

Gender Inequalities in Campaign Finance

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Abstract

Previous research suggests that female candidates do not face fundraising barriers; however, female politicians consistently report that fundraising is more difficult for them than their male colleagues. Using a regression discontinuity design to hold district characteristics constant, we study whether there is a gender gap in campaign fundraising for state legislators from 1990 to 2010. We find that male candidates raise substantially more money than female candidates. Further, male donors give more money to male candidates, while female donors, political parties, and PACs give approximately equally to men and women. At the same time, men face challengers who raise more money; consequently, male and female incumbents do not differ in the proportion of the overall district money that they raise in their next reelection bid. These results suggest that there are gender inequalities in campaign finance, but they may not have immediate consequence for women's representation.

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Women are significantly underrepresented in state legislatures around the United States. Nationally, women hold 25% of the seats in state legislative lower chambers and twenty two percent of state Senate seats.[§] Research suggests that this has implications for both the style and substance of policymaking (Karpowitz and Mendelberg 2014; Kathlene 1994; Swers 2002; Volden, Wiseman, and Wittmer 2013). Numerous scholars have sought to explain the gender gap in political representation, with many scholars focusing on men's and women's differential levels of political ambition, responsiveness to recruitment, and tolerance for competition (Fox and Lawless 2005; 2011; Kanthak and Woon 2015; Lawless and Fox 2010; Preece and Stoddard 2015; Preece, Stoddard, and Fisher 2015) and political parties' differential levels of support for male and female candidates (Crowder-Meyer 2013; Kanthak and Krause 2012; Sanbonmatsu 2006). On the other hand, existing evidence suggests that the campaign and election process itself does not disadvantage women (Brooks 2013; Dolan 2010; Hayes and Lawless 2015).

In particular, the literature on gender and campaign finance fails to find much support for the idea that female candidates are disadvantaged in raising funds, suggesting that campaign finance has little to do with women's underrepresentation. However, female politicians consistently report that fundraising is more difficult for them than their male colleagues. These candidates often identify male-dominated social networks as being one of the largest barriers to parity (Carroll and Sanbonmatsu 2013; Lawless and Fox 2010). Are female politicians mistaken in their perceptions? Or, is it possible that the existing literature has simply failed to detect the ways in which a candidate's sex matters for campaign finance?

[§] http://www.cawp.rutgers.edu/fast_facts/levels_of_office/documents/stleg.pdf

In this paper, we identify two challenges with the literature that could produce the existing null results and seek to rectify them with our analysis.

First, most scholars compare the amount of money male and female candidates raise. Although this is an important operationalization of the gender gap, it is not the only possible one. We offer several additional ways to measure how a candidate's sex influences campaign finance by looking at the ratio of campaign spending and who donates to whom, as well as the total amount of money spent in the race. Second, we suggest that existing studies suffer from omitted variable bias because men and women run in very different kinds of districts. We mitigate this problem by using a regression discontinuity (RD) design, which focuses on races between male and female state legislative candidates who run in districts that are otherwise similar (Anastasopoulos n.d.; Broockman 2014). By comparing the money that male and female barely-winning candidates raise in their next race, we are able to hold district and electoral factors constant and then measure the impact of having a male versus a female incumbent.

Although our design uses only a small subset of all state legislative races, these close races are precisely the races in which gender differences in campaign finance could actually affect the proportion of women in the state legislature. In these crucial marginal cases, we find that male candidates raise between 80% and 125% more than female candidates in their next election. As female state legislators claimed in interviews, most of this difference comes from individual male donors; female donors, political parties, and PACs give approximately equally to male and female candidates. However, male and female barely-winning incumbents both raise approximately the same proportion (just over 60 percent) of

funds vis-à-vis their opponent in their next election. It appears that male candidates' next elections are much more expensive, on average, than female candidates' next elections.

Several diagnostic tests confirm the advantage of using these election contests, by showing that there is balance around the 50 percent threshold used to determine the gender of the winning candidate (see the online supplementary materials). Moreover, additional analysis in the online supplementary materials shows that the results are robust to controlling for the legislators' characteristics and the electoral environment. Furthermore, the conclusions we draw are not dependent on the specific bandwidth choice we make to identify close races.

In short, after a close race, male legislators significantly out-fundraise similar female legislators, and male donors are much more generous to male candidates than female candidates. This likely accounts for female legislators' perspectives about the fundraising process. At the same time, because female legislators are not financially disadvantaged vis-à-vis their opponents, the gender gap in campaign finance may not have immediate negative electoral consequences—though it may have longer-term implications for women's representation.

The Importance of Money in Politics

Politicians and scholars alike have recognized the importance of money and fundraising in the democratic process. The first and most obvious way in which money can influence democratic process is through the spending of campaign resources to affect election outcomes (Gerber 1998). Furthermore, candidates often use money in an attempt to deter challengers from entering the race (Epstein and Zemsky 1995) and recent research suggests

that fundraising is an important component of the incumbency advantage (Fournaies and Hall 2014). Moreover, candidates often use the money they have raised to support other like-minded candidates (Kanthak and Krause 2011; Powell n.d.) or as preparation for seeking higher office (Berkman and Eisenstein 1999; Maestas et al. 2006). In this way, even the most electorally secure incumbent still has incentives to raise large sums of money.

In response to the importance of maintaining a sizeable financial warchest, candidates report spending a significant amount of their time on fundraising (Francia and Herrnson 2001). To wit, recent reports suggest that congressional candidates are encouraged to devote several hours a day to soliciting campaign contributions.** Moreover, legislators frequently note the unpleasant nature of continually asking for money (Francia and Herrnson 2001). Despite this aversion to fundraising, candidates at the state and federal level have raised increasingly large amounts of money, suggesting that the perception of the importance of campaign money outweighs many candidates' personal reservations about continually fundraising. Figure 1 shows that in the last 25 years, the average amount of money raised by a state legislative candidate has nearly tripled (after accounting for inflation). This trend follows similar trends in federal races for the House and Senate as well (Jacobson 2012). In word and deed, candidates show that fundraising is important to their political careers.

Money, gender, and politics

If campaign funds are important for a politician's success, then large differences in the amount of money that male and female candidates raise is troubling and may help to account for the underrepresentation of women in office. Beyond disadvantaging them in a given

** <http://www.washingtonpost.com/blogs/wonkblog/wp/2013/01/14/the-most-depressing-graphic-for-members-of-congress/>

campaign, a lack of money could increase their vulnerability to challengers, limit their opportunities for higher office or party leadership, and decrease their ability to gain status within their party by supporting their fellow partisans.

However, existing literature on gender and campaign donations finds little reason for concern. In the first major study of gender and campaign funds, Burrell (1985) finds that although male candidates for the House of Representatives from 1972 to 1982 raised more money than female candidates on average, male and female candidates in similar types of races and within the same party raised similar amounts. Other studies of Congressional races also find parity between similarly situated male and female candidates (Burrell 1994; Thomas and Wilcox 2014; Uhlaner and Schlozman 1986). And, although an early study of state legislative candidates showed a male advantage in fundraising (Burrell 1990), more recent studies of state and local candidates do not (Adams and Schreiber 2011; Hogan 2007).

However, a 2008 survey of state legislators finds that 62 percent of Democratic women and 44 percent of Republican women believe that fundraising was more difficult for female candidates than male candidates (Carroll and Sanbonmatsu 2013, 117). In particular, many female legislators believe that men's professional networks give them access to more—and larger—donors. One female Republican describes the challenge this way:

“The problem is these women think \$100 is a lot of money. My last race was \$250,000. Guys are used to writing big checks and they have more...male associates they can get that kind of money from. I don't have a best friend that owns a company. And I don't have a best friend that...is a big wheel in some particular outfit like the Chamber [of Commerce].” (119, ellipses in original)

Given the lack of scholarly research to support the claim that women have more trouble raising money than men, these remarks present interesting questions about whether women

simply perceive there to be gender differences or whether existing research has yet to capture reality.

Aside from the quantity of money raised, there are other ways in which the existing literature notes that fundraising affects male and female candidates differently. The value of campaign spending differs between men and women: the money male challengers spend goes much further than the money female challengers spend (Herrick 1996); it also goes further than the money their female incumbent opponents spend (Green 2003). Female politicians tend to be more concerned about fundraising than male politicians, and they devote more of their time on fundraising from a wider variety of sources using a wider variety of techniques (Jenkins 2007).

Female candidates also tend to draw their funds from different sources than men. In particular, female-focused PACs such as EMILY's List and WISH List play a vital role in supporting pro-choice women, though women raise a higher proportion of their money from individual donors than PACs (Crespin and Deitz 2010; Francia 2001; Hannagan, Pimlott, and Littvay 2010). Women also tend to raise more of their money from smaller donors (Crespin and Deitz 2010). Furthermore, Swers and Thomsen (n.d) find that female Congressional candidates, especially Democrats, raise much more of their money from female donors than male donors.

Obstacles to Identifying the Existence of Gender Gaps in Campaign Finance

Given these differences, it is difficult to know why (or even whether) female candidates face greater challenges in fundraising than their male counterparts. The first challenge to testing for a gender gap in fundraising is to identify how to measure the outcome. Most

studies focus on the amount of money that candidates raise, comparing the amount raised by similar male and female candidates. On the most basic level, this is done by estimating a model that controls for other relevant factors and tests to see whether women raise more or less money than men (see Equation 1).

$$\text{Dependent Variable}_i = \alpha + \beta \text{Female}_i + \gamma X_i + u_i \quad (\text{Equation 1})$$

If the model is correctly specified to include all relevant covariates (i.e., the matrix X), then the coefficient β in Equation 1 will provide an estimate of the difference in fundraising between women and men.

One could also use Equation 1 to estimate a number of other outcomes. This includes looking at how much male and female candidates raise relative to their opponents (Fournaies and Hall 2014). In other words, what proportion of the funds in the race does the female candidate raise? It is possible that male and female candidates raise similar amounts of money, but candidates who challenge women raise much more than candidates who challenge men. This would harm women's electoral prospects, perhaps even more directly than differences in the raw amount of money raised.

Similarly, male and female incumbents might experience differential treatment in who donates to them. In other words, a candidate's sex may influence donors' decisions to give money to that candidate. Previous work suggests that homophily may be at work in politicians' financial networks, with women raising more money from female donors (Thomsen and Swers n.d.). Because the overwhelming majority of donors are men, if female candidates rely more on women to raise money, this may put them at a disadvantage. Again, we could use Equation 1 to estimate the level of bias, looking at how much candidates raise from male and female donors respectively.

Equation 1 provides a way of estimating gender bias; however it relies on the important assumption that the model accounts for all other relevant variables. If not, then omitted variable bias can affect the estimates. Omitted variable bias is particularly likely to be a problem when studying gender and fundraising because, as Palmer and Simon show, women and men represent districts that are very different on average (2006). As a result, the incumbent's sex and ability to fundraise is likely to be confounded with many of these pre-existing differences, such as the district's demographics, underlying partisanship, party organization, and donor networks. In other words, when we compare men and women we cannot rule out that any results simply reflect the differences in district characteristics and have nothing to do with the politician's sex.

Although most recent studies of gender and campaign finance take steps to mitigate this concern by controlling for (or subsetting by) candidate's party, district partisan composition, incumbency, and seat type, many do not move beyond these very basic controls (Burrell 2014; Thomas and Wilcox 2014). Hence, the threat of bias remains because of unobserved differences that are correlated with both women's electoral success and fundraising patterns. Three difficult-to-measure district characteristics in particular come to mind. First, party organization and structure vary greatly across districts, and this is correlated with women's electoral prospects (Sanbonmatsu 2006). Second, the structure of political and social networks differ greatly, and this is also correlated with women's electoral success (Crowder-Meyer 2011; 2013; Niven 1998a; 1998b; 2006). Finally, a variety of aspects of sociopolitical culture, though difficult to measure, also affect women's prospects (Hill 1981; Windett 2011). It is not difficult to imagine that party organization, political networks, and political culture could also be correlated with fundraising patterns. And there are no doubt other

variables that are less obvious but still important. Although it may be possible to design more complete models of campaign finance with these variables included, we take a different approach in this paper by turning to regression discontinuity as an identification strategy.

Research Design, Case Selection, and Data

Rather than trying to control for all possible confounding factors, we use a regression discontinuity design to identify incumbents who represent districts that are otherwise similar. This quasi-experimental design allows us to mitigate omitted variable bias and estimate the differences in fundraising outcomes discussed above.

A number of recent papers have used the regression discontinuity method to address questions relevant to political science (Butler and Butler 2006; Fournaies and Hall 2014; Lee 2008). The key feature of a basic RD design is that assignment into the treatment status is based on passing some preset treatment threshold on a continuous selection variable that is observed by the researcher. Under the assumption of random assignment of the treatment in the neighborhood of the treatment threshold, the researcher can compare the observations just above the treatment threshold to those just below it to estimate the effect of receiving the treatment. In other words, those observations which just barely missed passing the threshold (and therefore failed to receive the treatment) provide the counterfactual for those observations which barely passed the threshold and received the treatment. This is because, on average, the only difference between the two groups is that one received the treatment and the other did not, just as it would have been had we run a randomized controlled experiment.

For example, suppose we are interested in finding out whether having a Democratic (Republican) governor helps the Democratic (Republican) presidential candidate in the state

(Erikson, Folke, and Snyder 2015). In this case, the treatment is having a Democrat for governor, and Republican governors serve as the control group. Assuming there is no major third party candidate, the selection variable for the treatment status is simply the Democratic candidate's two-party vote share with the treatment threshold set at 50 percent. If the Democratic candidate for governor receives more (less) than 50 percent of the two-party vote share then the Democratic (Republican) candidate wins and the state receives the treatment. In the RD design, we compare the presidential election results in states where the Democrats *barely won* to the presidential election results in the states where the Democrats *barely lost*. The difference in the vote shares of these two groups is the effect that Democratic governors have on Presidential election results.

We are interested in the fundraising experiences of male versus female state legislators. As discussed above, comparability between male and female legislators is difficult because they represent, on average, very different districts (Palmer and Simon 2006). We use a regression discontinuity design to avoid this potential omitted variable bias problem. In this case, we consider races where male and female candidates face off and use the proportion of the votes won by the female candidate as the variable that determines treatment assignment. In these "battle of the sexes" races (Anzia and Berry 2011), the treatment now becomes whether or not the district has a male or female incumbent (and all that goes with that).

When the share of the vote for the female candidate is larger than fifty percent, the female candidate wins. Likewise, when the share of the vote for the female candidate is slightly smaller than fifty percent, the male candidate wins. In either situation, the two candidates receive comparable vote shares in the general election (approximately fifty percent) but in one case the winner is female and in the other the winner is male. Because we

compare candidates from these close races, factors not associated with the gender of the legislator, such as constituent preferences, political culture, party structure and networks, and district competitiveness should be, on average, indistinguishable between the two groups.

We then compare the fundraising by the male winners and female winners in the following election cycle. Differences between these two groups of legislators should be due purely to gender differences because district and electoral factors are balanced between the treatment and control groups of legislators. Our own tests, which are presented in the online supplementary materials, show that there is balance on several important pre-treatment characteristics, supporting the quasi-random assignment assumption that we make for our analysis.^{††} Further, the results are robust to the inclusion of various controls for the legislators' characteristics and the electoral environment of the race (see the online supplemental materials).

Before we discuss the data and empirical results, it is worth noting three things. First, as mentioned above, the RD design methodology only identifies the local average treatment effect.^{‡‡} In this study, that means that we only learn about gender differences among legislators in tightly contested races. As we describe in more detail below, we believe that although this limits the generalizability of the results, these close races are actually the most important cases to understand if one is concerned about women's underrepresentation in office.

^{††} These variables include the Democratic vote share in the previous election, amount of money raised in the previous election cycle, the likelihood of the candidate being an incumbent, and the probability of having a female candidate in the previous election.

^{‡‡} However, recent work by Hainmueller, Hall, and Snyder (2015) suggests that regression discontinuity results of the incumbency advantage appear to be generalizable beyond the small neighborhood around the electoral threshold to elections with margins as large as 15 points.

Second, the key assumption of using a RD design as an identification strategy is that there is no self-selection near the threshold. The assumption of comparability and assignment between the treatment and control units in regression discontinuity designs has been tested in a number of cases. Recent work in the U.S. House challenges the validity of this assumption (Caughey and Sekhon 2011; Grimmer et al. n.d.). However, most recently, Eggars et al. (2015) show that over several decades of state legislative races there appears to be no evidence of manipulation around the threshold, allaying concerns that the key identification assumption fails to hold in this context. In other words, whether or not a state legislator wins a very close election appears to be as-if random. In Figure 1A in the online supplemental materials, we provide a variety of balance tests that also indicate that sorting does not occur on several observable variables near the treatment threshold in our sample. We test for this by looking at four variables that could indicate pre-treatment sorting around the discontinuity (election $t-1$). The top left panel shows that there is no difference at the discontinuity of the likelihood of a female candidate running for office in the prior election cycle. The top right panel shows the distribution of total spending in the district in the prior election cycle. We see no differences around the discontinuity. The bottom left panel addresses the partisanship of the district and shows no difference at the discontinuity in the prior democratic vote share in the district. Finally, the bottom right panel of Figure 1A shows no difference in the likelihood of the female candidate running in the district at time t being the incumbent. Together these results, which are discussed further in the online appendix, suggest that the excludability assumption holds at the threshold in these districts where women candidates face off against male candidates.

Third, as noted above, our design identifies the effect of having a female (or male) incumbent *and everything that goes along with that*. The key identifying assumption is that the winning candidate's sex (and thus the incumbent's sex in the next election) is the only difference between the men and women in these elections that has an effect on the outcome (in this study, campaign fundraising).

One way in which this assumption may fail is that women are likely to be of higher quality. Indeed, both Anzia and Berry (2011) and Fulton (2012) find evidence that female MCs are of higher quality than male MCs. However, we do not find gender differences in candidates' previous elected experience, a common measure of candidate quality, in our data. Based on a variety of sources, we code candidates for whether they have held any prior elected office before running for the state legislature. We then test for differences around the discontinuity for the likelihood of female and male candidates having previous elected experiences. We find no such differences (95% CI = [-0.05 0.12]). Figure 2A in the supplemental materials shows this. Perhaps more importantly, it is unclear how this violation would affect the results if it were true. It is natural to think that higher quality incumbents are likely to raise more money; however, Prat, Puglisi, and Snyder (2011) find only weak evidence that more effective legislators receive more funds. So although women are of higher quality, this higher quality may not necessarily directly translate into higher campaign funding. Indeed, it may have the opposite effect. Grimmer and Powell (2013) find that MCs raise more funds when they lose key committee assignments, suggesting that incumbents who are weaker in one area, compensate by raising more funds.

The incumbent's sex and quality may also affect who challenges them. If women are of higher quality, they may scare off potentially tougher challengers. Some of the outcomes

we test measure how the winning candidate does relative to their challenger. If the sex of the incumbent affects the type of challenger they face, this will in turn affect these outcomes. However, in our data, male and female incumbents are equally likely to face a challenger (versus running unopposed) in their next election. The supplemental materials show this visually and discuss the similarities between female and male candidates. So, although we cannot measure the quality of the challenger, we do have some reason to believe this assumption holds. Despite these limitations, our design allows us to gain new insights because it allows us to compare candidates coming from comparable districts.

Data and Case Selection

The data on donations comes from Adam Bonica's (2014) Database on Ideology, Money in Politics and Elections (DIME). The DIME dataset provides comprehensive information about the amount, source (including the donor's sex), and recipient (including the candidate's sex) of each donation. Because Bonica's dataset identifies the sex of each candidate and donor, we can use the dataset to identify how much each male and female incumbent raised, how much male and female incumbents raised relative to their challenger, and how much they raised from male and female contributors. We also use data on elections from Klarner et al., which provides information on all state legislative elections from 1967 to 2010.^{§§} Because we have comprehensive data on campaign donations at the state level starting with the 1990 cycle, we restrict our analysis to 1990-2010. We also eliminate elections surrounding the redistricting cycles of 1992 and 2002.

Many state legislative races feature incumbents who run uncontested (Rogers n.d.), and among those that are contested, the majority contain races with no female candidate. For our

^{§§} <http://www.indstate.edu/polisci/klarnerpolitics.htm>

RD analysis, we include all cases in which men and women ran against each other in competitive state legislative races between 1990 and 2010 (excluding redistricting years). This accounts for 16 percent of all state legislative races in this time period. We further restrict the sample in our analysis by only looking at close races. When the RD bandwidth is plus or minus two percentage points from a tie, this leaves us with 311 cases.^{***}

Regression discontinuity designs recover the local average treatment effect which limits the generalizability of all regression discontinuity results. Although we acknowledge that limitation, there are reasons to be especially interested in these marginal, battle-of-the-sexes cases. First, the outcomes of male versus female races directly shape the sex composition of the legislature. In all-male and all-female races, the sex of the winner is a forgone conclusion. Who wins and loses the contest is irrelevant for questions of gender and representation. Furthermore, in 85 percent of cases in which a woman ran, it was against a male candidate. Second, it is precisely in close races that differences in campaign finances have the potential to change the result (Erikson and Palfrey 2000). Gender differences in campaign finances are unlikely to change the outcomes in districts where the incumbent wins election with 90, or even 60 percent of the vote. However in districts with hotly contested races, any financial differences that results from the sex of the candidate could plausibly affect the outcome. Hence, examining fundraising in close male-female races is crucial to understand the role that fundraising plays in women's underrepresentation. The electoral outcomes in all other cases either do not have the potential to influence the gender composition of legislatures or are unlikely to be influenced by campaign finance.

^{***} Increasing the bandwidth increases the number of cases. As Figure 2A in the supplemental appendix shows, our substantive results remain regardless of the size of the bandwidth and sample.

Before we proceed to the analysis, some context is valuable. Figure 1 presents the data on the inflation-adjusted, aggregate amount that men (dashed line marked with squares) and women (solid line marked with circles) raised in state legislative races during those years. Overall, both men and women saw a significant increase in the amount they raised. In 1990, candidates raised an average of about \$45K per race. In the mid to late 2000s, the number was close to \$100K. Much of the increase occurred during the 1990s. The raw data also shows a difference between men and women starting in the late 1990s. In 1998 and every subsequent election cycle, men outraised women by \$5K-\$15K. Given that candidates raise about \$90K, a difference of \$15K represents a significant disadvantage. The difference is even larger ($\approx 30K$) when looking exclusively at incumbent legislators. We show this in the online supplemental materials. Can this difference be attributed to the candidate's sex? As already outlined, men and women represent different districts and may choose to run in different situations. We need to test whether the difference persists even when we compare similarly situated men and women.

FIGURE 1: Gender Differences in Fundraising-All State Legislative Candidates

Gender Bias in Campaign Fundraising

We now present the regression discontinuity estimates of how a candidate's sex affects the 1) amount of money male and female incumbents raise, 2) how much of this money is raised from individual donors (male and female), interest groups, and political parties, and 3) the proportion of the money that male and female candidates raise in their next election. In the online supplemental materials, we present the results when we vary the bandwidth used

to decide which races are included in the sample. These tests show that our conclusions are not dependent on the specific bandwidth we chose for the analysis.

We begin by looking at differences in total fundraising between men and women. Figure 2 shows the difference between male and female incumbents in terms of total money raised. Recall that the sample is restricted to legislators who won their general election against a candidate of the other sex. The x-axis gives the percentage of the vote that the female candidate received in a particular election. When the female candidate receives less than 50% of the vote – everything to the left of the dotted vertical line – the male candidate wins the race and becomes the incumbent. By contrast, when the female candidate receives more than 50% of the vote – everything to the right of the dotted line – the female candidate wins the race and becomes the incumbent. The y-axis then displays how much money each incumbent legislator raises in the subsequent election cycle. Each point in the figure is the average amount of money raised (y-axis) for each 1/10 of a percentage point change in vote shares (x-axis). The lines represent locally weighted regressions that are fit separately on either side of the 50% threshold. Because we examine competitive races, we see that the amount raised in these races is higher than the average amount in the sample of all races (see Figure 1 vs. Figure 2). The advantage of using the RD design in this context is that as we get closer to the threshold (i.e., the vertical line showing when women receive 50% of the vote), we are able to compare cases in which other factors (such as unobserved district characteristics) are very similar.

FIGURE 2: Total Contributions Raised in Next Election Cycle

Figure 2 shows that the bias observed in the aggregate data in Figure 1 remains when we compare male and female candidates from similar districts. Similarly positioned men raise more than women by about \$75K for the most competitive races near the threshold (the difference on the y-axis between the two loess lines at the 50 percent threshold). This is considerably larger than the bias we observed in the aggregate data, and shows that men raise significantly more money than their female counterparts in these most crucial cases.^{†††} The Supplemental Appendix shows the same result as Figure 2 but with logged donation data and displays the entire distribution of the data (rather than averages based on 1/10th of a percentage point bins). The results are consistent with those shown in Figure 2.

Table 1 presents the same results of the RD model using a linear regression model for all of the outcomes within two percentage points of the 50% female vote share cutpoint. The dependent variable of the model in the first column is the log of the amount of money raised in a barely-winning incumbent's next election. We use the log of the amount of money raised to account for the severe right skew in the contribution data. Furthermore, research suggests that campaign spending may exhibit diminishing marginal returns (Krasno and Green 1988). Because we are using the log of the amount raised as the dependent variable, the coefficient on *male winner* gives the percent change in the outcome.^{‡‡‡} The first column shows that the

^{†††} One potential concern is that women who win close elections may be less likely to continue to pursue reelection. If women are systematically choosing not to run again, this may lead to only women who think they can win comfortably to run again, thus biasing female candidates' future fundraising amounts. However, we actually find that in close races women are approximately 15 percentage points ($p < .1$) more likely to pursue reelection than similarly positioned male candidates.

^{‡‡‡} The exact formula for interpreting coefficients with logged dependent variables is a one unit increase in X leads to a $(\exp(b) - 1) * 100$ percent change in Y. We use this formula for interpreting all of the effects in the tables which use logged contributions as the dependent variable.

estimated difference between a man winning and a woman winning in election (t) is .81, which translates into a 125% increase in money raised in the next election cycle ($t + 1$).^{§§§}

TABLE 1: Regression Discontinuity Results—Amount Raised

Regression discontinuity designs assume that whether or not a district is treated is “as-if random,” and the balance checks shown in the Supplemental Appendix are consistent with these assumptions. However, to alleviate any concerns about the robustness of our findings, we also include a number of control variables in an additional series of models. Specifically, we replicate the models shown in Table 1 but include several additional control variables that could affect candidate fundraising. The results remain consistent with those in Table 1. First, because female candidates are more likely to identify as Democrats, we account for the party of the candidate with a dummy variable that is equal to 1 when the candidate affiliates with the Democratic Party. We also account for the ideology of the candidate by including the CF Score of the legislator. The CF Score (Campaign Finance Score) is a measure of legislator ideology created by Bonica (2014) and has the benefit of being the most extensive measure of state legislator ideology. We also account for the size of the district by including a variable that measures the total number of votes cast in the election (in 1000s). Furthermore, because it may be the case that female candidates are systematically different in their level of political experience, we include a variable that accounts for whether or not the candidate has previously served in

^{§§§} One potential concern with these results is if female candidates are more likely to wait to run in an open seat so as to avoid the costs of challenging an incumbent. However, when we compare female and male candidates we see no difference in the likelihood of an open seat race. Both sexes run in open races about 40% of the time.

elected office. Moreover, we include the Squire measure of legislative professionalism to account for differences across the states that may relate to fundraising (Squire, 2007). For example, more professional state legislatures tend to have more expensive campaigns and more often face higher quality challengers. In addition, we account for the percentage of the chamber's current legislators that are female, the partisanship of the governor, the state's presidential vote share and the number of candidates who have entered the race. Finally, we interact the party and ideology variables to allow for different effects of ideology on fundraising for each party.

Even after including these variables, the results in Table 2 are consistent with those shown in Table 1. Male legislators who barely win election against a female candidate go on to raise more money overall in the next election cycle than female candidates who barely win against male candidates. As we will discuss in the next section, this is the case for individual contributions and donations from male donors, as in Table 1. This is not the case with PAC donations or donations from female donors.

TABLE 2: Regression Discontinuity Results—Controls Included

Donation Patterns: Individual Donors, Interest Groups, and Parties

What is the source of this large gender gap in fundraising? The biggest sources of money for state legislative candidates are individual donations and interest group contributions, with political party donations also playing an important role. Previous research suggests that the primary motivations for these groups are quite different. Interest groups primarily give to candidates as part of a strategy to gain access to the legislative

process and ensure the opportunity to communicate and interact with legislators (Hall and Wayman 1990). Given this motivation, PACs tend to support likely winners (Snyder 1990), incumbents (Fourinaies and Hall 2014), and members of specific committees that legislate on issues related to the interest groups' concerns (Grimmer and Powell 2013). Political parties tend to donate to help their party's candidates in an effort to maximize seats in order to obtain a majority (Ansolabehere and Snyder 2000). On the other hand, individuals tend to give for less strategic reasons. Ideology, partisanship, and other idiosyncratic personal reasons tend to guide individual donors' donation decisions (Barber n.d.; Francia et al. 2003).

Given these differences in motivations, we expect that the sex of the candidate may affect interest group and political party contributions differently than individuals. Among political parties and PACs, we do not expect the sex of the winning candidate to influence the donation behavior of these groups. A female incumbent can provide a group with access to the political system or a political party with a win to the same extent that a male incumbent could. If bias exists, we expect it to be strongest among individual donors.

The second, third, and fourth columns of Table 1 show RD estimates for donations from individuals, political parties, and PACs respectively. The model specification is the same as before, only now we look separately at the sources of the donations.

Individual Donors: The second column of Table 1 shows that men raise more money from individual donors than women (a difference that is statistically significant). In fact, male candidates outraise female candidates by nearly 200 percent when looking at donations from individual donors. Because the largest source of funds in state legislative races is contributions from individual donors, this bias strongly favors men.****

**** Author citation

Interest Groups and Political Parties: The third and fourth columns of Table 1 show that PACs and political parties discriminate much less on the basis of gender. Men raise slightly more from PACs and parties, but the size of that benefit is much smaller than the benefit they enjoy for individual donations and the difference fails to achieve traditional levels of statistical significance. This finding confirms the expectations from previous theories that point to PACs as strategic, access-oriented contributors and parties as strategic, victory-oriented contributors, and therefore less likely to be influenced by candidate characteristics.

Source of the Gap: Male and Female Donors

Given that the gender gap in fundraising appears to be concentrated among individual donors and not among interest groups or parties, we further investigate the degree to which this difference in fundraising between men and women is due to different preferences among male and female donors. In many domains, individuals prefer to help candidates who are more like them (McPherson, Smith-Lovin, and Cook 2001). Furthermore, existing research suggests that female donors play a crucial role in funding female candidates' campaigns (Crespin and Deitz 2010; Francia 2001; Thomsen and Swers n.d.). Hence, homophily is one reason that donation networks might be gendered. Because men comprise roughly 80 percent of individual donors, this could account for the gender gap in campaign contributions.

Male Donors: The left panel of Figure 3 shows that male candidates raise significantly more money from male donors than female candidates do. This difference appears to partially explain the source of the gender gap in the amount of money that candidates raise: differences in fundraising among these candidates come almost exclusively from male donors who give more money to male candidates. The difference in the average amount

raised on either side of the cutoff is nearly \$15,000. Column 5 in Table 1 confirms the results of the left panel of Figure 3. When a male candidate wins, he raises approximately three times more money in the next election cycle from male donors than does a similarly situated female candidate.^{†††}

Female Donors: The right panel of Figure 3 shows that male and female candidates earn approximately the same amount of their money from female donors. Unlike in the previous figure, at the cutoff there is not a clear jump in contribution amounts. Barely-winning male candidates appear to raise an equal amount of money from female donors in the next election cycle as do barely-winning female candidates. The sixth column in Table 1 shows that there is no statistically significant difference in the amount of funds that female donors give to male and female candidates. This is a surprising finding, given the existing literature on the outsized role that women play in female politicians' fundraising efforts. Women do, indeed, make up a larger part of female candidates' donor base. But that is mostly because men are so much less likely to donate to them, rather than women being more likely to donate to female candidates.

FIGURE 3: Contributions Raised from Female and Male Donors

Gender Differences in the Proportion Raised

The total amount of money raised by a candidate is not the only way to think about fundraising differences. In many cases, scholars look to the differences that exist between the amount of money raised by each of the two major party candidates (Fournaies and Hall 2014). The proportion of the total money raised in the district that each candidate raises

^{†††} $100 * (\exp(1.15) - 1) = 215.8$

gives us an indication of any financial disadvantages that exist between the two candidates. Thus, the difference in the proportion of the money in a race that the incumbent raises is also an important indication of whether there is gender bias. Indeed, this may be a more practically important indication of bias, because candidates are likely more concerned about how much money they have in comparison to their opponent than in comparison to national averages.

The left panel of Figure 4 looks at the proportion of all money raised in the district that belonged to the winning candidate. Again, points to the left of the vertical dotted line indicate male candidates who won and points to the right of the line indicate female candidates who won. Three noteworthy patterns emerge from the figure. First, in most cases the incumbent raises more than half of the district's total funds, as is seen by the fact that the majority of data points largely reside near the top of the graph. This aligns with previous work that finds that incumbents enjoy a measurable financial advantage (Fourinaies and Hall 2014). Secondly, the V-shape pattern in the data shows that in districts with competitive races (as measured by the closeness of the race between the incumbent and challenger), fundraising in the next election cycle is also more balanced between incumbent and challenger. This is perhaps not surprising; incumbents who barely won are more likely to be vulnerable and therefore more likely to attract a strong challenger in the next election cycle (Krasno and Green 1988).

FIGURE 4: Total Contributions Raised in the District

The third feature of the graph is most applicable to the present study. The left panel of Figure 4 shows that there is no significant difference between male and female candidates in

the *proportion of money* they raise in the election cycle following their previous close victory. This is surprising given the large gender gap in absolute fundraising amounts shown in Figures 2 and 3. The left panel of Figure 4 shows that men and women candidates who barely won competitive races raise roughly the same proportion of funds in their next race—just over 60 percent. Table 3 confirms this result using a linear regression specification. The coefficient for *Male Winner* in the first column of Table 3 shows that men and women raise an equivalent share of the district’s funds in the next election cycle after a very close victory. Though there is a significant difference when considering the amount of money raised (Table 1, Column 1), there is not a significant difference when considering the share of the district’s contributions that the incumbent received in his or her next election. As with previous analyses, these results hold in the presence of a variety of controls. These models appear in the Supplemental Appendix.

TABLE 3: Regression Discontinuity Results—District Money Raised

How can the results of Figure 2 and Table 1, which show dramatically lower fundraising by female legislators, be reconciled with the left panel of Figure 4 which suggests that women raise roughly the same proportion of the district’s contributions as their male counterparts? Given that men raise more money overall, this finding can only occur if male incumbents’ races are also more expensive. To measure this, we conduct the same analysis as in the previous figures, but change the y-axis to show the absolute amount of money raised in the district by both candidates. Again, we focus on the money raised in districts with men and women who barely won or lost their previous race by a very narrow

margin. The right panel of Figure 4 presents these results. It immediately becomes clear that male incumbents who barely win go on to compete in districts that are dramatically more expensive than their female counterparts in terms of total spending in the district. So, although male incumbents raise more money than females, the challengers in these races appear to also be doing the same thing. Thus, men raise more than women (Figure 2), but women and men raise equal shares of the district's total contributions (Figure 4, left panel) because candidates in districts with male incumbents are spending significantly more in total than districts with a female incumbent (Figure 4, right panel).

We are not able to precisely identify the causes of this difference between the costliness of male and female incumbents' races with this data. And, it is especially puzzling because, as Figure 1A in the supplemental online materials show, prior spending in these districts was almost identical. However, we can rule out one potential mechanism. It could be the case that women are less likely to face challengers than men. If this is the case, then their races would likely be much less expensive events. However, as shown in the online supplemental materials, we do not find this to be the case. Men and women who won a very close election go on to face challengers in their next elections at roughly the same rate (about 90 percent of the time). To be clear, this does not measure the quality of the challenger, which may be different. Furthermore, as shown in the online supplemental materials, female barely-winning candidates are equally likely as similarly positioned male candidates to win their next election contest. Whatever the reason, the result shows that by the proportional standard, there is no gender bias in campaign fundraising. Men and women incumbents bring in roughly the same proportion of the total funds that are raised in the district because the races

with male incumbents are dramatically more expensive events than races with female incumbents.

Discussion and Conclusion

Although previous studies have been mostly sanguine about the possibility of gender bias in campaign donations, we present a more complex story. Our results are based on a regression discontinuity design, which has the advantage of mitigating omitted variable bias associated with the district. We find that male barely-winning candidates significantly out-fundraise female barely-winning candidates in their next race. This at least partially vindicates the women in Carroll and Sanbonmatsu's survey of state legislators who insist that it is more difficult for women to raise money than it is for men (2013). Furthermore, these women's intuition that the root cause is lack of access to male donors is also consistent with our findings. Although female donors, parties, and PACs donate to men and women at roughly equal rates, men donate significantly more to male candidates than to female candidates. This imbalance is magnified by men make up the bulk of the donor base.

Our findings also speak to the existing research on gender and campaign finance that has focused on the important role that female donors play in women's campaigns. Our results suggest that women do make up a larger proportion of female candidates' donors than male candidates' donors. But this is primarily because men give so much more money to men than to women. In other words, the existing finding appears to be largely because of differences in the denominator (men's contributions + women's contributions), not the numerator (women's contributions). In fact, it may actually be more appropriate to talk

about the disproportionate role that men play in male candidates' fundraising portfolios, rather than the disproportionate role female donors play in women's fundraising portfolios.

At the same time, we find that although male candidates raise more money, so do their opponents. As a result, based on the proportional standard, female candidates appear to not be disadvantaged relative to their male counterparts. This raises the question, which standard should be used when evaluating gender bias in fundraising? For many, the major concern about potential gender bias in fundraising is that women will have less money than their opponents, resulting in worse election outcomes for these female candidates. Our results suggest that this concern is likely misplaced. Women do not seem to be in a worse financial position to win their elections than men.

However, second-order concerns may arise from the difference in the absolute amount of money male and female candidates raise. For example, recent research has suggested that campaign money affects legislators' power within the legislature. Powell shows that a part of obtaining power within the chamber is fundraising for fellow members (n.d.). If women raise less money overall, they may have a harder time obtaining and maintaining formal and informal influence within the legislature. Additionally, because donor lists are often shared between candidates, a more extensive donor list may bring greater influence within one's party or caucus. Finally, the amount of money a state legislative candidate raises may also influence the extent to which they are seen (or see themselves) as viable candidates for higher office or party leadership.

The results of this study raise the question of why races with male incumbents involve more money from all sides than the races with female incumbents. The definitive answer to this question is beyond the scope of this study, but one possibility is that male incumbents

trigger a financial arms race: they raise more money (especially from male donors), and in order to be competitive, their opponent does too. In this story, the fundraising bias that favors male candidates does not ultimately help them. It simply raises the bar for all candidates in the race. Another explanation relates to the general consensus that female candidates tend to be of higher quality than male candidates (Anzia and Berry 2011; Fulton 2013; Pearson and McGhee 2013; Volden, Wiseman, and Wittmer 2013). Although the male and female candidates in our data have similar levels of previous political experience, previous political experience may not fully capture candidate quality (Fulton 2013). Because women have to overcome discrimination to win in the first place, measuring candidate quality by political experience may systematically underestimate women's qualifications. Candidate quality may influence fundraising in a couple of ways that could explain our findings. First, higher quality candidates may have characteristics that substitute for money, such as name recognition or deep community ties. This means that women may need less money than men to be successful. Second, if high candidate quality deters high quality challengers—and candidates only raise as much money as they need to raise to be competitive—women may face weaker challengers and need to raise less money to be competitive.

If our findings are the result of underestimating the quality of female candidates, there are a few ways to think about the normative implications. First, our results may actually underestimate the bias against women in fundraising. Even though male candidates are less qualified, they raise significantly more money. This suggests important bias against women in the campaign process if we believe that quality candidates should raise more money. On the other hand, higher candidate quality may be a substitute for fundraising or may deter

tough challengers, so female candidates may not need as much money to be successful. Because candidates dislike fundraising and it takes significant time away from other campaign (or legislative) endeavors, this may benefit women—or at least represent a reasonably fair equilibrium. Ultimately, the normative importance of our results depends on whether one believes fundraising is a sign of strength or weakness.

More broadly, our results suggest that the answer to the question of whether female candidates are at a fundraising disadvantage is much more nuanced than existing research suggests. Yes, women coming out of close races raise significantly less than men. Yes, male donors give significantly more money to men than to women. This may influence women's relative power in the legislature and their progressive ambition options, and it may contribute to concerns that women have more difficulty fundraising. These are not insignificant concerns about the downstream effects of the fundraising imbalance. But, both male and female incumbents settle into nearly identical fundraising equilibria in their next election in which they are heavily advantaged against their opponent. Hence, inequalities in campaign finance are probably not proximately to blame for women's underrepresentation in politics.

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	Dependent Variable: Log Money Raised by Winner in Election $t + 1$					
	Total	Individual	PAC	Party	Male Donors	Female Donors
Male Winner (time t)	0.81 (0.35)	1.08 (0.46)	0.32 (0.64)	0.60 (0.91)	1.15 (0.48)	0.23 (0.57)
Forcing Variable	0.09 (0.22)	0.001 (0.29)	-0.05 (0.40)	0.65 (0.57)	0.13 (0.30)	0.42 (0.36)
Male Winner x Forcing Variable	-0.66 (0.31)	-0.72 (0.41)	0.15 (0.57)	-1.60 (0.80)	-0.74 (0.43)	-1.20 (0.51)
Constant	11.06 (0.24)	9.12 (0.32)	9.41 (0.45)	7.72 (0.63)	8.78 (0.34)	8.22 (0.40)
Observations	311	311	311	311	311	311

Table 1: **Effect of Male Incumbent on Fundraising** - The forcing variable is the male vote share minus 50. When the forcing variable is equal to 0 the winner of the race switches from a female to a male. Each model is a linear specification estimated within 2 percentage points on either side of the cutpoint. Standard errors displayed below OLS coefficients.

	Dependent Variable: Log Money Raised by Winner in Election $t + 1$					
	Total	Individual	PAC	Party	Male Donors	Female Donors
Male Winner (time t)	0.46 (0.21)	0.68 (0.34)	0.25 (0.46)	0.41 (0.74)	0.91 (0.37)	0.16 (0.45)
Forcing Variable	-0.15 (0.10)	-0.18 (0.16)	-0.48 (0.22)	-0.01 (0.36)	-0.16 (0.18)	-0.02 (0.22)
Male Winner x Forcing Variable	-0.01 (0.14)	-0.09 (0.23)	0.86 (0.32)	-0.36 (0.51)	-0.12 (0.26)	-0.41 (0.31)
Democratic Candidate	-0.06 (0.23)	0.09 (0.36)	-1.06 (0.50)	-1.07 (0.80)	0.09 (0.40)	0.65 (0.49)
Prev Elected Experience	-0.10 (0.13)	0.10 (0.20)	-0.23 (0.28)	-0.31 (0.45)	0.13 (0.22)	0.23 (0.27)
CF Score	0.38 (0.17)	-0.20 (0.27)	0.97 (0.37)	-0.36 (0.60)	-0.15 (0.30)	-0.99 (0.36)
CF Score \times Democrat	-0.92 (0.28)	0.09 (0.45)	-1.10 (0.62)	1.53 (1.00)	0.15 (0.50)	0.57 (0.61)
Total Votes Cast (in 1,000s)	0.03 (0.003)	0.02 (0.005)	0.04 (0.006)	0.05 (0.01)	0.02 (0.005)	0.01 (0.006)
State Professionalism Score	2.75 (0.60)	5.18 (0.96)	3.20 (1.32)	4.02 (2.13)	5.06 (1.07)	6.51 (1.29)
Percent of Chamber Female	-0.63 (0.85)	0.44 (1.35)	-5.43 (1.86)	-7.48 (3.00)	-0.63 (1.51)	2.29 (1.82)
Republican Governor	-0.29 (0.11)	-0.29 (0.17)	-0.21 (0.24)	-0.66 (0.38)	-0.32 (0.19)	-0.30 (0.23)
Candidate for Lower House	-0.23 (0.14)	-0.50 (0.23)	0.55 (0.31)	0.64 (0.50)	-0.45 (0.25)	-0.77 (0.30)
State Pres Democrat Vote Share	-0.29 (0.86)	-3.08 (1.36)	-5.72 (1.87)	-6.61 (3.03)	-3.83 (1.52)	-5.17 (1.84)
Number of Candidates in Race	-0.43 (0.24)	-0.78 (0.39)	-0.71 (0.53)	-0.05 (0.86)	-0.78 (0.43)	-0.73 (0.52)
Constant	10.87 (0.68)	9.41 (1.09)	13.60 (1.49)	10.76 (2.41)	10.14 (1.21)	7.45 (1.46)
Year F.E.	✓	✓	✓	✓	✓	✓
Observations	398	398	398	398	398	398

Table 2: **Effect of Male Incumbent on Fundraising** - After adding several control variables that may affect candidate fundraising, the results remain consistent with the results presented in the main text of the paper. We also include year fixed effects to account for temporal patterns in fundraising by candidates. The forcing variable is the male vote share minus 50. When the forcing variable is equal to 0 the winner of the race switches from a female to a male. Each model is a linear specification estimated within 2.5 percentage points on either side of the cutpoint. Standard errors displayed below OLS coefficients.

	Dependent Variable: District Money Raised in Election $t + 1$	
	Share of District's Contributions	Log Total District Contributions
Male Winner (time t)	-0.03 (0.05)	0.82 (0.35)
Forcing Variable	-0.01 (0.03)	0.11 (0.22)
Male Winner x Forcing Variable	0.08 (0.04)	-0.77 (0.31)
Constant	0.64 (0.03)	11.59 (0.24)
Observations	311	311

Table 3: **Effect of Male Incumbent on Fundraising** - The forcing variable is the male vote share minus 50. When the forcing variable is equal to 0 the winner of the race switches from a female to a male. Each model is a linear specification estimated within 2 percentage points on either side of the cutpoint. Standard errors displayed below OLS coefficients.