6</sup> More strikingly, 60 percent of all the 2012 Presidential primary contest, where candidates within the same party vie for the nomination, were negative. A particularly negative primary contest pits a party's candidates against one another in a way that may decrease the persistence of donors. Contributors may not give because their favored candidate did not win the primary, or they may choose to not give if their favored candidate did win but the contest did sufficient damage to the nominee's character due to a particularly negative race.

Studying the causal effect of negative advertising on an individual's propensity to contribute would require candidates' advertising strategies to be randomly assigned across markets. Shachar and Anand (1998) show that advertisers target their messages to specific media markets; politicians will likely tailor their messages to voters in given media markets to maximize the probability of ultimately winning the race. For example, in fear of losing voter support in the general election a Republican candidate seeking the party nomination may be less inclined to air negative ads in a market that strongly supports one of his Republican opponents. To overcome the endogeneity of candidates' campaign advertising strategies and their eventual contributions, we develop an instrument for negativity first introduced in Gandhi et al. (2015). In races with more than two candidates, negative ads create a free rider problem that disincentivizes going negative. When one candidate attacks a second, the third, who is not the object of the attack, benefits. Two-candidate races do not have this free rider problem and exhibit twice the negativity of races with more than two candidates. At the same time, the number of candidates remaining in a given state and primary election are plausibly exogenous to the decision to contribute in the general election.

Using data from the Center for Responsive Politics (CRP) on individual-level campaign contributions, we build a panel of the population of individuals who contributed at some point throughout the election season and link individual donors from a primary to a general election contest.<sup>7</sup> We use these data to look at the probability of giving conditional on previously contributing to a winner within the same party, a losing candidate within the same party, and to a candidate from the other party. These probabilities inform

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<sup>6</sup>For more on 2012 advertising statistics, see <http://mediaproject.wesleyan.edu/releases/2012-shatters-2004-and-2008-records-for-total-ads-aired/>.

<sup>7</sup>Individuals in these data contributed at least \$200.

the persistence of giving across the primary and general election.

We pair the CRP data with data from the Wisconsin Advertising Project (WiscAds) to measure the negativity of the election in each media market based on the tone of the television advertisements aired during the primary contest.<sup>8</sup> Our data span three election cycles: 2000, 2004, and 2008, giving us variation in the number of contests, the tone of the race, and the partisanship of each contest. We use these data and our instrumental variables strategy to estimate the effect of negativity in the primary contest on contributing again in the general election to the same party. This makes us the first to causally estimate the effect of negativity in primary elections on individual-level campaign contributions in the general election.

Across both parties, negative campaigns have a greater deterrent effect for those who gave to the winning candidate in the primary than for those who gave to a losing candidate in the primary. Among individuals who gave to a losing candidate in the primary, doubling the fraction of negative advertisements decreases the probability of giving to the winning candidate in one's preferred party in the general election by about 1.5 percent for Republicans. Since few (less than 10 percent in 2008) individuals contribute to the winning candidate in their party after supporting the losing candidate in the primary, this effect is relatively large. For Democrats, contributors to the losing candidate in the primary are not affected by intra-party negative advertisements. These results are not simply a product of candidate preference. Negativity in presidential primary contests actually decreased the probability that presidential primary contributors gave to *congressional* candidates of the same party in the general election for Democrats; the same relationship does not hold for Republicans.

To ensure that our main results are not driven by idiosyncratic factors of the three presidential election cycles in our study, we supplement our main findings with data from U.S. Congressional races and find roughly consistent evidence of negative advertising decreasing campaign contributions.

The remainder of the paper is organized as follows: Section 2 describes the reasons an individual may give and how these could be affected by neg-

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<sup>8</sup>Studies examining the effect of divisive primaries on general election outcomes use post-election vote shares to determine divisiveness (Kenney and Rice, 1987; Lengle, 1980; Lengle et al., 1995; Bernstein, 1977; Hacker, 1965; Kenney and Rice, 1984; Kenney, 1988; Piereson and Smith, 1975; Hogan, 2003; Born, 1981; Atkeson, 1998; Makse and Sokhey, 2010). Wichowsky and Niebler (2010) measure negativity as the fraction of negative ads.

ative advertising; Section 3 describes the CRP and WiscAds data and provides summary statistics; Section 4 empirically investigates the persistence of campaign contributions across the primary and general elections; Section 5 explains the empirical strategy of the paper; Section 6 presents the main results; Section 7 shows the results from Congressional elections; Section 8 provides concluding remarks.

## 2. Theoretical Predictions

In primary elections, candidates from the same party compete against one another in an effort to represent their party in the general election. This requires candidates to appeal to extreme members of their party whose ideal points are far from the median voter. Following the conclusion of a particularly drawn-out primary campaign, political pundits and party activists often express concern that the divisiveness of the primary harms the eventual nominee in the general election campaign (Broder, 2008, April 24). Academics disagree on the degree to which divisive primaries have a negative effect on general election outcomes, finding that the effects vary based on the type of election (presidential, congressional, gubernatorial, state legislative) (Kenney and Rice, 1987; Lengle, 1980; Lengle et al., 1995; Bernstein, 1977; Hacker, 1965; Kenney and Rice, 1984; Kenney, 1988; Piereson and Smith, 1975; Hogan, 2003). None of these studies account for the endogeneity of negative primaries and general election results. In order to understand how divisive primaries may affect general election campaign contributions, we first need to understand individuals' decisions to contribute. We outline four potential reasons individuals contribute to campaigns and how each would be affected by an increase in negativity in the primary.

First, individuals may contribute to campaigns to “buy influence” or access to politicians. This theory, initially developed by Grossman and Helpman (1994, 1996, 2001), has spawned a large literature empirically testing the relationship between campaign contributions and influence, especially pertaining to PAC contributions.<sup>9</sup> These givers will likely be unaffected by negativity in a primary. They will be more likely to support the winner in the general election if they originally gave to a losing candidate provided that the nominee is sufficiently aligned with their interests (Coate, 2004b).<sup>10</sup>

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<sup>9</sup>Stratmann (2005) provides an excellent review of this literature.

<sup>10</sup>Prat (2002) and Coate (2004a) assert that candidates ideology may be flexible, and

Second, individuals may contribute to political campaigns for other private benefits, unrelated to influence. One potential mechanism could come from peer or social pressure in giving, which have been found in the charitable giving literature (DellaVigna et al., 2012; Meer, 2011). Since campaign contributions are transparent, employers or neighbors can see how much and to whom an individual has contributed. This means individuals working in specific industries may contribute to candidates whose policies align with their job (e.g., someone who supports banking for a stock trader) or regional preferences (e.g., someone who is focused on immigration for residents of New Mexico). For these contributors, negative contests are unlikely to change the marginal costs of contributing; these individuals will likely continue to contribute in spite of negative advertising. A contributor to the losing candidate may not give to nominee if his platform on the specific issue differs from the preferred candidate of the individual.

Third, individuals may derive utility from giving to candidates whose policies align with their political preferences (Ansolabehere et al., 2003). One could think of this as a similar setting to the warm glow theory associated with charitable giving (Andreoni, 1990).<sup>11</sup> Strong intra-party negativity may force candidates to choose more specific platforms; if a contributor becomes wedded to a particular platform of a losing primary candidate, the individual contributor may be convinced that the winner's platform is not correct based on the nuances described in the campaigns. This specific alignment may result in the individual abstaining from the general election process.<sup>12</sup> Individuals may donate during the nominating phase of the campaign due to candidate loyalty. A negative contest that directly attacks one's preferred candidate may decrease his proclivity to support their party's eventual nominee, regardless of whether or not his preferred candidate wins. For example, an individual supporting the eventual nominee may see more unfavorable attributes of the candidate during a negative primary and consequently decrease contributions in the general election.

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contributing groups can change politician's ideal points to be closer to their own.

<sup>11</sup>There are no tax incentives associated with giving to candidates' campaigns.

<sup>12</sup>For example, during the 2008 Democratic primary, Obama consistently pointed out that Clinton had voted for the Iraq War, whereas he had opposed U.S. intervention in Iraq (Zeleny 2007, February 26). More hawkish Democratic voters who supported the Iraq War may have favored Clinton and lost interest in the general election or supported Senator McCain.

Fourth, an individual may give to influence the outcome of an election. This rationale can be likened to the literature on why individuals vote, where the probability of influencing the election is small. While each individual donation is unlikely to sway the election outcome, aggregate donations are required to finance the campaign. Shachar and Nalebuff (1999) and Strömberg (2008) show that individuals are more likely to turn out if a race is perceived to be close or if the relative influence of the state is greater in the electoral college system; individuals could have the same rationale for contributions. In this case, a negative campaign may deter an individual from donating again in the general election if he thinks his party's reputation has been sufficiently damaged to decrease the probability his preferred party will win in the general, making his contribution less likely to be influential.

### 3. Data

Our main analysis focuses on the U.S. presidential election contests in 2000, 2004, and 2008,<sup>13</sup> where we combine data from CRP on individual-level campaign contributions and the political advertising campaigns those individuals were exposed to from WiscAds. The combination of these data allows us to (1) determine how persistent giving is across primaries and general elections, particularly when one contributes to a winning or losing candidate in the primary and (2) estimate the causal effect of negative advertising in primary elections on campaign contributions in the general election.

There are three important components in compiling the contributions dataset from CRP. First, using the individual, committee, and candidate files from CRP, we identify those individuals who donated money to at least one of the major party candidates participating in the presidential election.<sup>14</sup> The CRP identifiers match individuals within one election cycle from the primary to the general election. Appendix A contains information on how the match is conducted and discusses the types of measurement error this may introduce. We include contributions made directly to a candidate's campaign for the primary. For the general election, we include contributions directly to the campaign or to the Democratic or Republican National Committees (DNC or RNC) in the general election. We exclude political action committee giving. The CRP data only include individuals who gave at least \$200; those

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<sup>13</sup>Section 7 explains the Congressional database in detail.

<sup>14</sup>The CRP data do not allow us to merge individuals across election years.

who gave less than \$200 did not have to report to the FEC.<sup>15</sup> While we would prefer to have the universe of all primary and general election contributions, we do not think that the small donors are likely to be located in relatively more negative media markets.

Second, we categorize contributions as either being given during the nominating or general election contests. We consider a donation to be for a primary election and campaign if it fulfills the following: 1) it was given to a candidate that only participated in the nominating contest phase of the election; or 2) it was given to a candidate in the period prior to the candidate accepting his party's nomination.<sup>16</sup> We are careful to assign contributions such that no donor gives more than the maximum allowable limit in the primary. Any additional funds are allocated to the general election fund or refunded.<sup>17</sup> Primary contributions can be transferred to the candidate's general election fund as long as the candidate does not exceed the amount of money he is allowed to raise under the federal matching fund guideline.<sup>18</sup> Our results remain robust if we drop contributors who gave after the nomination was determined but before the conventions were held.<sup>19</sup>

Third, we use a clever component of the CRP data where we determine if each individual contributor who gave at some point in the presidential contest gave to any Congressional races for each party. We use this measure to distinguish party loyalty from an individual preference for a specific candidate. Specifically, we determine if individuals who contribute to a winner (loser) gave to a Congressional candidate in the general election. These contributions can be to U.S. House or Senate candidates that are either in or

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<sup>15</sup>Repeat donations similar for Obama (24%), McCain (21%), Kerry (20%), and Bush (25%) in 2000 (Campaign Finance Institute, 2008).

<sup>16</sup>Table A.1 in Appendix A includes information about when the national party conventions were held in 2000, 2004, and 2008.

<sup>17</sup>The Obama campaign placed the following text on its website in 2012: "The first \$2,500 from a contributor to Obama Victory Fund 2012 will be allocated to Obama for America, designated for general election debt retirement. The next \$30,800 from a contributor will be allocated to the Democratic National Committee. Any additional amount(s) from a contributor will be divided equally among the Florida, Iowa, Pennsylvania, and Virginia State Democratic Party Committees, up to \$10,000 per committee and subject to the biennial aggregate limits" (<https://contribute.barackobama.com/>).

<sup>18</sup>Barack Obama rejected federal matching funds.

<sup>19</sup>Primary dollars are aggregated once the final primary contribution is made, making it impossible to determine if individuals have given multiple times throughout the primary.

out of the contributor’s district.

Table 1 displays the average and aggregate amount of dollars contributed across primary and general elections since 2000 for both Democrats and Republicans. Conditional on giving, average individual contributions have increased over time for both primary and general election contests, though individual limits have also increased.<sup>20</sup> Further, the number of contributors has increased substantially from 2000 to 2008 for both primaries and general elections. The numbers in brackets represent the total dollar amounts contributed in each year and election by party. In 2008, over \$300 million was contributed to Democrats in the primary contest and almost \$250 million for Republicans. This is substantially greater than the \$25 million for Republicans in the 2000 primary contests.

After building our individual-level contributions data, we determine the advertising environment for each individual. We measure the negativity of the primary campaign by the fraction of televised campaign advertisements that spent any portion of the ad attacking an opponent. We re-code WiscAds data from storyboards and videos to be sure that the negativity is aimed within party and is not a preemptive attack of future opponents in the general election. In other words, we consider only the negative airings where a favored candidate and the targeted candidate were of the same party.<sup>21</sup> The unit of analysis for the intra-party negativity measure is the election by media market (e.g, Chicago, Democratic primary 2008). To merge the negativity of the campaign for each donor, we assign individuals to media markets based on individuals’ zip codes from the CRP data.

Table 2 shows the fraction of negative advertisements by media market for each election year and party. In 2000, 35 of the most-populated 75 media markets had any advertisements and 31 markets experienced some degree of negative advertising. In those markets 35 percent of the ads were spent attacking other Republican primary candidates. In 2004, Democrats ad-

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<sup>20</sup>The Bipartisan Campaign Reform Act indexed individual contribution limits to inflation in 2002. See Table A.1 for the limits by year.

<sup>21</sup>In 2000, we have advertising information for the largest 75 media markets. In 2004, ads were from the largest 100 media markets, and in 2008, WiscAds includes information for all 210 media markets. In 2000 and 2004, we identify markets that did and did not advertise in a subset of areas. In markets without any advertisements, the fraction of negativity is undefined. Thus, we focus our analysis on markets that received advertisements. For more on the Wisconsin Advertising Project Data, see Goldstein and Rivlin (2007a,b).

advertised in 74 of the largest 100 media markets, and only 2 percent of ads attacked fellow Democrats seeking the nomination. The average fraction of negative advertisements in markets with attack ads was 10 percent. During the 2008 nominating campaign, Republican candidates advertised in 72 of all 210 media markets, and Democrats advertised in 135 markets. The overall intra-party negativity for both parties was about 3 percent. However, in the 36 (16) markets where Democrats (Republicans) engaged in intra-party attacks, an average of 10 (14) percent of ads were negative ad in each market. We use the variation across markets in the intensity and existence of negative ads to measure the negativity in each election.

#### 4. Persistence in Giving

This section aims to determine how persistent donations can be over a short period. Meer (2011) finds that repeat alumni donations are most common when individuals begin giving at a young age. We test for short-run persistence in giving within a party across an election cycle. Each observation is a unique individual campaign contributor who donated money to a presidential campaign at some point during the election cycle. We identify individuals who do and do not give to their preferred party in the general election among several categories:

- Contributed to a losing candidate in the primary, and did NOT contribute to the same party's general election candidate.<sup>22</sup>
- Contributed to a losing candidate in the primary, and contributed to the same party's general election candidate.
- Contributed to a winning candidate in the primary, and did NOT contribute to the same party's general election candidate.
- Contributed to a winning candidate in the primary, and contributed to the same party's general election candidate.

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<sup>22</sup>These individuals either did not contribute, gave to a third party, or gave to the opposing party.

To describe an individual’s propensity to return home to their base with campaign contributions, we define the following conditional probabilities:

$$Pr(W_P|N_{iP} = 0) \tag{1}$$

$$Pr(W_P|N_{iP} = 1) \tag{2}$$

where  $P$  indexes the party in  $\{R, D\}$  and  $W_P$  equals one if the contributor gave to the candidate who won the party’s nomination in the general election.  $N_{iP}$  equals one if the contributor gave to the candidate who eventually won the nomination and zero if the contributor gave to a losing candidate. The conditional probabilities mark the probability that an individual contributes to the winning candidate in the party he contributed to in the primary.<sup>23</sup>

Our main analysis focuses on repeat giving, where 19,128 (107,130) Democratic primary givers gave a second time to the Democratic general election candidate in 2004 (2008) and 6,293 (46,365) Republican primary givers gave a second time to the Republican general election candidate in 2000 (2008).

Table 3 shows the probability of repeat giving conditional on giving to a losing Republican candidate in the primary, where the most common subsequent general election action is to not give at all.<sup>24</sup> In 2000 (2008), 97 (88) percent of individuals who gave to a losing Republican candidate did not give in the general election. Less than one percent donated to an opposing party after contributing to a losing candidate in the primary. The probability of giving to the Republican winner in 2000 (2008), given that one gave to him in the primary, was 6 (28) percent.<sup>25</sup> Panel B of Table 3 shows the same statistics for Democrats. In 2004 (2008), 5 (15) percent of contributors who gave to a losing candidate in the primary donated to the eventual Democratic nominee in the general election. In 2004 (2008), 8 (40) percent of individuals who contributed to the eventual Democratic nominee gave again in the general election. The probability of giving to a congressional candidate in the general election after donating to a losing presidential candidate in the primary was roughly the same for Democrats and Republicans, under

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<sup>23</sup>Two percent of individuals gave to candidates in both parties, and three percent of individuals give to more than one candidate of the same party in the primary. In both cases, these individuals enter multiple samples. If we drop all individuals who give to multiple presidential primary candidates, our results remain unchanged.

<sup>24</sup>This is the conditional probability in Equation (1).

<sup>25</sup>This is the conditional probability from Equation (2).

8 percent.<sup>26</sup>

We assume that an individual prefers the party he contributes to in the primary. It could be the case that a contributor has a tie to one candidate in the primary that does not necessarily align with his party preference. An individual may also contribute in a strategic manner in the primary to decrease the probability that the best candidate in the opposing party does not end up with the nomination. While we think the probability of each of these cases is relatively small, these should be independent of negativity.

Next, we include data on the population of primary contributors to determine the persistence of giving across each election cycle in Table 4. Our dependent variables in Columns (1)-(2) represent whether or not the individual contributed to a Democratic or Republican candidate in the general election, respectively.<sup>27</sup> Our excluded category is losing candidate contributors of the party represented in the dependent variable.<sup>28</sup> Those who contributed to the winning candidate in the primary were 33 percent more likely to give to the winning candidate again in the general than those who contributed to the losing Democrat in the primary (Column (1)). Those giving to the losing and winning Republican candidates are roughly 5 percent less likely to give to the Democrat in the general election than those who supported the losing Democrat in the primary. This pattern is consistent for Republicans (Column (2)). Columns (3)-(4) look at the probability that an individual gave to a congressional candidate of his preferred party in the general election based on his primary contributions. Across both parties, giving to a winner in the presidential primary increases the probability that one contributes to his preferred presidential candidate again but only modestly increases the probability that he donates again to the party more broadly.

## 5. Empirical Strategy

After understanding the baseline conditional probabilities of repeat donations, we now seek to estimate the effect of negative advertising on the probability that a primary contributor gives to a specific general election candidate. Our unique data construction enables us to study the effects of

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<sup>26</sup>This probability is independent of the first three probabilities shown.

<sup>27</sup>We use data from 2008 to look at contributions across parties in the primary.

<sup>28</sup>We cluster our standard errors at the individual-level.

negative primaries while controlling for time-invariant individual-level characteristics.<sup>29</sup> We estimate Equation 3.

$$W_{i,y,m,P} = \beta_0 + \beta_1 N_{y,m,P} + \beta_2 W_{i,y,P} + \beta_3 N_{y,m,P} \times W_{i,y,P} + \gamma_y + \eta_s + \epsilon_{i,y,m,P} \quad (3)$$

$W_{i,y,m,P}$  equals 1 if individual  $i$  gave to the winner in the same party  $P$  in election year  $y$ , and 0 if he did not (i.e. did not give or gave to an alternate candidate).  $N_{y,m,P}$  is the fraction of own-party negative ads in media market  $m$  during the primary for party  $P$  in election year  $y$ .<sup>30</sup>  $W_{i,y,P}$  is equal to one if the individual gave to a winner of the given party in the primary and zero if he gave to a loser. We include election year fixed effects,  $\gamma_y$  and state fixed effects  $\eta_s$ ;  $\epsilon_{i,y,m,P}$  is the error term.<sup>31</sup> We are also careful to provide robust standard errors in order to control for heteroskedasticity in all of our models. These standard errors are clustered at the media zone level, the interaction between state and media market. We choose this level of cluster since it takes into account both the electoral environment (state) and the advertising environment (media market).<sup>32</sup> The coefficient  $\beta_3$  will tell us the difference in the effect of negativity on contributing to the same party in the general election based on who the contributor gave to in the primary (the winner or loser).

We separate our regressions based on party, since competitive Democratic and Republican primaries only occurred simultaneously in 2008. Democratic primaries were contested in 2004 and 2008, and Republican primaries were contested in 2000 and 2008.<sup>33</sup> Each giver is exposed to a similar national campaign via cable television, and thus we do not control for national trends in the primary campaign.<sup>34</sup> It could be that candidates only advertise in

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<sup>29</sup>If we include controls that correlate with both the tone of the campaign and the probability that one contributes a second time, such as total ad volume, the timing of the contribution, negativity in the general election, general election ad volume, and primary turnout by county, results remain unchanged.

<sup>30</sup>Since the fraction of negative advertising is undefined for places without ads, we omit individuals living in these markets. We log this variable so it is normally distributed.

<sup>31</sup>Linear probability models (LPMs) can generate unrealistic fitted values for binary outcomes. However, LPMs perform reasonably well for estimating marginal effects with fixed effects (Angrist and Pischke, 2008). Results from logit specifications are similar.

<sup>32</sup>For example, New Jersey and Pennsylvania share the Philadelphia media market. However, their primaries are in different months.

<sup>33</sup>Senator Bradley did not win a state against Gore in 2000 and zero negative ads aired.

<sup>34</sup>Table A.2 shows that candidates do not place all negative ads in markets containing

areas where they do not fear missed campaign contributions in the general election. For example, in markets within Texas, Republican candidates might not attack a local candidate in fear of alienating his supporters in the general election. To account for this endogeneity concern, we use an instrumental variable strategy.

Our instrument uses the findings from Gandhi et al. (2015), where primary elections with more than two candidates are less likely to engage in negative advertising. This is due to the spillover benefits associated with going negative when there are more than two candidates in the race. For example, if John Edwards attacked Hillary Clinton in the 2008 primary, Barack Obama may have benefited from this without incurring any added costs. However, in duopoly contests, candidates have similar returns to positive and negative advertising. We exploit variation in the number of candidates remaining at the time of each primary by determining the number of candidates remaining in each state/party/year combination by only counting candidates that can still plausibly win the nomination. For our instrument, we create an indicator for duopoly contests. Once only two candidates remain, the average rate of intra-party negativity increases. At the same time, the instrument is seemingly uncorrelated with an individual’s decision to contributing to his preferred party after making an initial decision to contribute to a winner or loser in the primary.<sup>35</sup>

In our IV strategy, we consider the conditional probabilities described in Equations (1) and (2) and separate the models based on who the contributor gave to in the primary (a losing or winning candidate of each party). We do this because we are interested in separately identifying the effects of negativity on giving persistence for winners and losers. The first and second stages of the IV estimate are in Equations 5 and 4, respectively.

$$W_{i,y,m,s,P} = \beta_0 + \beta_1 \hat{N}_{y,s,P} + \gamma_y + \eta_s + \epsilon_{i,y,m,s,P} \quad (4)$$

$$N_{y,m,P} = \alpha_0 + \alpha_1 D_{y,s,P} + \gamma_y + \eta_s + \epsilon_{y,m,P} \quad (5)$$

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districts that will not be close in the general election. There is no statistical difference in closeness across markets with and without negative ads. Democrats and Republicans tend to advertise slightly more in areas where they did worse in the previous general election.

<sup>35</sup>The duopoly measure is unrelated to the ex post closeness measured by the HHI of that state’s primary for each party.

$W_{i,y,m,s,P}$  equals 1 if individual  $i$  gave to the winner in the same party  $P$  in election year  $y$ , and 0 if he did not (i.e. did not give or gave to an alternate candidate).  $N_{y,m,P}$  is the fraction of own-party negative ads in media market  $m$  during the primary for party  $P$  in election year  $y$ .  $D_{y,m,P}$  is equal to one if the contest is a duopoly, meaning that only two candidates remain, and zero if there are more than two candidates in the contest.  $\beta_1$  is thus the causal estimate of negative advertising on the probability an individual gives to his preferred party in the general election. In our IV specification, we are careful to cluster our standard errors at the unit of our instrument, which is the interaction between the state and the election (i.e., 2008 Democratic candidate in Pennsylvania).

## 6. Results

We begin with the basic regression from Equation 3 to determine how the fraction of negative ads influences the probability that an individual contributes to a candidate in the general election. Table 5 shows the relationship between negative advertising and contributing to one’s preferred party in the general election. Column (1) shows that there is no effect of negativity on general election giving to the Democratic candidate that is statistically different from zero for those who gave to the primary loser. The effect of negativity on general election giving for those who gave to primary winners is negative. Column (2) replicates this for Republican candidates, where those who gave to winning candidates were deterred from contributing in the general election due to negative advertising. This effect is actually positive, albeit small, for those who contributed to losing candidates.

In Columns (3)-(4) of Table 5 we investigate the relationship of negativity in the presidential primary on party loyalty as measured by congressional giving in the general election. Column (3) shows a slight decrease in participation due to negativity for both those who initially contributed to both presidential winners and losers in the Democratic party. Column (4) shows a small increase in giving after seeing a relatively more negative campaign. This suggests that party loyalty could increase after a contributor is put off by a particularly negative presidential primary contest, perhaps allowing contributions to different races to be substitutes.

We next turn to our results that take into account the potential endogeneity of advertising strategies and loyal giving. This relaxes the assumption that candidates are not looking forward to the general election at the time

of the primary. This is also consistent with the advertising literature that suggests firms target advertising messages to markets based on observable characteristics (Shachar and Anand, 1998). Candidates may strategically place attack advertisements in a way that will improve their prospects in the general election.

Table 6 shows our IV results. First, Democrats who originally contributed to a losing candidate are unaffected by negativity in the market (Column (1)). However, doubling the fraction of negativity in the Republican primary (say from 5 percent to 10 percent) decreases the probability that financial supporters of a losing candidate contribute to the Republican who won the nomination by 1.6 percent. Further, Columns (3) and (4) show that primary negativity is detrimental for initial supporters of the winner, where doubling negativity decreases the probability that primary contributors will contribute to their party again in the general election by 1.8 percent for Democrats and 4.8 percent for Republicans. Thus, negativity can deter individuals who support the winning candidate even more than those individuals who supported the opposition.

The bottom panel of Table 6 validates the instruments used. Duopolies increase the negativity in a race by roughly 25 percentage points for Democrats and 17 percentage points for Republicans.<sup>36</sup> We verify that our first stage F-statistics exceed the Stock and Yogo criteria of 10 in order to avoid a weak instrument problem.

Next we seek to understand the intensive margin effect. Do individuals change their giving amounts due to negative contests? Table 7 includes all primary givers in markets with advertisements. We then document whether or not the individual gave the same amount, a greater amount in the general election than the primary, or a smaller amount in the general election than the primary to the specified party. For contributions to Democrats (Columns (1), (3), and (5)), an increase in negative advertising increases the probability that individuals gave less; doubling the amount of negative advertising increases the probability of giving less by 11 percent. For Republican contributions (Columns (2), (4), and (6)), negative advertisements increased the probability individuals gave the same amount and slightly decreased the probability of giving less. Doubling the amount of negative advertising de-

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<sup>36</sup>We calculate this effect by finding the marginal effect of being in a duopoly  $\frac{\delta N}{\delta D} = A\alpha_1 \exp(\alpha_1 D)$ , where  $A = \exp(\alpha_0 + \hat{\gamma} + \hat{\eta} + \hat{\epsilon})$ .

creases the probability of giving less by 4 percent.

Columns (7)-(8) of Table 7 look at the intensive margin effects of giving. The dependent variable is now the difference between general election contributions and primary election contributions to the specified party conditional on contributing to the given party in the general. Column (7) shows that Democrats who gave in the general election (after giving to a winner or loser in the primary) decreased their contribution amount by roughly \$120 on average. Republicans saw no change in amount (Column (8)), suggesting that the effect for Republicans is all on the extensive margin.

Next, we try to understand if the behavior we have uncovered is a function of candidate or party loyalty. To do this, we explore whether or not candidates give to congressional candidates in the general election after giving in the primary to a winning or losing presidential candidate. These results are in Table 8. Our results for Democrats suggest that both contributors to primary losers and winners are less likely to show party loyalty by contributing to their preferred party's congressional candidates in the general election (Columns (1) and (3)). For Republicans the opposite effect exists in Column (2), although the magnitude of this effect is small. However, it is consistent with our least squares results suggesting that perhaps contributors in particularly negative contests substitute away from presidential contributions and towards congressional contests. If this is the case, negative contests that create a disutility for a particular candidate may not deter the individual from remaining loyal to his party.

### *6.1. How much does negative advertising cost?*

While negative advertising can be fundamental in helping a candidate win his party's nomination, candidates might also consider all potential external costs of negative advertising. We remain agnostic on the benefits of negative advertising with respect to how voters learn about selecting the correct candidates and use a back-of-the-envelope calculation to find the external cost of going negative.

Focusing first on Democratic candidates, and using our preferred specification from Table 6 Column (1), we find that negativity does not affect one's propensity to give after giving to a losing candidate in the primary. However, Democrats who initially gave to the winning candidate in the primary were 1.8 percent less likely to give again in the general election after the fraction of negative advertising doubled. In 2004, 155,202 contributors gave to Kerry in the primary and in 2008, 207,554 contributors gave to Obama in the

primary. Doubling the fraction of negative advertising results in a decrease of 6,529 contributors. The average contribution amount for these two years was approximately \$1,000 for primaries (See Table 1). Thus, the reduction in contributions based on doubling the fraction of negative ads is \$6.5 million, or \$2.8 million in 2004 and \$3.7 in 2008. If we instead provide a more conservative estimate, where we assume that only those givers in markets with negative ads are affected, this reduces to a loss of \$0.5 million in 2008 and \$0.9 million in 2004. We then add in the intensive margin effect from Table 7, where those who gave to (winning or losing) Democrats in the primary gave less in the general election by roughly \$120. For those 14,050 givers (10,987 in 2008 and 3,063 in 2004), this results in an additional reduction of \$1.3 million in 2008 and \$0.4 million in 2004. Using the conservative estimate, the total reduction in general election contributions for Democrats is \$1.27 million and \$1.82 million in 2004 and 2008, respectively. Compared to total contributions in the respective years, this is roughly 4.4 and 1.2 percent of total contributions in 2004 and 2008, respectively.

Creating a comparable calculation for Republicans, the overall reduction in contributions based on doubling the fraction of negative ads is \$12.8 million for Republicans, or \$3.5 million in 2000 and \$9.2 million in 2008. Providing a more conservative estimate, where we assume that only contributors in markets with negative ads will be affected, this reduces the loss to \$1.8 million in 2000 and \$1.6 million in 2008. This is roughly the same in magnitude to those of Democrats, since the Republicans did not see a change in intensive-margin giving. As a fraction of total contributions for Republicans, this is roughly 21.0 and 3.2 percent of total contributions in 2000 and 2008. The largest decrease in giving between both parties in all presidential contests was among Republicans in 2000.

Recall that there was a small increase in congressional giving among Republican donors when primary contributors gave to the losing presidential primary candidate. This increased the number of congressional contributors in markets with presidential negative advertising by 314 in 2000 and 370 in 2008. Since donors can contribute to multiple races, average contributions are higher in congressional races (\$1,300 in 2000 and \$2,080 in 2008), and this results in an increase of \$0.5 and \$0.6 million for the Republican party overall in 2000 and 2008. Thus, if the objective of the party is to maximize party contributions, not race-specific contributions, presidential primary negative advertising is decreasing contributions by roughly \$1 million in each electoral cycle there is a competitive Republican presidential primary.

For Democrats, we saw a decrease in contributions and hence party loyalty based on presidential negative advertising in the primary. Doubling negativity in presidential primaries would reduce Democratic congressional contributions by \$2.1 in 2004 and \$5.7 million in 2008 across all races.

Finally, it could be the case that negative advertisements in the primary generate additional primary campaign contributions for eventual winners, thus offsetting the costs. We devote Appendix D to empirically show that this is not the case. However, we cannot rule out that individuals who did not give in the primary are more likely to give in the general election after a particularly negative contest. In terms of candidate strategy, it could be that politicians care only about their ultimate goal: getting elected in November. If this is the case and negativity in the primary increases the probability of getting elected, going negative might be an optimal strategy. Appendix C estimates this effect using data from 2008 Cooperative Campaign Analysis Project, where we find that the effect of negative ads in the primary on voting for the same party in the general is non-positive.

## 7. Congressional Races

While the causal relationship we found between negative advertising and persistence in giving in presidential contests is robust, three issues arise when studying presidential contests. First, data are available for only three election cycles with four competitive primaries. These elections could be idiosyncratic, and the results may not be applicable to other electoral contests. Second, the closeness of the elections as the candidates approach each state may allow contributors to have a good idea about the probability a given candidate will win the nomination and also be correlated with negativity. There are likely enough close presidential elections in our study with competitiveness varying over time and across state contests, but unobservable characteristics correlated with the closeness of the race and negativity may still exist. Third, presidential contests are national in scope.

We overcome these two issues by collecting data from all U.S. Congressional races for the 2000, 2002, 2004, and 2008 election cycles. First, the number of specific Congressional primaries increases from four in presidential primaries to nearly 148 in House and Senate races. This improves the external validity of the study. Second, congressional primaries that contain advertising and consist of more than two candidates are close. Incumbent election rates are high and primaries tend to be geared at either 1) taking

down an incumbent, or 2) filling an open seat in the district, which makes the eventual outcome of the race unknown to the contributor. Third, House and Senate positions are federal offices but represent local preferences.

With these benefits, there are two main drawbacks to studying House and Senate elections. Our data require that: 1) primary candidates advertise in areas with contributors 2) individuals contribute in-district in the primary. First, despite the fact that there are potentially 3,480 House and 274 Senate primary elections,<sup>37</sup> only 545 elections had contributions in the primary. Many congressional primary candidates are unopposed and reelection rates are over 94 percent in the House and over 79 percent in the Senate over our period of study (Center for Responsive Politics, 2012).<sup>38</sup> When we further restrict these data to contain advertisements, we are left with 160 elections. We require two viable candidates to be running in the primary, meaning that each candidate received at least 10 percent of the ex post vote share. This final restriction results in 148 elections.<sup>39</sup> A second drawback is the prevalence of out-of district giving in congressional contests. Gimpel and Lee (2008) find that roughly 85 percent of districts received over half of their donations from out-of-district donors.

While these drawbacks prevent us from making overall statements about the magnitude of the effect of negative advertising on persistence in giving in congressional elections, we treat this as a robustness exercise to see if the causal effects are similar to the presidential context. Appendix B Tables B.1-B.3 contain descriptive statistics comparable to those we provide with the presidential data, where most trends are consistent. We use the same instrumental variable strategy and cluster our standard errors at the specific election level.

Table 9 shows the IV results for all congressional elections (Columns (1)-(4)) and Senate elections only (Columns (5)-(8)). Our samples in Columns (1), (2), (5), and (6) condition on giving to a losing candidate in the primary, and our samples in Columns (3), (4), (7), and (8) condition on giving to a winning candidate in the primary. The bottom panel shows that the first stage is less powerful in our congressional election sample than the in

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<sup>37</sup>There are 435 House districts with two parties over four years and 34 Senate elections in 2000, 2002, and 2004, with 35 in 2008. Two elections exist for each party.

<sup>38</sup>When a strong incumbent is running in one party, it is common for no one (or one candidate) to run in the opposing party's primary.

<sup>39</sup>We use the "effective N" measure to exclude fringe candidates (Gandhi et al., 2015).

the presidential analysis. In our Republican sample the instrument is weak with low first stage F-statistics. If we instead restrict our sample to be only Senate races, the magnitude of the duopoly effect on the tone of the campaign is stronger and F-statistics increase for the Democrat samples, but the instrument is still weak in all Republican samples.<sup>40</sup> In Columns (2) and (3), we suggest that our choice of a just identified instrument is median unbiased and less susceptible to a weak instruments critique, particularly since the magnitude of the effect in the first stage is of the expected sign and roughly, the expected magnitude (Angrist and Pischke, 2008).

Looking only at the specifications with strong enough IVs to make inference, we find that our results are the same in sign as the presidential results in Table 6. This remains true if we restrict the sample to Senate races only. Our current setup includes those in nearby districts who contribute to nearby contests where they are unable to vote in but could have seen ads.<sup>41</sup> Appendix Table B.4 removes all out-of-district giving, and the results remain substantively similar.

## 8. Conclusion

This paper explains factors that influence individuals to make donations in the political market. We examine the effect of giving to an eventual winner by exploiting the unique structure of primaries and general elections, where individuals support a candidate before they know if she will become the eventual nominee. Giving to a winning candidate increases the probability of repeat giving by between 24 and 33 percent depending on the election.

We also study a unique attribute of political primaries that could affect the persistence in giving: negative advertising within parties. By using an instrumental variables strategy to account for the endogeneity of negativity and repeat giving, we find that doubling the fraction of negative advertising in a primary contest decreases the probability an individual gives again in the presidential general election contest. This effect exists for individuals initially contributing to both winning and losing primary candidates. We also find that negativity decreases party loyalty for Democrats, where primary

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<sup>40</sup>The weak instrument is not from a given election cycle, media market, or district.

<sup>41</sup>Individuals living in New Jersey and giving to a Pennsylvania candidate in the primary see advertisements aired in the Philadelphia media market and are in our dataset.

contributors exposed to negative ads are less likely to give to Democratic candidates running for Congress in the general election.

Our setup in the political arena allows us to investigate contributions in a new setting. We highlight three main distinctions in this market. First, individuals have the option to contribute to their preferred cause multiple times over only a short timeframe due to the nature of primary and general election contests. Second, political contests allow us to see how persistence in giving within a larger cause (i.e., giving to the same party) changes when an individual's preferred candidates loses. Third, we are able to look at the effect of competitive contests using negative advertisements to see how market structure affects repeat giving.

As political institutions continuously evolve, negativity is likely to become an even more salient component of campaigns. In particular, the creation of Super PACs following the July 2010 federal court decision referred to as *SpeechNow.org v. Federal Election Commission* has changed the structure of campaigns and increased the total volume of negative advertisements aired. These outside groups tend to air a greater fraction of negative ads than the campaigns themselves, while campaigns have not changed their fraction of negative ads.<sup>42</sup> Our results suggest that the increased negativity may decrease repeat donations from the primary to general election cycle.

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<sup>42</sup>See <http://mediaproject.wesleyan.edu>.

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## 10. Tables and Figures

Table 1: Summary Statistics: Dollars Contributed

<b>Republicans</b>	2000	2008
Primary \$s	671.5 (386.4) [34,523,269]	1178.2 (982.6) [249,176,417]
N	51,447	221,846
General \$s	744.5 (316.2) [7,483,899]	733.4 (629.5) [56,931,193]
N	10,361	97,503
<b>Democrats</b>	2004	2008
Primary \$s	987.0 (903.1) [224,045,884]	996.0 (917.5) [316,419,091]
N	227,286	343,927
General \$s	1099.9 (720.7) [28,786,616]	729.0 (651.3) [152,335,865]
N	26,622	238,313

Notes: Cells are average contribution amounts, conditional on contributing, means reported with standard deviations in parentheses. The total dollar amount of contributions in the given election cycle for each party is in brackets.

Table 2: Summary Statistics: Primary Advertisements

<b>Republicans</b>	2000	2008
% Negative Ads	0.353 (0.220)	0.0306 (0.0801)
Markets	35	72
Primary Ads	1024.9 (838.2)	1066.9 (1767.9)
Markets	75	210
<b>Democrats</b>	2004	2008
% Negative Ads	0.0260 (0.0488)	0.0284 (0.0659)
Markets	74	135
Primary Ads	1957.9 (2328.3)	1861.1 (2180.2)
Markets	100	210

Notes: Means reported by media market/year. Standard deviations are in parentheses. The data come from the Wisconsin Advertising Project (WiscAds). In 2000, the WiscAds data covers the top 75 media markets; in 2004 it covers the top 100 markets; 2008 covers all 210 media markets. Fraction of negative ads is only defined in markets where there are non-zero advertisements.

Table 3: Summary Statistics: Persistence in Giving Across Election Cycles

<b>Panel A: Republicans</b>	2000	2008
<b>Gave to Losing Republican in Primary and</b>		
...Winning Republican in General	1.89	9.95
...Third Party in General	0.11	0.03
...Democrat in General	0.62	1.84
...No one in General	97.40	88.39
...Congressional Republican in General	7.93	4.88
Observations	52,067	116,760
<b>Gave to Winning Republican in Primary and</b>		
...Winning Republican in General	5.73	27.93
...Third Party in General	0.02	0.00
...Democrat in General	0.27	1.55
...No one in General	93.99	70.94
...Congressional Republican in General	9.31	6.20
Observations	92,632	124,434
<b>Panel B: Democrats</b>		
<b>Gave to Losing Democrat in Primary and</b>		
...Winning Democrat in General	5.14	14.91
...Third Party in General	0.11	0.02
...Republican in General	0.27	1.18
...No one in General	94.52	84.05
...Congressional Democrat in General	8.27	5.22
Observations	91,013	156,875
<b>Gave to Winning Democrat in Primary and</b>		
...Winning Democrat in General	8.02	40.35
...Third Party in General	0.05	0.00
...Republican in General	0.15	0.63
...No one in General	91.80	59.24
...Congressional Democrat in General	6.48	4.02
Observations	155,202	207,554

Notes: Cells are conditional probabilities from Equations (1) and (2). Each observation is a contributor that gave to a winning or losing candidate in the Republican (Panel A) or Democratic (Panel B) primary. The final category is independent of the other three and equals 1 if the individual donated to a congressional contribution of the same party.

Table 4: Why Give?

	Gave in Presidential general		Gave in Congressional general	
	Dem (1)	GOP (2)	Dem (3)	GOP (4)
Loser D		-0.0237*** (0.00208)		-0.0128*** (0.00211)
Winner D	0.326*** (0.00468)	-0.0286*** (0.00199)	0.0141*** (0.00259)	-0.0178*** (0.00227)
Loser R	-0.0548*** (0.00261)		-0.0179*** (0.00230)	
Winner R	-0.0529*** (0.00240)	0.245*** (0.00531)	-0.0173*** (0.00232)	0.0399*** (0.00273)
<u>Fixed Effects Included:</u>				
State	X	X	X	X
N	522,765	522,765	522,765	522,765
$R^2$	0.228	0.188	0.020	0.036

Robust standard errors clustered at the individual level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . All columns include data from only 2008. We can only include data from 2008 since we are interested in cross-party giving. All samples condition on giving to a presidential primary candidate. The excluded group is those who gave to the loser in the giver's preferred party's primary. The dependent variable in Columns (1)-(2) is equal to one if the individual gave to in the general election to the specified presidential party and zero otherwise. The dependent variable in Columns (3)-(4) is equal to one if the individual gave to a Congressional candidate of the specified party and zero otherwise.

Table 5: Negative Advertising and Giving

	Gave in		Gave in	
	Presidential general		Congressional general	
	Dem	GOP	Dem	GOP
	(1)	(2)	(3)	(4)
Winner D	0.0301 (0.0825)		0.00973 (0.00978)	
Winner R		0.0180 (0.0109)		0.0594*** (0.0105)
ln(D % Negative)	0.0215 (0.0202)		-0.0230** (0.00975)	
Winner D $\times$ ln(D % Neg)	-0.0538* (0.0314)		-0.00125 (0.00302)	
ln(R % Negative)		0.0224*** (0.00337)		0.00920 (0.00738)
Winner R $\times$ ln(R % Neg)		-0.0630*** (0.00295)		0.00902** (0.00421)
<u>Fixed Effects Included:</u>				
State	X	X	X	X
Year	X	X	X	X
N	96,479	82,593	96,479	82,593

Robust standard errors clustered at the media zone in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Columns (1) and (3) include data from 2004 and 2008, Columns (2) and (4) include data from 2000 and 2008. The dependent variable in Columns (1)-(2) is equal to one if the individual gave to in the general election to the specified presidential party and zero otherwise. The dependent variable in Columns (3)-(4) is equal to one if the individual gave to a Congressional candidate of the specified party and zero otherwise.

Table 6: Instrumental Variables: Negativity and Giving

**IV: Stage 2**

DV =1 if Gave to Same Party's Winner in General

	Dem (1)	GOP (2)	Dem (3)	GOP (4)
ln(D % Negative)	0.00223 (0.00521)		-0.0182*** (0.00358)	
ln(R % Negative)		-0.0156*** (0.00334)		-0.0477*** (0.00665)
<u>Fixed Effects Included:</u>				
State	X	X	X	X
Year	X	X	X	X
N	39,321	38,726	63,281	43,569
States	33	32	42	31
Gave in Primary to	Loser	Loser	Winner	Winner

**IV: Stage 1**

DV =ln(% Negative)

	Dem (1)	GOP (2)	Dem (3)	GOP (4)
Duopoly <sub>D</sub>	2.378*** (0.167)		2.402*** (0.170)	
Duopoly <sub>R</sub>		1.853*** (0.439)		1.894*** (0.399)
F-Stat	204.1	17.81	200.1	22.48

Robust standard errors clustered at the state by election level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Columns (1) and (3) include data from 2004 and 2008; Columns (2) and (4) include data from 2000 and 2008. The samples in Columns (1) and (2) condition on giving to a losing candidate in the primary. For example, in Column (1), the contributor gave to someone other than Obama or Kerry in the primary. The samples in Columns (3) and (4) condition on giving to a winning candidate in the primary. For example, in Column (3), the contributor gave to either Obama or Kerry in the primary. The dependent variable equals one if that contributor then gave to Obama or Kerry in the general election, and zero otherwise.

Table 7: Instrumental Variables: Giving Amounts

	Gave More		Gave Less		Gave Same		Amount Change	
	Dem (1)	GOP (2)	Dem (3)	GOP (4)	Dem (5)	GOP (6)	Dem (7)	GOP (8)
ln(D % Neg)	-0.00391 (0.00768)		0.111*** (0.0195)		-0.107*** (0.0121)		-120.2*** (27.22)	
ln(R % Neg)		-0.000798 (0.00344)		-0.0436*** (0.0166)		0.0444*** (0.0132)		6.917 (6.531)
<u>Fixed Effects Included:</u>								
State	X	X	X	X	X	X	X	X
Year	X	X	X	X	X	X	X	X
N	200,423	207,769	200,423	207,769	200,423	207,769	14,050	5,977
States	48	49	48	49	48	49	48	49
F-Stat	149.4	16.02	149.4	16.02	149.4	16.02	17.26	41.68

Robust standard errors clustered at the state by election level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Columns (1), (3), (5), and (7) include data from 2004 and 2008; Columns (2), (4), (6), and (8) include data from 2000 and 2008. The sample includes all primary givers to see how dollar amounts change from the primary to the general election. The dependent variable in Columns (7)-(8) subtracts general election contribution amounts from the primary election contribution amount to the same party, measured in dollars. Columns (7)-(8) condition on having given at all in the general. The F-statistic reported is from the first stage of the IV.

Table 8: Instrumental Variables: Negativity and Party Loyalty

DV =1 if Gave to Any House or Senate Candidate in Same Party's General				
	Dem	GOP	Dem	GOP
	(1)	(2)	(3)	(4)
ln(D % Negative)	-0.0371*** (0.00341)		-0.0985*** (0.0101)	
ln(R % Negative)		0.0177*** (0.00560)		-0.00331 (0.00430)
<u>Fixed Effects Included:</u>				
State	X	X	X	X
Year	X	X	X	X
N	39,327	38,737	41,749	18,630
States	37	40	38	41
F-Stat	204.1	17.81	77.96	35.19
Gave in Primary to	Loser	Loser	Winner	Winner

Robust standard errors clustered at the state by election level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The sample includes data from 2000, 2004, and 2008 U.S. Presidential, House, and Senate races. The samples in Columns (1) and (2) condition on giving to a losing presidential candidate in the primary. The samples in Columns (3) and (4) condition on giving to a winning presidential candidate in the primary. The dependent variable equals one if that contributor then gave to a Senate or House candidate of the same party in the general election, and zero otherwise. Negativity is defined as the percent of negative ads aired in the presidential race in which the individual contributed in in the primary. The F-statistic reported is from the first stage of the IV.

Table 9: Instrumental Variables: Negativity and Giving in Congressional Races

IV: Stage 2	All Congressional Races				Senate Only			
	Dem (1)	GOP (2)	Dem (3)	GOP (4)	Dem (5)	GOP (6)	Dem (7)	GOP (8)
ln(D % Neg)	-0.0318 (0.0246)		-0.0930* (0.0523)		-0.0450*** (0.00844)		-0.0329 (0.0497)	
ln(R % Neg)		-0.00387 (0.0160)		0.885 (3.961)		-0.517** (0.245)		0.555 (0.890)
<u>Fixed Effects Included:</u>								
State	X	X	X	X	X	X	X	X
Year	X	X	X	X	X	X	X	X
Office	X	X	X	X	NO	NO	NO	NO
N	25,708	42,663	23,222	44,151	14,483	21,735	13,360	29,220
States	37	40	38	40	20	25	20	27
Races	53	78	54	80	13	20	13	20
Gave in Primary to	Loser	Loser	Winner	Winner	Loser	Loser	Winner	Winner
DV = ln(% Negative)								
IV: Stage 1								
Duopoly <sub>D</sub>	0.55864*** (0.1716)		0.66823*** (0.2364)		1.41078*** (0.0529)		2.43437*** (0.0648)	
Duopoly <sub>R</sub>		0.88248*** (0.3670)		-0.06471 (0.2781)		0.07802** (0.0359)		-0.17364 (0.2501)
F-Stat	10.60	5.783	7.988	0.0542	712.0	4.710	1412.0	0.482

Robust standard errors clustered at the district by year level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Columns (1)-(4) data from 2000, 2002, 2004, and 2008 U.S. House and Senate races. Columns (5)-(8) include only U.S. Senate Races. The samples in Columns (1), (2), (5), (6) condition on giving to a losing candidate in the primary. The samples in Columns (3), (4), (7), (8) condition on giving to a winning candidate in the primary. The dependent variable equals one if that contributor then gave to a winning candidate in the general election of the same race, and zero otherwise. Negativity is defined as the percent of negative ads aired in the race in which the individual contributed in in the primary. Office fixed effects represent a dummy for House or Senate.

## Appendix A: Data Appendix

### *Individual Giver Matching*

The analysis in this paper uses the individual contributor identifier in the CRP data (contribid). The process the CRP uses to create this measure is labor intensive. First, they use the original electronic filings from the Federal Election Commissions secure server (<http://ftp.fec.gov/FEC/>) to pull the address and last name. Each time there is more than one match across the primary and general election (meaning two last names with the same address), an alert is created requiring someone on staff to manually match the individual. This process is repeated for the entire address, as well as a combination of the zip code, street name, and last name. Anytime a discrepancy arises, coders match individuals manually. For this reason, CRP notes that earlier editions of the data (pre 2000), may be less accurate since the process was less iterative and labor-intensive.

This process may introduce measurement error if those with last names often misspelled (i.e., names of foreigners) are most sensitive to negativity and thus are shown as not responding by decreasing contributions when actually they did. This would understate our estimated effect. Another problem may arise if individuals who are most likely to move are also those least sensitive to negativity. This would result in us overstating the effect of negativity. The IV strategy helps us to alleviate these concerns, but the measurement error stemming from inaccurate matching is important to note.

Table A.1: Candidates, Convention Dates, and Contribution Limits by Year

Democratic	Republican		
<b>2000</b>			
Al Gore	George W. Bush	DNC Nomination Date	8/17/2000
	Lamar Alexander	RNC Convention Date	8/3/2000
	Gary Bauer	Labor Day	9/4/2000
	Elizabeth Dole	Limit to candidate	\$1,000
	Steve Forbes	Limit to party	\$20,000
	Orrin Hatch		
	John Kasich		
	Alan Keyes		
	John McCain		
	Dan Quayle		
	Robert Smith		
<b>2004</b>			
John Kerry	George W. Bush		
Wesley Clark		DNC Nomination Date	7/29/2004
Howard Dean		RNC Convention Date	9/2/2004
John Edwards		Labor Day	9/6/2000
Richard Gephardt		Limit to candidate	\$2,000
Bob Graham		Limit to party	\$25,000
Dennis Kucinich			
Joe Lieberman			
Carol Moseley Braun			
Al Sharpton			
<b>2008</b>			
Barack Obama	John McCain		
Joe Biden	Sam Brownback	DNC Nomination Date	8/28/2008
Hillary Clinton	Jim Gilmore	RNC Convention Date	9/4/2008
Chris Dodd	Rudy Giuliani	Labor Day	9/1/2008
John Edwards	Mike Huckabee	Limit to candidate	\$2,300
Dennis Kucinich	Duncan Hunter	Limit to party	\$28,500
Bill Richardson	Ron Paul		
Tom Vilsack	Mitt Romney		
	Tom Tancredo		
	Fred Thompson		
	Tommy Thompson		

Table A.2: Primary Advertisements and Lagged Election Results

	Market with Primary Ads	Market without Primary Ads
Closeness	12.616 (0.363)	12.153 (0.785)
N	145	786
	Market with Negative Ads	Market without Negative Ads
Closeness	11.667 (0.393)	15.834*** (0.836)
N	607	179
	Market with Dem Primary Ads	Market without Dem Primary Ads
Dem %	45.046 (0.344)	46.549*** (0.320)
N	499	432
	Market with GOP Primary Ads	Market without GOP Primary Ads
GOP %	48.603 (0.344)	52.070*** (0.504)
N	645	286
	Market with Dem Negative Ads	Market without Dem Negative Ads
Dem %	44.829 (0.468)	45.235 (0.498)
N	232	267
	Market with GOP Negative Ads	Market without GOP Negative Ads
GOP %	47.814 (0.367)	53.116*** (0.829)
N	549	96

Notes: Cells are means, standard errors in parentheses. \*\*\* marks that the 2 groups are statistically different at the 1% level. All others are not statistically different at the 10% level. Closeness is the absolute value of the percentage difference between Republican and Democratic candidates in the previous presidential election in the given state.

## Appendix B: Congressional Appendix

Table B.1: Summary Statistics: Persistence in Giving in Congressional Elections

<b>Panel A</b>		
<b>Republicans</b>	House	Senate
<b>Gave to Losing Republican in Primary and</b>		
...Winning Republican in General	12.11	14.66
...Democrat in General	0.66	0.51
...No one in General	84.67	87.11
...Another Republican for a Different Race in General	13.06	10.59
Observations	56,184	50,274
<b>Gave to Winning Republican in Primary and</b>		
...Winning Republican in General	22.84	26.30
...Democrat in General	0.17	0.29
...No one in General	76.93	73.32
...Another Republican for a Different Race in General	11.99	13.41
Observations	86,018	131,565
<b>Panel B</b>		
<b>Democrats</b>	House	Senate
<b>Gave to Losing Democrat in Primary and</b>		
...Winning Democrat in General	8.61	16.38
...Republican in General	0.60	0.82
...No one in General	90.67	82.49
...Another Democrat for a Different Race in General	14.08	9.04
Observations	44,767	30,292
<b>Gave to Winning Democrat in Primary and</b>		
...Winning Democrat in General	28.34	26.76
...Republican in General	0.25	0.36
...No one in General	71.34	72.76
...Another Democrat for a Different Race in General	15.83	17.19
Observations	70,654	105,549

Notes: All cells are conditional probabilities. Data from CRP, where each observation is an individual contributor that gave to a winning candidate in the primary or a losing candidate in the primary for Democrats (Panel A) or Republicans (Panel B). The first three categories in each section roughly sum to 100. The small difference (roughly 0.10 percent in each case) comes from the very small amount of individuals who give to both parties in the general election. The final category in each section is independent of the other three. For example, an individual can give in the general election to the initial primary race in which he contributed as well as additional races.

Table B.2: Summary Statistics: Dollars Contributed in Congressional Elections

<b>Republicans</b>	2000	2002	2004	2008
Primary \$s	766.1 (305.9)	766.3 (310.0)	1205.6 (708.1)	1226.1 (840.5)
N	76,225	58,216	81,111	82,002
General \$s	848.1 (269.1)	851.7 (267.7)	1362.9 (708.4)	1482.4 (848.6)
N	47,682	33,125	46,985	40,839
<b>Democrats</b>	2000	2002	2004	2008
Primary \$s	802.0 (293.9)	765.4 (308.6)	1112.5 (712.4)	1154.5 (844.2)
N	55,604	50,748	64,042	58,790
General \$s	866.8 (257.9)	839.6 (275.2)	1266.7 (722.8)	1358.0 (854.4)
N	32,043	27,545	47,455	39,239

Notes: Cells are average contribution amounts, conditional on contributing, means reported with standard deviations in parentheses.

Table B.3: Summary Statistics: Primary Advertisements in Congressional Elections

<b>Republicans</b>	2000	2002	2004	2008
Fraction Negative Ads	0.226 (0.312)	0.215 (0.257)	0.271 (0.288)	0.309 (0.370)
N	44	38	58	68
Primary Ads	392.0 (436.1)	690.2 (778.2)	1623.7 (1100.2)	983.6 (1211.9)
Markets	75	100	100	210
<b>Democrats</b>	2000	2002	2004	2008
Fraction Negative Ads	0.177 (0.246)	0.159 (0.275)	0.135 (0.219)	0.188 (0.302)
N	40	37	44	65
Primary Ads	1507.0 (1728.4)	918.3 (796.3)	1902.2 (2088.1)	905.9 (1040.1)
Markets	75	100	100	210

Notes: Cells are average negative ads, average total ads by media market/year. The data comes from the Wisconsin Advertising Project (WiscAds). In 2000, the WiscAds data covers the top 75 media markets; in 2002 and 2004 it covers the top 100 markets; 2008 covers all 210 media markets. Fraction of negative ads is only defined in markets where there are non-zero advertisements.

Table B.4: Robustness: Congressional Races, In-State Giving Only

**IV: Stage 2**

DV =1 if Gave to Same Party's Winner in General

	Dem (1)	GOP (2)	Dem (3)	GOP (4)
ln(D % Negative)	-0.0150*** (0.00458)		-0.0154 (0.0608)	
ln(R % Negative)		-0.0369* (0.0211)		-0.490 (0.461)
<u>Fixed Effects Included:</u>				
State	X	X	X	X
Year	X	X	X	X
Office	X	X	X	X
N	947	1139	1940	735
States	37	40	38	40
Races	53	78	54	80
Gave in Primary to	Loser	Loser	Winner	Winner

**IV: Stage 1**

DV =ln(% Negative)

	Dem (1)	GOP (2)	Dem (3)	GOP (4)
Duopoly <sub>D</sub>	1.194*** (0.146)		1.365*** (0.464)	
Duopoly <sub>R</sub>		1.082*** (0.273)		0.415* (0.217)
F-Stat	67.12	15.66	8.638	3.667

Robust standard errors clustered at the district by year level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The sample includes data from 2000, 2002, 2004, and 2008 U.S. House and Senate races. The samples in Columns (1) and (2) condition on giving to a losing candidate in the primary. The samples in Columns (3) and (4) condition on giving to a winning candidate in the primary. The dependent variable equals one if that contributor then gave to a winning candidate in the general election, and zero otherwise. Negativity is defined as the percent of negative ads aired in the race in which the individual contributed in in the primary. Office fixed effects represent a dummy for House or Senate.

## Appendix C: Negativity in the Primary and Voter Behavior in the General Election

We use individual-level panel data from the 2008 Cooperative Campaign Analysis Project (CCAP) to examine the role that negative advertising during nominating contests plays in whether voters “came home” to their preferred parties. This survey asks individuals who they voted for in both the primary and general elections in March and November, respectively.<sup>43</sup> As mentioned previously, the literature is divided as to whether divisive primaries cause harm to general election candidates. Table C.1 shows the percentage of CCAP respondents who fall into various categories based on for whom they indicated voting during both the nominating and general election contests. Not surprisingly, the majority of Republicans and Democrats, even those who did not vote for their parties’ nominees during the nominating contest, report voting for their party’s nominee in the general election. Interestingly, however, a larger percentage of those who voted for a candidate other than McCain in the primary reported voting for him in the general election as compared to those who voted for McCain during the primary (85 percent to 79 percent). Perhaps it was the case that Obama did lure some of the moderate McCain voters to the Democratic side during the general election. The pattern among Democratic primary voters was opposite: a higher percentage of those who voted for Obama during the primary stayed loyal to him during the general as compared to those who voted for a losing Democrat in the nominating contest (89 percent to 77 percent).

$$W_{i,m,P} = \beta_0 + \beta_1 NA_{m,P} + \epsilon_{i,m,P} \quad (6)$$

Table C.2 estimates the extensive margin effect negative ads have on coming home to one’s base in Equation 6. Here,  $NA_{y,m,P} = 1$  if there were any negative ads in an individual’s media market and zero otherwise conditional on the market every airing any ads. We again instrument for negative ads using the duopoly measure. However, since there is less variation in the negative advertising measure, we no longer have enough variation to include state level fixed effects. Results presented in Columns (1) and (3) of Table C.2 are based on those individuals who voted for a candidate

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<sup>43</sup>CCAP oversamples individuals living in both early-primary and battleground states.

other than the eventual nominee during the nominating phase of the election, while results presented in Columns (2) and (4) include individuals who voted for either Obama or McCain during the primary. The dependent variable in the Democratic models equals one if the respondent reported voting for Obama in the general election and zero otherwise. The dependent variable in the Republican models equals one if the respondent voted for McCain in the general election. Overall, neither advertising nor negative advertising appears to have any statistically significant effects, and for Democrats, these coefficients are close to zero in magnitude. For Republicans, negative ads deter voters, though again this effect is not statistically different from zero.

Columns (1) and (2) condition on contributing to a losing candidate in the primary and Columns (3) and (4) condition on giving to the candidate who ultimately won the nomination in the primary. For Democrats, the negative ads decrease the probability of returning to the base by 35 to 50 percent. For Republicans, this effect is much smaller, between 2.9 and 7.7 percent. These effects are relatively large in magnitude, which could be due to the nature of survey data in political questionnaires. Since people were surveyed in March, those in earlier states may misreport who they voted for based on the status of the election at the time of the survey (i.e. a bandwagon effect). However, we use these results to simply assert that the effect of intra-party negative advertising on vote choice is non-positive.

Table C.1: Summary Statistics: Probability of Coming Back to your Party (2008)

<b>Panel A</b>	
<b>Republicans</b>	
<b>Voted for Losing Republican in Primary and</b>	
...McCain in General	85.38
...Third Party in General	3.45
...Obama in General	10.01
...No one in General	1.16
Observations	2,982
<b>Voted for McCain in Primary and</b>	
...McCain in General	79.03
...Third Party in General	0.85
...Obama in General	18.01
...No one in General	2.12
Observations	944
<b>Panel B</b>	
<b>Democrats</b>	
<b>Voted for Losing Democrat in Primary and</b>	
...Obama in General	77.41
...Third Party in General	2.02
...McCain in General	18.21
...No one in General	2.35
Observations	3,316
<b>Voted for Obama in Primary and</b>	
...Obama in General	88.97
...Third Party in General	0.76
...McCain in General	9.39
...No one in General	0.87
Observations	1,831

Notes: All cells are conditional probabilities. Data from the 2008 CCAP, where each observation is an individual voter conditional on the described primary voting condition. The sample is conditional upon survey respondents answering questions regarding both primary and general election vote choice.

Table C.2: Do Negative Campaigns Deter Voters in the General Election?

DV =1 if Voted for Same Party's Winner in General				
	Dem	GOP	Dem	GOP
	(1)	(2)	(3)	(4)
Negative Ads (D)	-0.642 (1.321)		-0.648 (3.168)	
Negative Ads (R)		-0.106 (0.0880)		-0.374* (0.220)
Observations	3,033	2,116	1,707	661

Robust standard errors clustered at the state level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Negative Ads (D) and Negative Ads (R) are equal to 1 if the total negative ads in a given market are greater than 0 and 0 otherwise. All data are from 2008 alone. The samples in Columns (1) and (2) condition on voting for a losing candidate in the primary. For example, in Column (1), the individual voted for someone other than Obama or Kerry in the primary. The samples in Columns (3) and (4) condition on voting for a winning candidate in the primary. For example, in Column (3), the individual voted for either Obama or Kerry in the primary. The dependent variable equals one if that contributor then voted for Obama or Kerry in the general election, and zero otherwise.

## Appendix D: Negativity and Campaign Contributions in the Primary

It may also be the case that higher fractions of intra-party negative advertising generate additional campaign contributions for the winner in primary elections. This benefit would then change our estimates of the “cost” to going negative in the primary for winning candidates, since they can roll extra money over from the primary to the general election. We confirm that this is not the case in this section. Specifically, we aggregate our campaign contribution data to the zip code-level to determine the dollars contributed to each party’s winner in each zip code for each election cycle’s primary. This way, we are able to determine which zip codes contained no givers. We cannot capture zip codes with individuals who gave under \$200 in our data. Thus, if many people gave \$100, this zip code would appear as if there were no contributions. We use population data from the 2000 Census at the zip code level to determine which zip codes contain no individual contributors in the primary. Since we are looking at the zip code-level, we create a dependent variable that is per-capita contributions. We separate this by party and only look at giving to the candidate in the primary for this specification. For example, in 2008 we consider all dollars contributed to Obama in the primary in zip code  $z$  divided by that zip code’s population. We again separate our regressions by party as in the previous analysis. Further, we instrument for negativity using the same instrument that we employ in Section 5.

Table D.1 shows the results of the regression described. We again include state and year fixed effects in the model and cluster our standard errors at the state by election level, as well as using robust standard errors to account for heteroskedasticity. Columns (1) and (2) verify that the first stage of the regression is strong, with an F-statistic over 200 in both cases. In addition, zip codes in states with duopoly primary contests contain 11-13 percent more negative advertisements when compared with other zip codes within markets with some level of advertising and contests with more than two candidates. Column (3) shows that for Democrats, increasing the percent of negative advertisements results in 0.24 additional dollars per capita, though this is not statistically different from zero. For Republicans, increasing the fraction of negative advertisements deters contributions (Column (4)), though again the standard errors on this effect are large. Thus, we assert that increasing the proportion of negative advertisements does not generate additional campaign contributions in the primary for candidates.

Table D.1: Instrumental Variables: Negativity and Primary Contributions

Dependent Variable	IV Stage 1		IV Stage 2	
	% Negative		$\frac{\$s}{Pop}$ Contributed to Winner	
	Dem	GOP	Dem	GOP
	(1)	(2)	(3)	(4)
Duopoly <sub>D</sub>	0.13444*** (0.0059)			
Duopoly <sub>R</sub>		0.11422*** (0.0079)		
ln(D % Negative)			0.235 (2.579)	
ln(R % Negative)				-10.03 (7.198)
<u>Fixed Effects Included:</u>				
State	X	X	X	X
Year	X	X	X	X
Observations	26,565	20,212	26,565	20,212
F-Statistic (Stage 1)	523.4	207.6		

Robust standard errors clustered at the state by election level in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Negative Ads (D) and Negative Ads (R) are equal to 1 if the total negative ads in a given market are greater than 0 and 0 otherwise. Columns (1) and (3) include data from 2004 and 2008, Columns (2) and (4) include data from 2000 and 2008. The dependent variable aggregates the winners campaign contributions to the zip code-level and divides by the zip code population from the 2000 Census.