

## Do Low Contribution Limits Insulate Incumbents from Competition?

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### INTRODUCTION

**W**HETHER CAMPAIGN FINANCE reform improves the competitiveness of elections is a vigorously debated issue. Some observers claim that limits on the size of contributions are inherently biased in favor of incumbents. These scholars reason that campaign contribution limits prevent challengers from mounting effective campaigns (Smith 1995). Others argue that restricting contributions may be the only way for challengers to even the playing field. These scholars reason that incumbents have a large advantage in fundraising and that limits curtail this advantage (Eom and Gross 2006).

Given the recent Supreme Court decision that disallowed Vermont's contribution limits on the grounds that they were too low, it is important to investigate the effect of low limits on the competitiveness of elections.<sup>1</sup> This article fills this gap in the literature. Scholars have analyzed the effects of contribution limits on competitiveness in elections, with most of the recent findings showing that limits lead to closer margins of victory and help challengers at the expense of incumbents (Eom and Gross 2006; Milyo, Primo and Groseclose 2006; Stratmann and Aparicio-Castillo 2006). These studies examine contribution limit amounts in a linear fashion and do not measure non-linearities that may conceal variations in the marginal effect of contribution limits, depending on whether limits are high or low. Further, these studies do not focus on low limits, which I define here as an individual contribution limit of \$500 or lower per election cycle.

The large variation in state-level campaign fi-

nance regulations facilitates study of the effects of these regulations on the competitiveness of state elections. In addition to variability across states, there is also variation over time, since some states have changed their laws, particularly since the late-1970s.

This study treats each of the states with single-member districts as a campaign finance reform laboratory.<sup>2</sup> It examines the effects of these laws between 1980 and 2006, using the following as measures of the competitiveness of elections: the difference in the vote share between an incumbent and a challenger, whether the incumbent receives more than 55 percent of the popular vote, whether the incumbent receives 85 percent or more of the popular vote, whether the incumbent wins, and the number of candidates. I consider primarily individual contribution limits, since individual contributions comprise the majority of contributions to candidates. However, I also examine the effect of political action committee (PAC) contribution limits on the competitiveness of elections.

One difficulty in studying the effect of campaign finance laws on election outcomes is that there are potentially confounding factors. For example, the same conditions that determine whether a contribu-

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<sup>1</sup> *Randall v. Sorrell*, 548 U.S. 230 (2006).

<sup>2</sup> This study focuses on single-member districts because this allows for a simple computation of the competitiveness of elections, namely, the difference in the percent of the vote of the top two vote getters, i.e., the winner and the loser. In multi-member districts several of the top vote getters obtain a seat in the legislature. Further, single-member districts are more comparable to each other than are single-member districts to multi-member districts. By not including multi-member districts and single-member districts in the same regression, I remove one source of unobserved heterogeneity, which could result in biased estimates.

tion limit is in place may also determine whether elections are competitive. If, for example, a state is strongly Republican, there may be very high or no contribution limits in place because of conservative objections to restrictions on campaign speech. Elections in that state may also not be very competitive because by hypothesis voters generally prefer Republican candidates. In this case, the fact that high limits are associated with uncompetitive elections is not due to the limit itself, but rather to the prevailing ideology of voters in that state. To address this concern, I include indicators for each state that captures determinants that may simultaneously influence electoral competition and campaign finance laws. The inclusion of these variables mitigates concerns that campaign finance restrictions are endogenous in the estimated regression equations.

This study examines general election races in state assembly single-member districts from 1980 to 2006. Using this new data set, I find that elections are more competitive when states restrict contributions. The tighter the limits, the more competitive the elections. In fact, the competitiveness of elections can be ranked by the tightness of the limit. For example, a \$500 limit lowers an incumbent's margin of victory by at least 14.2 percent, while a \$1,000 limit lowers this margin of victory by at least 9.3 percent in comparison to states with limits and when these limits are above \$2,000. These are statistically significant effects.

### PREVIOUS ANALYSIS OF CAMPAIGN FINANCE LAWS

Two of the earliest studies that examine the effect of campaign finance laws in the states are the work by Malbin and Gais (1998) and Thompson and Moncrief (1998).<sup>3</sup> Both studies are important contributions to the literature and led other scholars to follow their path. But limited data availability forced both studies to focus on only a few states. Furthermore, the studies do not fully control for state and time specific trends that may simultaneously influence the nature of a state's campaign finance law and the competitiveness of its elections.

State-level studies such as those by Kettl et al. (1997) and Redfield (1995, 2000) allow detailed analysis that may not be possible with a larger data set, but their statistical analyses are limited, in part because this type of study lacks comparison groups.

This deficiency makes it difficult to determine whether election competitiveness in a state is due to the local law or due to nationwide trends that are correlated with local law.

Stratmann and Aparicio-Castillo (2006) analyzed state assembly races from 1980 to 2000, focusing on single-member districts and distinguishing "treatment" from "control" states. The study found that in states with individual limits, as opposed to states without any limits, the margins of victory are smaller. Similarly, other studies have found elections are relatively competitive in states that limit contributions by corporations, unions, parties, and PACs.<sup>4</sup> Instead of analyzing state assembly elections, Milyo, Primo, and Groseclose (2006) analyzed the effect of contribution limits on the margin of victory in state gubernatorial elections. They used a similar research design to Stratmann and Aparicio-Castillo's, in that they estimated the effect of changes in the laws over time. That estimate was achieved by including indicators for each state and year. The results from that analysis showed that individual contribution limits lead to closer gubernatorial elections, although limits for corporations, unions, and PACs have no effect on the margin of victory.

Hogan (2000) took an altogether different approach to the analysis of contribution limits. Instead of relating them to competitiveness in elections, he correlated campaign finance laws with campaign spending and showed that stricter contribution limits correlate with significantly lower campaign spending, primarily by incumbents. Eom and Gross (2006) investigated whether incumbents' or challengers' fundraising capability is assisted by limits, without finding that limits favor incumbents. They found that limits do not increase the disparity in contributions among candidates such that limits increase the fundraising advantage of incumbents over challengers. Stratmann (2009) found that individual

<sup>3</sup> For a review of recent work on state campaign finance restrictions see Bardwell (2003) and Ramsden (2002).

<sup>4</sup> But see Gross et al. (2002) including campaign spending and contribution limits in a regression explaining the margin of victory in gubernatorial elections and finding no statistically significant effect for contribution limits, and Lott (2006), reporting that limits lead to less competition in state Senate races. Lott lumps primary and general election races, as well as open seat races and races with incumbents together in one regression. However, if one examines the subset of races where an incumbent met a challenger, one finds no evidence that limits impede electoral competition (Stratmann 2007).

and PAC limits narrowed fundraising spreads between incumbents and challengers in races for state houses between 1996 and 2006.

Related to the debate on contribution limits is the research on campaign spending's effect on vote shares, i.e., the fraction of the popular vote received by electoral candidates, which goes back at least to Jacobson's (1978) groundbreaking study, which found that incumbent spending is not productive in increasing incumbents' vote shares, but that their vote shares are lowered by challengers' spending. The more recent literature on campaign spending has found that the effect of challenger spending on challengers' vote shares is positive and that the effect of incumbent spending, though smaller, is also positive (Green and Krasno 1988; Levitt 1994). Though some limited inferences for campaign finance regulations can be drawn from these studies, they do not directly address the electoral consequences of contribution limits. In contrast to these studies, Stratmann (2006) links contributions raised by candidates directly to state contribution limits. By examining how contribution limits interact with campaign spending in state house races, one finds that campaign spending is more productive in states with tight contribution limits.

### CONCEPTUAL FRAMEWORK

Between 1980 and 2006, 95 percent of all incumbents were successful when they ran for re-election for state house (Table 1). The open question is how contribution limits affect this known pattern of voters re-electing the incumbent. Depending on their assumptions about contributors, voters, and candidates, some campaign finance models lead to predictions that contribution limits decrease the competitiveness of elections. Others predict the opposite. Models predicting that contribution limits protect incumbents assume legislators benefit from a brand name (Lott 1987; Mueller and Stratmann 1994) they can easily maintain with relatively little spending. Further, incumbents have natural advantages over challengers. For example, they tend to receive media attention and have resources that are associated with holding office. Limits could put challengers at a disadvantage by preventing them from raising the funds necessary to compete against this established brand name and other advantages of incumbents.

A "supply side" (called so because legislators "supply" legislation) explanation for why limits are good for incumbents starts with the observation that when legislators pass campaign finance reform they are directly affected by the legislation, because changed limits affect their own campaign spending as well as that of their challengers.<sup>5</sup> A self-interest model predicts that politicians will vote for legislation that increases their vote shares and raises challengers' barriers to entry. This simple self-interest model predicts higher incumbent vote shares when legislators vote for a change in campaign finance laws.<sup>6</sup>

A competing hypothesis is a demand side explanation, which leads to the prediction that limits can be good for challengers. Specifically, because voters may fear that large contributions corrupt policy, they may pressure incumbents to vote for limits in response. If, additionally, limits reduce the fundraising capabilities of incumbents by more than those of challengers, limits give challengers a relative competitive advantage. In this case, challengers' vote shares increase at the expense of those of incumbents'.

Baron's (1989) and Ashworth's (2008) theoretical work shows that the financing of campaigns can amplify incumbency advantages. Incumbents have inherent advantages because of seniority on committees, better contacts, and accumulated human capital. Therefore they can provide services to contributors at a lower cost, meaning contributors receive more services per dollar contributed. This gives interest groups an incentive to contribute to incumbents, thus reinforcing the incumbency advantage. These theoretical works imply that by changing the campaign financing process, the incumbency advantage could be reduced and elections become more competitive. One way to reduce this

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<sup>5</sup> This explanation does not apply to those states that have passed campaign finance restrictions by ballot initiative. To the contrary, the fact that proponents of the limits in those states found it necessary to resort to the initiative suggests that the majority of legislators in at least one house were unwilling to enact those limits.

<sup>6</sup> The argument that restrictions on spending support incumbents finds indirect empirical support from studies at the federal level that show the marginal effect of spending on vote shares is larger for challengers than it is for incumbents (e.g., Gerber 1998). Thus, challengers lose more votes than incumbents when both candidates spend less money on their election campaigns.

advantage is by the introduction of partial public financing (Ashworth 2008), which tends to level the playing field. Another possibility is to limit the fundraising capacity of incumbents.

According to another hypothesis, contribution limits lower the fundraising capacity of incumbents relative to that of challengers (Eom and Gross 2006).<sup>7</sup> Incumbents may have a higher fundraising capacity because contributors prefer to donate to incumbents, who usually have a higher chance of winning because of their name recognition. Therefore, according to this argument, if contributions are unlimited, it is more difficult for challengers to catch up in fundraising. In this case, limits primarily reduce giving to incumbents.<sup>8</sup> A competing hypothesis is that limits lower the fundraising capacity of challengers relative to that of incumbents (Smith 1995). In this case the reelection chances of incumbents are enhanced and the incumbency advantage is bolstered, making elections less competitive.

Coate (2004b) develops a theory of competition in an environment where ideologically driven parties choose candidates who use contributions from partisan contributors to inform voters and win votes. More electable (i.e., moderate) candidates receive more contributions and are more likely to win. But when contributions are limited, the more electable candidate cannot raise nor advertise as much, leading to a greater possibility of the less moderate candidate being elected. While Coate points out the welfare effect of limiting contributions (a shift of benefits from swing voters to strong partisans, who win more often without giving contributions), it is sufficient for the purposes here to note that the model implies contribution limits narrow election margins between candidates.

The model in Meirowitz (2008), building on prior empirical analysis of campaigns, allows for a small incumbency advantage through “asymmetries in costs or technology” that favor incumbents over challengers. Because limits on contributions serve to lower levels of spending, increasing the importance of the advantage relative to all other campaign activity, contribution limits serve to increase incumbents’ chances of winning. This model is important because it predicts that limits can help incumbents without the need for incumbents to collect more contributions than their challengers. Sahuguet and Persico (2006) also develop a model in which electoral competition is reduced by contribution

limits, as candidates have different marginal products (in terms of vote share) of spending, with limits on contributions preventing a disadvantaged candidate from “catching up.”

A number of other recent theoretical papers also address the effect of contribution limits, competitiveness, and voter welfare. Among these papers is the work by Coate (2004a), Prat (2002), and Ashworth (2006). Coate (2004a) develops a model in which candidates promise favors to contributors in exchange for contributions, which candidates use to engage in truthful advertising that voters use to choose between candidates. Because limiting contributions also limits advertising, voters are perfectly indifferent between candidates in a world without any contributions (or advertising), implying a 50-50 split of the vote. Prat (2002) and Ashworth (2006) do not directly address the effect of contribution limits on the competitiveness of elections. Rather, each develops the conditions under which a complete limit on contributions improves voter welfare. While this effort is important, the focus of this article is on the empirics of competitiveness, to which I turn now.

## RESEARCH DESIGN AND METHODS

To analyze the effect of campaign finance laws on electoral outcomes, I use a state house<sup>9</sup> single-member district as the unit of analysis. The empirical model is

$$Y_{ijt} = \beta \text{LAW}_{it} + \mathbf{X}_{ijt} \gamma_i + \mu_i + v_t + \varepsilon_{ijt}, \quad (1)$$

where  $Y_{ijt}$  is the electoral competitiveness in state  $i$ , district  $j$ , and election year  $t$ . In all regressions, I will examine races with incumbents. I will use five measures of electoral competition ( $Y$ ): (1) the incumbent’s vote share minus the challenger’s vote

<sup>7</sup> Drazen, Limao, and Stratmann (2007) point out that stricter limits may give some interest groups an incentive to form a PAC, which could thereby lead to an increase in aggregate contributions.

<sup>8</sup> Limits may also hurt incumbents by reducing their capacity to accumulate war chests. War chests may deter challengers because they believe that they cannot obtain sufficient funds to mount an effective challenge, thereby making elections less competitive (Epstein and Zemsky 1995).

<sup>9</sup> I use “house” and “Assembly” synonymously to mean the lower chamber in a bicameral legislature.



share;<sup>10</sup> (2) whether the election is not close, defined as when the incumbent receives 55 percent or more of the popular vote; (3) whether the election outcome is lopsided, defined as when an incumbent receives 85 percent or more of the popular vote; (4) whether the incumbent won; and (5) the number of candidates in an election.<sup>11</sup> In three of these measures (whether the election is not close, whether the election outcome is lopsided, and whether the incumbent wins the election) the dependent variable is binary.

I estimate equation (1) using two samples. One sample includes all races with incumbents and the other includes only races with incumbents in states that have enacted contribution limits for individuals. Depending on the specifications, the variable LAW in equation (1) measures different aspects of the campaign finance law. In the sample with all races, the LAW variable in equation (1) indicates whether a contribution limit exists. In the subsample of races in states with limited contributions, the LAW variable is either the real value of the contribution limit, or a set of indicators for whether the contribution limit is up to \$500, between \$501 and \$1,000, and between \$1,001 and \$2,000 (all in 2006 dollars). The estimated coefficients on these variables measure the effect of the various contribution limit categories relative to states with a contribution limit that is higher than \$2,000.<sup>12</sup>

The  $X_{ijt}$  vector includes the candidates' party affiliations and whether the incumbent in the race was elected when unlimited contributions were allowed. This vector also includes an indicator for those states that implemented term limits. Since term limits reduce the opportunity of incumbents to develop a reputation and name recognition, this may give potential challengers an incentive to enter the race and thereby reduce incumbents' vote shares (Carey et al. 1998; Meinke and Hasecke 2003). I also control for the socio-economic characteristics of the state and the political leanings of the state. Included in the regression analysis are the fraction of the state's population who are black, Hispanic, less than eighteen years of age, and 65 or older. Further, I include the per capita personal income and whether or not the state has election day registration. The latter variable is included to control for the possibility that election day registration favors particular candidates. To measure partisanship, I include the fraction of the popular vote in that state that went for the presidential candidate of the same party affilia-

tion as the state house incumbent. Finally, I include a measure for the percentage of members of the state house elected in the previous election who were from the incumbent's party.<sup>13</sup>

I control for time-invariant state characteristics with state fixed effects ( $\mu_i$ ), and control for changes in national laws and national events that affect local elections, as, for example, a nation-wide mood swing against incumbents, or voters across the U.S. disliking or liking the party of the president, via year fixed effects ( $v_t$ ).

State dummy variables (fixed effects) control for differences across states that are constant within the state over time (1980–2006) but that may influence all of the aforementioned measures of competitiveness. To the extent that these state dummies account for time invariant variables, such as the number of districts, they do not need to be included in the regression equation because the state dummies already control for these variables. State indicators also capture the fact that population sizes differ greatly across districts, which in part explains dif-

<sup>10</sup> The margin of victory between the winner and loser is highly positively correlated with the margin by which the incumbent wins over the challenger. Using the former variable as a measure of competitiveness gives similar statistical results using the latter.

<sup>11</sup> For measures of competition in electoral races see, for example, Holbrook and Van Dunk (1993), Aistrup (1996), and Jacobson (2006).

<sup>12</sup> I chose the three cutoff values in part given the interest in this study in examining the effect of states with low limits, in particular with limits of \$500 or less, and in part by visual inspection of the limits. For example, I chose \$2,000 in 2006 as the cutoff value for the third \$1,000 to \$2,000 indicator so that this category includes the 10 states that have a \$2,000 limit over the entire 2006 election cycle. A cut-off value of \$1,900, for example, would have dropped these states into another category, lumping these states together with states that have, for example, greater than \$5,000 limits. The point estimates are similar when setting the cutoff value at \$1,900. For example, the point estimates on the first three indicators in column 1 of Table 4 are 14.001, 10.36, and 7.12, with similar levels of statistical significance as reported in Table 1.

<sup>13</sup> The presidential vote share is the vote share obtained by the incumbent party's candidate in the presidential general election that precedes or occurs at the time of the house elections. For incumbents from minor parties, I use the Republican presidential vote share. The reported results on the main variables of interest are not sensitive to whether I match the Republican or Democratic presidential vote share with candidates from minor parties. Similarly, for minor party candidates I use the Republican share of the membership in the previously elected state house. Again, the results on the campaign finance limits are not sensitive to whether I like match minor party candidate observations with the Republican or Democratic percentage.

ferences in campaign spending across states (Gierzynski and Breaux 1991; Hogan 2000), and differences in campaign technology. Differences in the average cost of campaigning for state legislature across states has both state (e.g., California continues to have many more densely-populated districts in expensive media markets than does New Hampshire) and time (e.g., the growth of cable television allows for greater targeting of advertising within districts) characteristics. The state and time fixed effects serve to capture these characteristics. State fixed effects also control for differences in professionalism of legislatures that are constant over time. Lastly,  $\mu_i$  controls for omitted time invariant state characteristics that simultaneously determine vote shares and the campaign finance regulations.

Redistricting occurred for the 1982, 1992, and 2002 elections. This analysis captures increases or decreases in competitiveness due to state-wide redistricting via state and year effects. This is certainly less than perfect, but aspects of redistricting that are not captured by these effects will only bias the estimated coefficient on contribution limits if redistricting is correlated with the passage of more restrictive campaign finance laws. No theoretical or empirical work suggests that this is the case (see, for example, Basehart and Comer (1991); Hetherington, Larson, and Globetti (2003)).

In the 1990s, campaign finance innovations occurred, including the development of independent expenditures, party soft money, and leadership funds. Though these activities are prominent at the federal level, they seem less important in state house legislative races. To the extent that the activities create loopholes, circumventing a tightening of campaign finance regulation, these activities make it more difficult to find an effect of campaign finance laws on election outcomes.

## DATA ISSUES

I examine election outcomes in general elections for state houses from 1980 to 2006. Data for the 1980 to 2001 period were obtained from Stratmann and Aparicio-Castillo (2006) and for 2002–2006 from states' web sites, the Practising Law Institute (PLI), Professor Keith Hamm, and the Brennan Center for Justice.<sup>14</sup> I focus on single-member districts, since over 80 percent of all state legislators are

elected from these districts, which allow for the most straightforward analysis of competitiveness. The analysis includes states that have only single-member districts and states that have both single and multi-member districts. From the latter type of states, only single-member districts are part of the analysis. Using single-member districts at the state level makes it easier to transfer knowledge from the state to the federal level, since all federal house districts are single-member districts.

States sometimes have separate contribution limits for individuals, PACs, parties, corporations, and unions. Because individual contributions account for the vast majority of total contributions and are quantitatively the most important, this study focuses on regulations limiting these contributions, although I will test the robustness of the result for individual limits by examining the effect of PAC contribution limits on the competitiveness of elections. In Idaho, for example, over 90 percent of the funding sources are from the "others including individuals" category (Malbin and Gais 1998, 154ff). Even in Minnesota, which has one of the lowest percentages in this category, individual contributions still amount to approximately 45 percent of all funding sources (Malbin and Gais 1998, 154ff). This category includes contributions by, for example, CEOs of corporations and labor leaders, but not direct contributions from corporations or labor organizations. Party contributions constitute only a small percentage of state house candidates' funding (Gierzynski and Breaux 1991), while the contribution pattern in states examined by Malbin and Gais (1998) showed that in no state did corporate, labor, and political action committee contributions together amount to more than thirty percent of all contributions (Malbin and Gais 1998, 154).

Many states changed their campaign finance laws over the past quarter century. The number of states regulating individual contributions has increased from twenty-three in 1980 to thirty-seven in 2006. There also has been a similar pattern for regulation of party and political action committee contributions. After the mid-1990s, most of the changes in

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<sup>14</sup> Stratmann and Aparicio-Castillo (2006) could not collect data for the 1990 election in Alabama and the 1990 and 1992 elections in Tennessee.

TABLE 1. MEANS AND STANDARD DEVIATIONS

	<i>Full sample (of 42 states)</i>		<i>Races with contribution limits</i>	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
Has contribution limit	0.592	0.491		
Real contribution limit (\$2006)			3,459	3,538
Contribution limit of less or equal \$500 (\$2006) = 1, 0 otherwise			0.067	0.249
Contribution limit greater \$500 and less or equal \$1,000 (\$2006) = 1, 0 otherwise			0.195	0.396
Contribution limit greater \$1,000 and less or equal \$2,000 (\$2006) = 1, 0 otherwise			0.191	0.394
Incumbent's margin of victory	56.392	39.175	55.22	39.33
Incumbent received more than 55 percent of popular vote = 1, 0 otherwise	0.869	0.337	0.859	0.348
Incumbent received 85 percent or more of the popular vote = 1, 0 otherwise	0.425	0.494	0.412	0.492
Incumbent won election	0.947	0.223	0.943	0.232
Number of candidates in general election	1.781	0.744	1.796	0.785
Incumbent was elected under unlimited contributions = 1, 0 otherwise	0.060	0.237	0.100	0.30-
State enacted term limits = 1, 0 otherwise	0.147	0.354	0.209	0.407
Incumbent is Democrat	0.579	0.494	0.579	0.494
Incumbent is neither Democrat or Republican	0.017	0.129	0.016	0.126

The full sample contains 43,563 observations. The subsample contains 25,810 observations.

The sample is based on 42 states.

the laws involved a tightening of contribution limits.<sup>15</sup>

The data set includes forty-two of the fifty states. Since the empirical analysis focuses on single-member districts, Arizona, Maryland, New Jersey, South Dakota, and North Dakota were omitted from this data set. Their state legislators run in multi-member districts. Nebraska was omitted because it is unicameral and non-partisan. Louisiana was also left out, because its relevant competition occurs in primaries; sometimes there is no general election, de-

pending on the outcome of the primary. New Hampshire was excluded because the vast majority of its seats are multi-member districts.<sup>16</sup>

## RESULTS

Table 1 presents means and standard deviations of the variables employed in the analysis to generate the point estimates reported in the main tables of this article. My unit of observation is a race in-

<sup>15</sup> Contribution limit data for the 1980s and 1990s were taken from Stratmann and Aparicio-Castillo (2006), who collected them from the publication *Campaign Finance Laws* and state statutes. For the 2002, 2004, and 2006 elections I obtained data from *Campaign Finance Law 2002*, (Feigenbaum, Edward D. and James A. Palmer, Campaign Finance Law 2002, published by the Federal Election Commission. <<http://www.fec.gov/pubrec/cfl/cfl02/cfl02.shtml>>), Professor Keith Hamm of Rice University (2003–2004), the Practising Law Institute (2005–2006), and the states' web sites. As a robustness check I also examined the effect of PAC limits in addition to individual limits on the competitiveness of elections. The sources of the data are the same as those for the individual data, with the exception of the 2005–2006 period, which I obtained from the Brennan Center. The Brennan Center aggregated 2005–2006 data from the legal research database, Westlaw.

<sup>16</sup> States that have a contribution limit for the entire time period of this data set are Alaska, Arkansas, Connecticut, Delaware, Florida, Hawaii, Kansas, Kentucky, Massachusetts, Maine, Michigan, Minnesota, Montana, North Carolina, New York, Oklahoma, Vermont, Wisconsin, West Virginia, and Wyoming. States with no individual contribution limits for the entire time period are Alabama, Colorado, Idaho, Illinois, Indiana, Iowa, Mississippi, New Mexico, Pennsylvania, Texas, and Virginia. States that switched from no contribution limits to contribution limits are California, Georgia GA (1990), HI (1982), MO (1996), NV (1996), OH (1996), OR (1996), RI (1990), SC (1992), TN (1996), UT (1990), WA (1994), with the date when the new limit became effective in parentheses., Missouri, Nevada, Ohio, Oregon, Rhode Island, South Carolina, Tennessee, Utah, and Washington. Oregon's contribution limits were ruled invalid by the Oregon Supreme Court in 1997. *Vannata v. Keisling*, 324 Or. 514 (1997).

cluding an incumbent in a single-member district of the state house. Columns 2 and 3 in Table 1 report means and standard deviations for the full sample, which contains races with and without individual contribution limits. Columns 4 and 5 include only races subject to individual contribution limits. The number of observations for the full sample is 43,563 and for the subset 25,810.

The averages bear out well-known facts about incumbency reelection rates: 95 percent of all incumbents win in the general election. Incumbents tend to win in states with and without contribution limits, but in states with limits, the incumbency reelection rate is slightly lower (94.3) than in states without limits (95.4). In the entire sample, which consists of races with and without limits, on average, the margin of victory for incumbents (defined as the incumbents' vote share minus the candidate with next highest vote share) is 56.4 percent. In races with contribution limits, the incumbent's vote margin is 55.2 percentage points and in races without contribution limits, 58.1 percentage points. Regression results presented later in this article show that the lower margins of victory for incumbents withstand the inclusion of controlling factors.

Table 1 shows that 86.9 percent of all incumbents received more than 55 percent of the vote, compared to 85.9 percent of incumbents who won in uncompetitive races by this definition in states with limits. Another measure of whether a race is uncompetitive is whether the incumbent wins by a very large margin. I define a lopsided race as one where the incumbent wins with 85 percent or more of the popular vote. By this measure 42.5 percent of all incumbents win by a large margin, compared to 41.2 percent in states with limited contributions.

Table 1 shows that the average number of candidates in an electoral race is 1.8. This number includes minor party candidates. The means for the number of candidates are very similar in the full sample containing all 42 states and the subsample of states with contribution limits. Finally, in 58 percent of all races, the incumbents are Democrats, while fewer than 2 percent of the incumbents come from minor parties.

The first row of Table 1 shows that between 1980 and 2006 in the 42 states, 59 percent of all races to state houses were subject to a campaign contribution restriction. In races with contribution limits, the average limit was \$3,459 in 2006 dollars. The high standard deviation of \$3,538 indicates a high degree

of variability in the size of contribution limits, which is fortunate for my research purposes. Almost seven percent of all races that were subject to contribution limits took place when candidates were subject to a \$500 or lower contribution limit.<sup>17</sup> In about 20 percent of the races subject to limits, the limit was between \$501 and \$1,000, and in another 19 percent it was between \$1,001 and \$2,000.

From 1980 through 2006, twelve states introduced limits on individual contributions, while none eliminated them except Oregon, which went from unlimited to limited and back to unlimited contributions. The variable "Incumbent was elected under unlimited contributions" in Table 1 equals zero in the years of unrestricted contributions and equals one after implementation of the contribution limit law, and if the legislator was a member of the state house before the contribution restrictions took effect. This variable equals one in six percent of the district races. I will include this variable in regression specifications for states having contribution limits during only part of the period, allowing for a test of whether the restrictions' effects differ across incumbent cohorts.

Almost fifteen percent of the district observations are subject to a state law that mandates a limited term. In many states, term limits enacted in the early 1990s began having effect in the late 1990s, so that some legislators in those states were not allowed to run for reelection.

This analysis is not explicit about the mechanism through which the effects of low limits on competition operate. For example when limits are introduced does the pattern of incumbent and challenger spending change? Work by Stratmann (2009) gives some insight into this question. Stratmann (2009) finds that limits reduce the spread between challenger and incumbent campaign contributions. The spread is reduced because incumbents tend to receive fewer contributions, not because challengers receive more.

Table 2 shows the estimation result of the effect of changing the campaign finance law from allowing unlimited contributions to limiting contributions. When evaluating the effects of limits it is useful to keep in mind that some states with high limits and where limits therefore have little practical ef-

<sup>17</sup> Six percent represent over 1,700 observations, allowing for a statistical analysis of the data.



TABLE 2. EFFECTS OF WHETHER THERE IS A CONTRIBUTION LIMIT ON MEASURES OF ELECTORAL COMPETITION

	<i>Clustered standard errors below coefficient estimates</i>				
	<i>Incumbent's Margin of victory (1)</i>	<i>Incumbent's vote share &gt; 55 percent = 1, 0 otherwise (2)</i>	<i>Incumbent's vote share &gt; 85 percent = 1, 0 otherwise (3)</i>	<i>Incumbent wins = 1, 0 otherwise (4)</i>	<i>Number of Candidates (5)</i>
Limited contribution = 1	-4.484* (2.494)	-0.027 ** (0.013)	-0.083* (0.044)	0.001 (0.007)	0.030 (0.042)
Incumbent under unlimited contributions	2.584* (1.472)	0.020** (0.007)	0.037 (0.024)	-0.005 (0.007)	0.003 (0.025)
Term limit Enacted	-5.839** (2.253)	-0.011 (0.016)	-0.097*** (0.029)	0.009 (0.011)	0.084*** (0.030)
Democrat	3.208*** (0.895)	0.005 (0.005)	0.044*** (0.015)	-0.004 (0.004)	0.004 (0.009)
Other party	-1.713 (7.646)	-0.033 (0.050)	0.087 (0.098)	-0.085 (0.053)	-0.058 (0.067)
Observations	43,563	43,563	43,563	43,563	43,563
R-squared	0.15	0.07	0.13	0.03	0.20

Notes: Standard errors in parenthesis and are clustered by state. \* significant at 10 percent; \*\* significant at 5 percent; \*\*\* significant at 1 percent. Election cycle and state indicators, as well as state-level demographic, income, and partisanship controls are included but not reported. Number of candidates is the log number of candidates. Columns one, four, and five report OLS estimates. Columns two and three report marginal effects from logit estimation.

fect because contributors do not tend to give the maximum allowed, may be, from a contributor's perspective, fairly similar to states with unlimited contributions. If limits are not effective in many states, the regression results may not show any significant differences between states with and without limits.

In Table 2 as well as in the remaining tables, I estimate the specifications with ordinary least squares (OLS) when the dependent variable is the incumbent's margin of victory or the number of candidates and with logit for when the dependent variable is binary. The exceptions are regressions for when the incumbent wins, which I estimate with OLS, because the model does not converge, presumably by reason of the high rates of incumbent victory.<sup>18</sup> For the logit models I am reporting the marginal effects and the corresponding standard errors.

Incumbents tend to win by a large margin. Having limited (as opposed to unlimited) contributions is associated with a 4.5 percent reduction in the incumbent's margin of victory (Table 2, column 1), a 2.7 percent increase in the likelihood of a competitive (within 10 percentage points) election (Table 2, column 2), and an 8.3 percent reduction in the likelihood of a lopsided race (incumbent wins 85 percent of the vote or more) (Table 2, column 3). Given that the average margin of victory in the data set is

well over fifty percent, the estimated effect of introducing a contribution limit on the margin of victory, 4.8 percentage points, is not particularly large. Because contribution limits are associated with a relatively small decrease in the incumbent's margin of victory, it is perhaps not too surprising that the results in Table 2 show no statistically significant relationship between them and the likelihood of incumbent victory (Table 2, column 4) or the number of challenger candidates in a given race (Table 2, column 5).

Incumbents who become legislators when the limit is in effect face more competitive elections as indicated by the point estimate on "limited contribution = 1." The indicator variable "incumbents under unlimited contributions" is one for those legislators who entered the legislature before adoption of contribution limits. For legislators who were elected under unlimited contributions, the total effect of the limit is obtained by adding the point estimates on "incumbents under unlimited contributions" and "limited contribution = 1." The findings show that those legislators are less affected by contribution limits than legislators who became incumbents after the adoption of contribution limits. This

<sup>18</sup> For a justification for using ordinary least squares when the dependent variable is binary, see Angrist (2001).

TABLE 3. EFFECTS OF THE CONTRIBUTION LIMIT AMOUNT ON MEASURES OF ELECTORAL COMPETITION

	<i>Clustered standard errors below coefficient estimates</i>				
	<i>Incumbent's Margin of victory (1)</i>	<i>Incumbent's vote share &gt; 55 percent = 1, 0 otherwise (2)</i>	<i>Incumbent's vote share &gt; 85 percent = 1, 0 otherwise (3)</i>	<i>Incumbent wins = 1, 0 otherwise (4)</i>	<i>Number of Candidates (5)</i>
Log (real contr. limit)	7.262*** (2.244)	0.049*** (0.016)	0.095*** (0.027)	0.037* (0.021)	−0.046 (0.034)
Term limit enacted	−5.828** (2.185)	−0.009 (0.018)	−0.102*** (0.029)	0.010 (0.017)	0.068 (0.043)
Democrat	4.334*** (1.221)	0.015** (0.006)	0.058*** (0.022)	−0.0003 (0.0053)	−0.005 (0.013)
Other party	−13.155 (7.925)	0.075 (0.063)	−0.082 (0.048)	−0.137* (0.078)	0.033 (0.064)
Observations	25,810	25,810	25,810	25,810	25,810
R-squared	0.17	0.08	0.14	0.06	0.23

Notes: Standard errors in parenthesis and are clustered by state. \* significant at 10 percent; \*\* significant at 5 percent; \*\*\* significant at 1 percent. Election cycle and state indicators, as well as state-level demographic, income, and partisanship controls are included but not reported. Number of candidates is the log number of candidates. Columns one, four, and five report OLS estimates. Columns two and three report marginal effects from logit estimation.

may be because the former legislators also have the highest seniority in the state.

Table 2 also reports the estimates on term limits and party affiliation. Term limits are associated lower victory margins and more candidates, but not with lower reelection rates for incumbents (Compare Table 2, columns 1, 3, and 5 with column 4). For party affiliation, the regression includes an indicator for Democratic incumbents and another for those from minor parties. The point estimates on these two variables measure the consequences (in terms of margin of victory, incumbency victory, etc.) of being a Democratic or minor party incumbent relative to being a Republican. The estimate on the Democrat variable indicates that on average, incumbent Democrats' margin of victory is three percent larger than that of incumbent Republicans. This finding indicates that incumbent Democrats had larger vote shares than incumbent Republicans during the time period 1980–2006. However, this finding is fragile. If district level demographics are added, the party variable remains significant but flips direction, with Republican incumbents winning by larger margins.<sup>19</sup>

As noted above, the reported effect of contribution limits on the margin of victory and the other measures of competitiveness of elections is modest compared with the wide margin of victory by which incumbents, on average, win general elections. One

explanation for this is that states, when they introduce contribution limits, often opt for high limits that have little effect on the many candidates whose contributions are usually below the legal ceiling. This implies that lowering contribution limits from, for example, \$3,000 to \$2,000 has little or no effect on the competitiveness of elections because candidates for state houses rarely raise \$2,000 from a single contributor. If this conjecture is correct, then among states with contribution limits, those with the lowest limits should have the largest impact on the closeness of elections. The next tables allow for a test of this prediction.

Table 3 examines only races subject to a contribution limit. I transformed the contribution limit amounts into logs. One reason for the log transformation is that the amounts of the contribution limits are heavily skewed to the left, meaning a clustering at low limits. This can be seen from Table 1, in which the standard deviation for amounts of limits slightly exceeds the mean amount. The log transformation of the variable has a mean of 6.96 with a standard deviation of 1.03 and is much closer to the

<sup>19</sup> I do not report the point estimates on the year indicators and state indicators. Estimates for socio-economic characteristics, state partisanship measures, and election day registration are reported online at <<http://www2.gmu.edu/centers/publicchoice/faculty%20pages/stratmann/index.shtml>>.

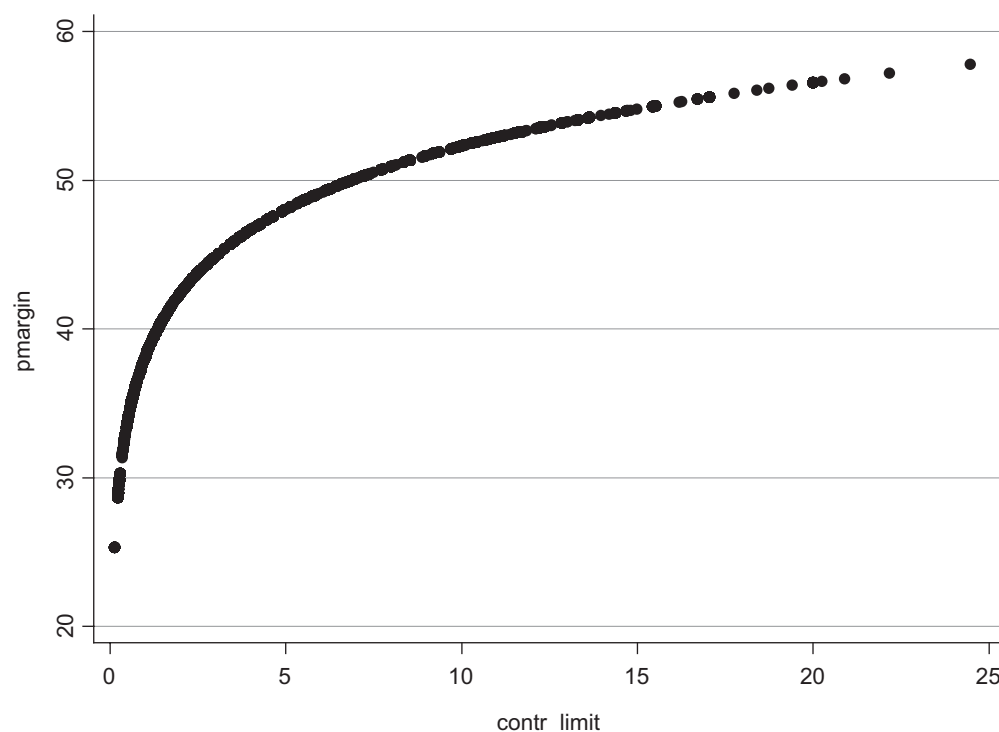


FIG. 1. Predicted margin of victory and contribution limits.

normal distribution than the untransformed series. Another reason to use the log transformation is that it reduces the importance of outliers. Finally, the log specification allows for the examination of the non-linear effect of limits on competitiveness: namely that the effect of limits may be large when reducing the limit from \$1,000 to \$500, but less dramatic when limits change from \$20,000 to \$19,500.<sup>20</sup>

As in Table 2, Table 3 uses five measures of competitiveness. Table 3, column 1 shows the effect of higher dollar limits on the incumbents' margin of victory. Here the point estimate on dollar limits is 7.3 percent and is statistically significant. The positive coefficient indicates that higher dollar limits are associated with higher incumbent margins of victory. This coefficient implies that doubling the contribution limit (e.g., raising it from \$500 to \$1,000, or from \$2,500 to \$5,000) increases the average margin of victory by 7.3 percent.<sup>21</sup> This interpretation of the estimate is due to the fact that the models estimated in Table 3 use the logarithm of the contribution limit.

Low limits are more effective than higher ones in reducing the incumbent's margin of victory. Figure 1 plots the contribution limit expressed in 2006 dollars, in thousands of dollars (limit 2006) against

the predicted margin of victory, based on the estimation results in Table 3, column 1. The graph shows that the last dollar allowed under a limit reduces the margin of victory by more when limits are low than when they are high. For example, reducing the limit by \$1,500 from a \$2,000 limit with a resulting limit of \$500 lowers the incumbent's

<sup>20</sup> The log transformation measures percentage rather than absolute differences between quantities. Thus, the difference between limits of \$1,000 and \$500 is equivalent to the difference between limits of \$20,000 and \$10,000.

<sup>21</sup> The implied elasticity of this estimate is computed by dividing the estimate by the mean of the dependent variable, the winner's margin of victory which is 56 percentage points (see Table 1, column 3). The result from this computation ( $6.1/56$ ) indicates that a one percent larger limit leads to a 0.11 percent increase in the margin of victory.

An alternative way to interpret this coefficient is to say that for a one thousand dollar increase in the limit, on average there is a 2.1 percent increase in the margin of victory. I compute this implied effect of a one thousand dollar increase in limits by dividing the point estimate of 6.1 in Table 3, column 1, by the mean of contributions (\$3,210 in 2006 dollars, see Table 1) and multiplying the quotient by 1,000. However, this computation is a measure for the average linear effect, and it is more useful to examine whether the effect of limits differs depending on the strictness of the limit as done in the text.

TABLE 4. EFFECTS OF \$500 CONTRIBUTION LIMIT IN 2006 DOLLARS ON MEASURES OF ELECTORAL COMPETITION IN RACES FOR WHICH CONTRIBUTIONS ARE LIMITED

<i>Clustered standard errors below coefficient estimates</i>					
	<i>Incumbent's Margin of victory (1)</i>	<i>Incumbent's vote share &gt; 55 percent = 1, 0 otherwise (2)</i>	<i>Incumbent's vote share &gt; 85 percent = 1, 0 otherwise (3)</i>	<i>Incumbent wins = 1, 0 otherwise (4)</i>	<i>Number of Candidates (5)</i>
Limit ≤ 500	-14.502** (5.804)	-0.158** (0.073)	-0.150*** (0.049)	-0.101* (0.054)	0.118* (0.066)
500 > limit	-9.507*** (3.178)	-0.064* (0.036)	-0.138*** (0.034)	-0.033 (0.028)	0.094 (0.059)
< = 1,000	-5.199** (2.238)	-0.044** (0.019)	-0.073*** (0.028)	-0.028* (0.014)	0.033 (0.042)
1,000 > limit	-5.120* (2.374)	-0.003 (0.019)	-0.096*** (0.030)	0.015 (0.019)	0.063 (0.042)
< = 2,000	4.263*** (1.238)	0.015** (0.006)	-0.056*** (0.022)	-0.0004 (0.0052)	-0.004 (0.013)
Term limit enacted	-12.833 (7.840)	-0.080 (0.063)	-0.075 (0.048)	-0.143* (0.075)	0.034 (0.063)
Democrat	25,810	25,810	25,810	25,810	25,810
Other party	0.17	0.08	0.14	0.05	0.23
Observations					
R-squared					

Notes: Standard errors in parenthesis and are clustered by state. \* significant at 10 percent; \*\* significant at 5 percent; \*\*\* significant at 1 percent. Election cycle and state indicators, as well as state-level demographic, income, and partisanship controls are included but not reported. Number of candidates is the log number of candidates. Columns one, four, and five report OLS estimates. Columns two and three report marginal effects from logit estimation.

margin of victory by approximately 8 percentage points. If the limit is reduced by \$1,500 from a starting point of \$8,000 with a resulting limit of \$6,500, then the margin of victory falls by approximately 2 percentage points.

The remainder of Table 3 shows that contribution limits are related with other measures of competitiveness and the relationship is statistically significant for the margin of victory and marginally so for the chances of defeating the incumbent. In particular, a doubling of limits decreases the likelihood of a close election by 5 percent (Table 3, column 2), raises the likelihood of a lopsided race by almost 9 percent (column 3), and increases the likelihood of incumbent victory by almost 4 percent. As in Table 2, the point estimates on the number of candidates is not statistically significant (column 5).

The point estimates on term limits and party affiliation have similar magnitudes as in Table 2. The introduction of term limits reduces the incumbent's margin of victory by 5.8 percentage points (column 1). The introduction of a term limit has roughly the same effect as cutting the contribution limit from \$1,800 to \$1,000. However, the effect of term limits is mainly to make large margins slightly less

large. They have little or no effect on the number of close races (column 2).

Table 4 examines whether the marginal effect of the tightest limits, namely, those where individuals can contribute only \$500 or less per election, increase or decrease competitiveness in elections. The regressions in Table 4 include three levels for contribution limits. The point estimates on these indicators should be interpreted as the effect of those limits relative to states with higher than a \$2,000 contribution limit.

The point estimates for the effect of the three levels of contribution limits on incumbent margins of victory have a negative sign and are statistically significant (column 1). The estimates measure by how much the victory margins change when a state reduces the contribution limit from above \$2,000 to \$500 or less, or to between \$501 and \$1,000, or to between \$1,001 and \$2,000. These results show that all three limits are effective in reducing the incumbent's margin of victory, but that limits of \$500 or less are the most effective. A limit of \$500 or less reduces the incumbent's margin of victory by 14.5 percentage points, a limit between \$501 and \$1,000 reduces that margin by 9.5 percentage points, and a



limit between \$1,000 and \$2,000 reduces the incumbent's margin by 5 percentage points.<sup>22</sup>

The pattern that competitiveness increases with the strictness of the limit is repeated for the other four measures of competitiveness. For example, the likelihood that a race is lopsided (column 2) falls by 15 percent with the strictest limit, 14 percent for the next limit category, and 7 percent in the limit range between \$1,001 and \$2,000. Limits of \$500 decrease the likelihood of a lopsided race by 15 percent (column 3), reduce the likelihood of an incumbent victory by 10 percent (column 4), and increase the number of candidates by 12 percent (column 5).<sup>23</sup>

The regressions in the previous tables include races that are close and ones that are lopsided in outcome. The finding that stricter limits apparently reduce the likelihood of incumbent victory does not directly answer the question of whether limits help challengers in close races. The regressions in the previous tables estimate only the average effect of limits, and do not account for the possibility that the effect of limits differs depending on whether the race is close or not. Are limits perhaps more effective in reducing incumbents' vote shares in uncompetitive races, while leading to challenger defeat in close races because limits constrain these challengers' ability to raise needed funds?

The results in column 4 of Table 4 do not support a hypothesis that limits hurt challengers in close races. To the contrary, the regression results show that \$500 limits increase the likelihood of incumbent defeat. I estimated the specification in Table 4, column 4 (the dependent variable equaling one if the incumbent wins the election) using a subsample of relatively close elections (races in which incumbents won with less than 60 percent). When doing so, the coefficient on the contribution limit indicator of \$500 or less increases, indicating that in close elections with \$500 or less limits, the incumbent is defeated with a 16 percent probability, rather than with the estimated 10 percent probability when examining all such races.<sup>24</sup>

The coefficients on the term limit variables indicate that enactment of term limits is followed by a decrease in the incumbent's margin of victory (Table 4, column 1). This finding could be explained by the hypothesis that term limits reduce the value of holding office, thus diminishing incumbents' incentive to campaign hard in reelection campaigns. Another possible explanation is that challengers in

term-limited states may run against incumbents who have not gained much seniority or associated name recognition. According to the estimation results, the introduction of term limits reduces incumbents' margins of victory by 5.1 percentage points (Table 4, column 1), or slightly less than going from having contribution limits above \$2,000 to contribution limits between \$1,000 to \$2,000.

Table 5 includes similar regressions as Table 4, but uses the entire 42-state sample. In contrast to Table 4, the regressions include an indicator for states that have any limits on individual giving and an indicator for incumbents who were elected to office when contributions were unlimited. The results are very similar to those in Table 4. First, the point estimates for limits of \$500 or less indicate that relative to states with contribution limits above \$2,000, \$500 limits reduce the margin of victory for incumbents by 12.7 percent, increase the likelihood of a narrowly fought election by 13 percent, decrease the likelihood of a lopsided race by 13.2 percent, and increase the number of candidates per race by 11 percent. The sign suggests an increase in the probability of defeating an incumbent, but that result is not statistically significant.

As mentioned previously, in Table 4 states with limits above \$2,000 comprise the reference contribution limit category for the interpretation of the point estimates for the contribution limit levels. Table 5 includes all races. Thus one can also measure the effect of the contribution limit categories in the first three rows of Table 5 relative to states

<sup>22</sup> Although the coefficient on the \$500 limit and the \$500 to \$1,000 limit indicator is statistically significant, the difference between the coefficients, although quantitatively important because the implied difference is over four percent, is not statistically significant.

The results are very similar when adding an interaction term between election cycle and the incumbent's party affiliation. This interaction allows for the possibility that nationwide swings in moods toward or against incumbents is party specific.

<sup>23</sup> Following Mayer et al. (2006) I graphed average measures of competitiveness before and after a law change. The graphs did not show evidence that the effects of stricter limits on competitiveness decreased over time.

<sup>24</sup> Focusing only on races where the incumbent receives less than 55 percent cuts the sample size roughly in half relative to the sample size when examining races with less than 60 percent. The point estimate on the \$500 limits is  $-0.10$ , similar as in Table 4, and only statistically significant at the 12 percent level. The lack of precision is most likely due to this sample's much lower sample size.

TABLE 5. EFFECTS OF \$500 CONTRIBUTION LIMIT IN 2006 DOLLARS ON MEASURES OF ELECTORAL COMPETITION IN RACES FOR WHICH CONTRIBUTIONS ARE LIMITED OR UNLIMITED

<i>Clustered standard errors below coefficient estimates</i>					
	<i>Incumbent's Margin of victory (1)</i>	<i>Incumbent's vote share &gt; 55 percent = 1, 0 otherwise (2)</i>	<i>Incumbent's vote share &gt; 85 percent = 1, 0 otherwise (3)</i>	<i>Incumbent wins = 1, 0 otherwise (4)</i>	<i>Number of Candidates (5)</i>
Limit ≤ 500	-12.661** (5.201)	-0.130** (0.061)	-0.132*** (0.049)	-0.074 (0.048)	0.113** (0.043)
500 > limit	-8.882*** (2.149)	-0.056** (0.023)	-0.110*** (0.030)	-0.019 (0.017)	0.104** (0.041)
< = 1,000	-3.039 (2.120)	-0.032** (0.013)	-0.035 (0.033)	-0.017 (0.010)	0.026 (0.039)
1,000 > limit	-4.295** (1.935)	-0.002 (0.013)	-0.075*** (0.026)	0.015 (0.012)	0.067** (0.028)
< = 2,000	3.244*** (0.899)	0.006 (0.005)	0.045 (0.015)	-0.004 (0.004)	0.004 (0.010)
Term limit enacted	-2.932 (7.593)	-0.054 (0.042)	0.072 (0.104)	-0.094** (0.045)	-0.049 (0.065)
Democrat	-4.138* (2.327)	-0.023** (0.010)	-0.073* (0.044)	0.002 (0.006)	0.026 (0.042)
Other party	3.222** (1.512)	0.024*** (0.008)	0.043* (0.025)	-0.002 (0.008)	-0.003 (0.024)
Limited contribution = 1	43,563	43,563	43,563	43,563	43,563
Incumbent under unlimited contributions	0.15	0.07	0.13	0.04	0.21
Observations					
R-squared					

Notes: Standard errors in parenthesis and are clustered by state. \* significant at 10 percent; \*\* significant at 5 percent; \*\*\* significant at 1 percent. Election cycle and state indicators, as well as state-level demographic, income, and partisanship controls are included but not reported. Number of candidates is the log number of candidates. Columns one, four, and five report OLS estimates. Columns two and three report marginal effects from logit estimation.

with no limit. In the Table 5 regressions I measure the effect of having no limits with an indicator for those states that have limited contributions as opposed to those without contribution limits. To obtain the effect of a \$500 limit or less, relative to states with no limits, one has to add the coefficient on the limit indicators in the first row to the coefficient on whether there is a contribution limit (limited contribution = 1). Doing so, the estimates show that having a contribution limit of \$500 or less reduces the incumbent's margin of victory by 16.7 percentage points and the likelihood of a narrowly fought election by almost 15.3 percent. In summary, as with Table 4, lower limits lead to more competitive elections.

## ROBUSTNESS

The reported results do not depend on the inclusion of any of the socio-economic, partisan, or election day registration variables. One can drop any or

all of the variables from the regression equation, and the results are very similar to those reported in the tables. To estimate whether the results change when one analyzes the effect of PAC contribution limits rather than individual limits on competitiveness of elections, I re-estimated all regressions, substituting PAC limits for individual limits. The results, which are available online,<sup>25</sup> are very similar to those reported for individual limits. This is perhaps unsurprising, considering that the correlation coefficient between log of individual and PAC limits is 0.8. As in Table 2, the PAC results show that the mere existence of having PAC limits increases the competitiveness of elections and that this effect increases as the size of the maximum allowed contribution decreases. The log of the PAC limit and low PAC contribution limits are statistically significant in most specifications, indicating that these limits increase

<sup>25</sup> <<http://www2.gmu.edu/centers/publicchoice/faculty%20pages/stratmann/index.shtml>>.

the competitiveness of elections. The major difference between the estimates for the two types of limits is that the point estimates for individual limits are somewhat larger than those for PAC limits.

Furthermore, the results obtained above—both for individual contribution limits and PAC limits—are not sensitive to the inclusion of district-level rather than state-level demographic data. Results available online<sup>26</sup> replace the state-level demographics with five district-level demographic variables: the percentage of the district's population that is African American, Asian American, or Hispanic (entered separately), the percentage of the district with a college degree, and the natural log of the district's average household income in constant 2006 dollars. The results are qualitatively similar to those discussed above. The primary difference is that conditional on district characteristics, low contribution limits have a much larger association with more competitive elections (lower vote shares, closer elections, fewer "blowouts," and fewer incumbent victories), but relatively higher limits have a smaller (and statistically insignificant) effect. I have replicated all of the results in the tables with district demographics; the pattern mentioned holds across all specifications.<sup>27</sup>

## CONCLUSION

This study examines how, if at all, campaign contribution limits affect the competitiveness of elections. First, it establishes that having a limit increases competitiveness. Second, it shows that by the most common measures lower limits lead to tighter elections. Depending on the specification, low limits of \$500 or less decrease the margin of victory by approximately 14 percentage points, increase the likelihood that an incumbent is held to 55 percent of the vote or less by approximately 13 percent, and increase the likelihood of incumbent defeat by up to 10 percent.

This study sheds light on why previous work has found only small effects of limits on elections. Most of the limits in those studies were in ranges where limits had little effect on contributors who gave at

levels below the limits. Once one focuses on tight limits, a discernible effect is found. These estimates suggest that the tightening of individual contribution limits facilitates more competitive elections.

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<sup>26</sup> <<http://www2.gmu.edu/centers/publicchoice/faculty%20pages/stratmann/index.shtml>>.

<sup>27</sup> Results available upon request.

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