

Gender Differences in Legislator Responsiveness

Danielle M. Thomsen and Bailey K. Sanders

A growing body of research shows that women legislators outperform their male counterparts in the legislative arena, but scholars have yet to examine whether this pattern emerges in non-policy aspects of representation. We conducted an audit study of 6,000 U.S. state legislators to analyze whether women outperform or underperform men on constituency service in light of the extra effort they spend on policy. We find that women are more likely to respond to constituent requests than men, even after accounting for their heightened level of policy activity. Female legislators are the most responsive in conservative districts, where women may see the barriers to their election as especially high. We then demonstrate that our findings are not a function of staff responsiveness, legislator ideology, or responsiveness to female constituents or gender issues. The results provide additional evidence that women perform better than their male counterparts across a range of representational activities.

Are women legislators more effective than their male counterparts? Do they change the political environment or represent their constituents differently than men? A long line of research has demonstrated that women devote more attention to and are more active on women's issues (i.e., Dodson 2006; Gerrity, Osborn, and Mendez 2007; Holman 2015; Osborn and Mendez 2010; Swers 2002). Yet more recently, scholars have found that women improve the quality of representation for male and female citizens alike. Studies at both the state and federal level show that female legislators are more active and productive than their male counterparts on a variety of

policy-related activities. Women sponsor more legislation, speak on the floor at greater rates on a range of policy issues, and are more successful at moving bills through the legislative process than men (Anzia and Berry 2011; Cain and Kousser 2004; Pearson and Dancey 2011; Volden and Wiseman 2011; Volden, Wiseman, and Wittmer 2013). Constituents benefit directly too, as women bring more money to their districts than male legislators (Anzia and Berry 2011).

While a growing body of research suggests that women legislators outperform their male counterparts in the policy arena, scholars have yet to examine whether the

A list of permanent links to Supplemental Materials provided by the authors precedes the References section.

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same pattern emerges in non-policy aspects of representation. It is possible that representational tradeoffs arise because of the resource constraints that all legislators face, and women may underperform men on constituency service due to their increased policy activity. Indeed, we know little about gender differences in service responsiveness even though legislators devote a significant amount of time and energy to constituent concerns (Ellickson and Whistler 2001; Fenno 1978; Freeman and Richardson 1996). Constituency service is also a key way in which representatives gain electoral support. Citizens are generally satisfied with the response they receive, second-hand reports to family and friends are positive, and those filing casework requests report higher levels of voting (Cain, Ferejohn, and Fiorina 1987). Legislator biases in constituency service have been examined with respect to race and class (Broockman 2013; Butler 2014; Butler and Broockman 2011; Carnes and Holbein 2015; Mendez and Grose 2018), but gender disparities have equally significant implications for the quality of representation.

We conducted an audit study of 6,000 U.S. state legislators to examine whether female legislators outperform or underperform their male counterparts on constituency service in light of recent scholarship showing that women are more active and productive in the legislative arena. We find that women are more likely to respond, and to respond helpfully, to constituent requests than men, even after accounting for their heightened level of policy activity. We explore two leading explanations for why women are more responsive to constituent requests: gender bias in elections and gender bias in legislative institutions. We show that female legislators are the most responsive in conservative districts where women may see the barriers to their election as especially high. We then address a variety of alternative explanations and show that this finding is not a function of staff responsiveness, legislator ideology, or increased responsiveness to female constituents or gender issues. The results provide additional evidence that women perform better than their male counterparts across a range of representational activities.

The findings also have important implications for our understanding of gender bias and neutrality in the contemporary electoral context. A host of studies in the 1990s demonstrated that “when women run, women win,” yet scholars have since suggested that women have to be better legislators to reap the same electoral benefits as their male counterparts. For example, women face more crowded primary and general election contests (Lawless and Pearson 2008; Palmer and Simon 2008). Similarly, when women run for office, they have to be more experienced to garner the same vote share because multiple qualified candidates enter (Barnes, Branton, and Cassese 2017). Pearson and McGhee (2013) also find that women

candidates are more likely to have held previous elected office than men. In short, as Fulton (2012) aptly notes, women need to “run backwards and in high heels” to compete equally with men. Our findings are consistent with recent scholarship indicating that women legislators have to outperform their male counterparts to get the same results at the ballot box.

Outperformance versus Representational Tradeoffs

The outperformance of women in the legislative arena has been linked to two distinct factors: patterns of sex-based selection in elections and the institutional barriers that women face in office.¹ Anzia and Berry (2011) develop a theory of sex-based selection in elections to explain their finding that female legislators bring more money to their districts than men. The main argument is that only the most ambitious and qualified women run due to perceived or actual gender discrimination in the electoral process (see also Pearson and McGhee 2013).² They further test the argument by leveraging variation in discrimination across districts, and they use district ideology as a proxy for the prevalence of sex-based selection in a district. If conservative districts tend to have higher levels of discrimination, the spending advantage of women legislators should be greater than that in liberal districts. While district conservatism is not a perfect indicator of the degree of gender bias in elections, they do find that the positive effect of female representation on spending is larger in conservative districts where public attitudes are likely to be less open to women in politics (Anzia and Berry 2011).³

Others have instead pointed to institutional reasons for women’s outperformance in the legislative arena. Scholars and officeholders alike have documented the institutional barriers that affect women in elected office (Boxer 1993; Hawkesworth 2003; Schroeder 1998). In an analysis of over ten thousand speeches, Pearson and Dancy (2011) find that congresswomen speak more on the House floor than their male colleagues on a range of issues. They attribute this pattern in part to the additional incentive that women have to prove their legislative credentials in a predominately male institution. Pearson and Dancy (2011) do not examine differences in floor speech patterns across legislative contexts because their empirical focus is on the U.S. House, but one implication is that sex differences would diminish as the pressure women face to prove their legislative credentials decreases. And although the authors do not extend the argument to constituency service, the pressure on women to demonstrate their expertise likely extends to this aspect of their job as well. It may be that women in more male-dominated institutions or in institutions with fewer women in positions of power have additional incentive to be responsive on casework.⁴

We would expect either of these factors to lead women legislators to outperform their male counterparts on constituent service. In fact, earlier research on the relationship between gender and service responsiveness suggested that women legislators do spend more time on casework than men. In a four-state survey of state legislators, Richardson and Freeman (1995) find that women receive more requests from constituents and that women believe they put more emphasis on constituency service than other legislators in their state. Thomas (1992) draws on a survey of city council members and shows that women spend more time on constituent concerns than male councilors. Additionally, several studies in the 1970s and 1980s found that women emphasized their obligations to the community more than male legislators (Antolini 1984; Diamond 1977; Flammang 1984; Johnson and Carroll 1978). We refer to this expectation as the **OUTPERFORMANCE HYPOTHESIS**. We include two sub-hypotheses to account for the distinct factors identified here that may shape women's outperformance in the legislative arena.

OUTPERFORMANCE HYPOTHESIS: Women legislators are more likely to respond to constituent requests than male legislators.

ELECTORAL BIAS: Women legislators outperform their male counterparts because of perceived or actual gender bias in the electoral process. Outperformance should increase (decrease) in districts where gender bias in elections is more (less) prevalent.

INSTITUTIONAL BIAS: Women legislators outperform their male counterparts because of the pressure to demonstrate their expertise in male-dominated institutions. Outperformance should increase (decrease) in institutions that are more (less) male-dominated.

At the same time, there is also reason to suspect the opposite might be true and that women underperform their male counterparts on constituency service. First, the findings just discussed were based on women legislators' perceptions of the time they spent on casework, rather than objective measures of responsiveness, and women may have over reported their efforts due to gendered social expectations at that time. More recently, Butler (2014) conducted a field experiment of state legislators and found that men respond to non-women's issues at higher rates than women, although female legislators are more responsive on women's issues.⁵ Second and more importantly, all of the previous studies focus on a single dimension of representation; there are no analyses that examine gender differences in service aspects of representation in conjunction with policy aspects of representation. Legislators have limited time and resources to allocate to their various duties, and they face tradeoffs in how to fulfill their responsibilities (Ellickson and Whistler 2001; Freeman and Richardson 1996). Harden's (2016) analysis of the multidimensional nature of repre-

sentation demonstrates that some legislators devote more time and resources to policy responsiveness while others spend more on constituent service.

Gender scholars have examined the policy dimension of representation, but they have yet to consider representational tradeoffs: whether women underperform their male counterparts on constituency service as a result of their increased legislative activity. The legislator surveys that uncovered gender differences in constituency service in the 1970s and 1980s were not analyzed alongside other legislative activities, nor have the legislative productivity studies in recent years been discussed in relation to non-policy aspects of representation. It may be that women legislators are policy types but not casework types, devoting more attention to policy than their male counterparts but less to constituent service. Women may be more productive than men in some areas and less so in others, and they may trade off constituency service in order to pursue their policy agenda. We refer to this expectation as the **TRADEOFFS HYPOTHESIS**.

TRADEOFFS HYPOTHESIS: Women legislators are less likely to respond to constituent requests than male legislators as a result of their increased legislative activity.

In sum, there are good theoretical reasons to expect women legislators to outperform or underperform on constituency service relative to their male counterparts. It may be that either sex-based selection in elections or increased pressure for women to prove their legislative credentials in male-dominated institutions leads female legislators to outperform their male counterparts not only in the legislative realm but also in non-policy aspects of representation. On the other hand, the resource and time constraints that all legislators face may mean that female legislators' higher policy productivity leads to lower service productivity than their male legislators. We test these hypotheses in the sections that follow.

Audit Study of State Legislators

We conducted an audit study of state legislators to examine whether female legislators are more or less responsive to constituent requests than their male counterparts.⁶ Our design is similar to Butler and Broockman's (2011) and Butler's (2014). We used a 2x2 design and we randomized the gender of the constituent and the gendered content of the e-mail. We focus mainly on gender differences in legislator responsiveness, but we briefly discuss the treatment in the last section of the article. We used a total of ten aliases, five male and five female.⁷ The text of the e-mail that was sent to state legislators is provided in figure 1. All legislators received a request for voter registration information. We chose voter registration for a few reasons. We wanted our requests to require little

Figure 1
E-mail sent to legislators

From: [Female / Male Name]
 To: [Legislator's E-mail Address]
 Subject: Voter Registration

My name is [Female / Male Name] and I'm trying to figure out how to register to vote for the upcoming election. [{Blank} / {As a mother / father of two, I'm concerned about the rising costs of childcare and that's why it is so important for me to vote.}] I heard the voter registration deadline is soon and I do not want to miss it. Who should I call in order to register?

Sincerely,

[Female / Male Name]

effort due to ethical concerns.⁸ We also sought to use an issue that has minimal partisan divides because we did not want to signal the ideology of the individual.⁹ In addition, voter registration has already been used in several studies, so we could compare our results with those for additional validation.

Our sample includes more than 6,000 state senators and representatives. We obtained their e-mail addresses in March 2016 through state legislature websites and online searches. Like previous studies, we treat responses from either the legislator or a staff member as equivalent, with the level of analysis being the legislator's office (Butler 2014; Butler and Broockman 2011; Carnes and Holbein 2015).¹⁰ Many decisions that affect representation are made at the office level, and elected officials rely on staff to help with various aspects of their work. Unlike most previous studies, we also examine whether the reply was helpful because we are interested in the quality of the response as well. Replies were coded as helpful if they included any of the following information: an e-mail link to online voter registration; an e-mail link to information on how to register; an address, e-mail address, or phone number of a government office; a name, e-mail address, or phone number of an individual at a government office; or an offer to personally deliver a voter registration card.¹¹ The majority of helpful replies consisted of e-mail links to or contact information of the county or state board of elections.

We merged the audit study data with bill sponsorship data from LegiScan, a website that tracks legislation at the state level.¹² This allows us to examine legislator responsiveness while accounting for variation in policy activity. One implication of the TRADEOFFS HYPOTHESIS is that gender differences in responsiveness may diminish when legislative activity is included in the models. LegiScan provides data on all bills that were sponsored in each state legislature, as well as the various sponsors and cosponsors in the legislative session in which we sent out the e-mail request. The LegiScan data offer a host of new opportunities for scholars to explore gender differences in

legislative activity at the state level (see also Holman and Mahoney 2018). While previous analyses of male and female state legislators have examined various subsets of states, we use these data to measure sponsorship patterns across our entire sample. Of our full sample of state legislators, we were able to match 98.3% of them to the bill sponsorship data. Bill sponsorship is measured as the logged value of the total number of bills the legislator sponsored.

We include a variety of individual and district-level control variables in the models, including party, chamber, and minority party status. We include party leader, committee chair or vice-chair, and years in state legislative office to capture seniority and experience. The party leader and committee chair data are from the National Conference of State Legislatures and the state Yellow Books, respectively. We collected the year in which legislators were first elected to the legislature from Project Vote Smart and legislator websites and use their total number of years in office. We draw on two variables to capture the degree of electoral competition faced by the legislator, both of which are from Ballotpedia. We use the legislator's previous vote share to account for the possibility that women win by smaller margins than men and thus may be more responsive to constituents. We also control for whether the legislator was up for reelection in the year of our study. To measure district demographics, we use Tausanovitch and Warshaw's (2013) ideology estimates, and we draw on census data for district population and data from the National Historical Geographic Information System for the median income of the district. State fixed effects are included in all of the models to account for state-level factors that influence responsiveness such as legislative professionalism and variation in electoral competition.

Legislator Gender and Constituency Service

We use OLS regression to examine whether women are less responsive to constituent requests than men in light of their additional policy efforts.¹³ The results of the audit study are provided in table 1.¹⁴ We can see that female legislators are more, not less, responsive to constituent requests than male legislators. In addition, not only are women more likely to respond to voter registration requests (column 1), they are also more likely to provide information that will help constituents navigate the registration process (column 2). The predicted probability of responding is four percentage points higher for female legislators than for men (59 and 55%, respectively) and the probability of providing a helpful response is six percentage points higher for women than for men (40 and 34%, respectively), controlling for legislator and district characteristics.¹⁵ The magnitude of the effect is similar to that in Butler and Broockman's (2011) study as well.¹⁶

We are also interested in whether this relationship holds when we take into account the increased policy activity of

Table 1
Women are more likely to reply, and reply helpfully, to constituent requests

	(1) Reply	(2) Helpful Reply	(3) Reply	(4) Helpful Reply
Female	0.04** (0.01)	0.06** (0.01)	0.04** (0.01)	0.05** (0.01)
Bills sponsored	—	—	0.04** (0.01)	0.03** (0.01)
Republican	0.02 (0.02)	-0.03† (0.01)	0.02 (0.02)	-0.02 (0.01)
Senator	0.07** (0.02)	0.04* (0.02)	0.05** (0.02)	0.03† (0.02)
Party leader	0.09* (0.04)	0.09* (0.04)	0.09* (0.04)	0.09† (0.04)
Committee chair	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)
Years in office	-0.01** (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.01** (0.00)
Minority party	-0.03* (0.02)	-0.04** (0.01)	-0.04* (0.02)	-0.04** (0.01)
Previous vote share	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00† (0.00)
Up for reelection	-0.02 (0.07)	-0.13* (0.05)	-0.05 (0.07)	-0.14** (0.05)
District conservatism	0.07* (0.03)	-0.01 (0.02)	0.07** (0.03)	-0.01 (0.02)
District population (100,000s)	-0.03* (0.01)	-0.01 (0.01)	-0.02* (0.01)	-0.01 (0.01)
District median income (\$10,000s)	0.01 (0.00)	0.02** (0.00)	0.00 (0.00)	0.02** (0.00)
Constant	0.36** (0.05)	0.22** (0.05)	0.28** (0.06)	0.17** (0.05)
Observations	6,378	6,378	6,268	6,268
R-squared	0.11	0.14	0.11	0.15

Note: OLS regression coefficients with robust standard errors in parentheses. All models include state fixed effects. **p<0.01, *p<0.05, †p<0.10.

female legislators. The results in columns 3 and 4 suggest that it does. In fact, the coefficients remain virtually unchanged with the inclusion of bill sponsorship data. Even when accounting for bill sponsorship activity, women legislators are more likely to respond, and to respond helpfully, to constituent requests than their male counterparts. Bill sponsorship is actually positively associated with legislative responsiveness to our e-mail request. Thus, in our sample of state legislators, there is limited evidence of a tradeoff between policy activity and constituency service; rather, those who sponsor more bills are also more responsive to constituent requests. The findings suggest that legislators who are more active in one aspect of representation do not necessarily underperform their colleagues in other areas. Here, it is not the case that women legislators devote less time to constituent service because of the extra attention they devote to policy work.¹⁷

With respect to the control variables, state senators and party leaders are more likely to respond to constituent requests and more likely to respond helpfully. Legislators

from conservative districts are more likely to reply as well, but this relationship is driven mostly by women, which will be addressed in more detail later. Minority party legislators and those who have served more years in office are less responsive to constituent requests. Those who represent more populous districts are less likely to reply, perhaps because they receive a greater number of constituent requests. Lastly, legislators who represent wealthier districts are not more likely to reply but they are more likely to provide a helpful response.

Electoral and Institutional Factors

The previous section demonstrated that women legislators are more likely to respond to constituent requests than their male counterparts, even when accounting for their increased policy activity. Scholars have identified two different reasons for why women outperform their male counterparts in the legislative realm, delineated earlier as the ELECTORAL BIAS and INSTITUTIONAL BIAS hypotheses. The ELECTORAL BIAS hypothesis suggests that

that only the most ambitious and qualified women run for office due to perceived or actual discrimination in elections (Anzia and Berry 2011; Pearson and McGhee 2013). The INSTITUTIONAL BIAS hypothesis instead highlights the barriers that women officeholders face in male-dominated legislatures (Hawkesworth 2003; Pearson and Dancey 2011). In this section, we leverage district and state variation to gain further insight into whether out-performance varies across electoral and institutional contexts in the way these hypotheses suggest.

Our particular concern is whether outperformance increases in districts where gender bias in elections is more prevalent and whether outperformance decreases in legislatures with more women in office. We measure gender bias in elections in two ways. First, we follow the empirical approach in Anzia and Berry (2011) and use district conservatism, and we draw on Tausanovitch and Warshaw's (2013) state legislative district ideology estimates. Second, we use Pyeatt and Yanus's (2016) measure of "women-friendly" state legislative districts where it is available (WFD Index). The measure is an extension of Palmer and Simon's (2008) seminal research showing that wealthier, more educated, and more urban districts tend to elect more women to congressional office. Of course, we do not know that women face higher hurdles in more conservative or less women-friendly districts, but these measures attempt to capture variation in the electoral environment that may affect legislators' behavior in office. Higher values correspond to increasing conservatism and more women-friendly districts, respectively. We include an interaction between each measure and legislator sex to test the ELECTORAL BIAS hypothesis. We would expect the coefficient on the district ideology interaction term to be positive and the women-friendly district interaction term to be negative, as outperformance should increase in districts that are more conservative and decrease in districts that are more open to women in politics.

To measure gender bias in legislative institutions, we use data from the Center for American Women and Politics (CAWP) (2016) and Klarner (2013) to calculate the percentage of female legislators in the lower or upper chamber. While there is also evidence that women receive less support from their male colleagues as their ranks increase (Kanthak and Krause 2012), women as a group nevertheless face unique barriers due to their marginalized status in male-dominated legislative institutions. The additional incentive women have to prove their credentials should diminish as women advance in legislative institutions. To test this hypothesis, we first include an interaction between the percentage of women in the state legislative chamber and legislator sex. Second, because the marginalization of women in legislatures extends beyond numerical representation, we also include an interaction between legislator sex and the

percentage of female committee chairs in the chamber to measure women's influence and power in the chamber.¹⁸ If the INSTITUTIONAL BIAS argument were right, we would expect the coefficient on both interactions to be negative, as women should face less pressure to demonstrate their expertise when they are more numerous in public office and when they comprise a larger proportion of committee chairs. To be sure, it is difficult to wholly disentangle electoral and institutional factors, but we think our variables capture either more of the electoral or institutional context in a way that maps onto the arguments we seek to test.

The results are presented in table 2. Our findings provide strong evidence that the outperformance of women in conservative and less women friendly districts extends beyond legislative activity and into constituent service as well (columns 1 through 4). The interaction between legislator sex and gender bias in elections is as hypothesized. The effect of female representation on legislator responsiveness increases in more conservative districts (columns 1 and 2) and decreases in districts that are more open to the election of women (columns 3 and 4). The magnitudes of the relationships are substantial as well.

Figure 2 presents the predicted probability of responding and responding helpfully for male and female state legislators across values of district conservatism. The probability that female legislators respond is 58% for an average district in California, compared to 67% for an average district in Alabama. (Average district conservatism is -0.32 in California and 0.26 in Alabama.) Similarly, the probability that a female legislator responds helpfully is 39% in California and 44% in Alabama. In addition, the 9 percentage point difference in the probability of responding between the average male and female legislator in Alabama (58 and 67 percent, respectively) is more than twice as large as the effect of gender in the full sample in table 1 (4 percentage points). Interestingly, the likelihood of responding does not differ between male and female legislators in very liberal districts, but there are fewer observations as well.

The results are similar with the women-friendly district measures (columns 3 and 4 in table 2). For example, a shift from the average level of women friendliness in Connecticut state legislative districts to the average level in South Dakota state legislative districts leads to a 9 percentage point increase in the likelihood that women legislators respond to constituent requests (59 and 68%, respectively). Taken together, the patterns are consistent with Anzia and Berry's (2011) finding that women legislators bring more money to their districts and that women in conservative districts bring home even more. Our findings uncover yet another way in which conservative female legislators behave differently in office than liberal female legislators. We are unable to address whether

Table 2
Sex-based selection vs. male-dominated institutions

	(1) Reply	(2) Helpful Reply	(3) Reply	(4) Helpful Reply	(5) Reply	(6) Helpful Reply	(7) Reply	(8) Helpful Reply
Female	0.06** (0.02)	0.07** (0.02)	0.15** (0.05)	0.16** (0.05)	0.09† (0.05)	0.08† (0.05)	0.05 (0.03)	0.06† (0.03)
District conservatism	0.04 (0.03)	-0.04 (0.03)	—	—	0.03 (0.02)	0.00 (0.02)	0.03 (0.02)	0.01 (0.02)
Female x district conservatism	0.12** (0.04)	0.13** (0.04)	—	—	—	—	—	—
Women-friendly district index	—	—	0.00 (0.00)	0.02** (0.00)	—	—	—	—
Female x WFD index	—	—	-0.02** (0.01)	-0.02** (0.01)	—	—	—	—
Percent women in legislature	—	—	—	—	0.02 (0.10)	0.07 (0.10)	—	—
Female x percent women in legislature	—	—	—	—	-0.20 (0.19)	-0.10 (0.18)	—	—
Percent women committee chairs	—	—	—	—	—	—	0.03 (0.07)	0.06 (0.06)
Female x percent women chairs	—	—	—	—	—	—	-0.05 (0.12)	-0.01 (0.11)
Bills sponsored	0.04** (0.01)	0.03** (0.01)	0.04** (0.01)	0.04** (0.01)	0.05** (0.00)	0.05** (0.00)	0.05** (0.00)	0.05** (0.00)
Constant	0.28** (0.06)	0.17** (0.05)	0.68** (0.09)	0.33** (0.09)	0.35** (0.05)	0.08† (0.04)	0.34** (0.04)	0.07† (0.04)
Observations	6,268	6,268	3,913	3,913	6,268	6,268	6,171	6,171
Controls included	X	X	X	X	X	X	X	X
R-squared	0.11	0.15	0.11	0.13	0.03	0.05	0.03	0.05

Note: OLS regression coefficients with robust standard errors in parentheses. Models 1-4 include state fixed effects. **p<0.01, *p<0.05, †p<0.10.

the electoral hurdles for conservative women are actually higher than they are for liberal women, but we do see differences in how they behave in office.¹⁹

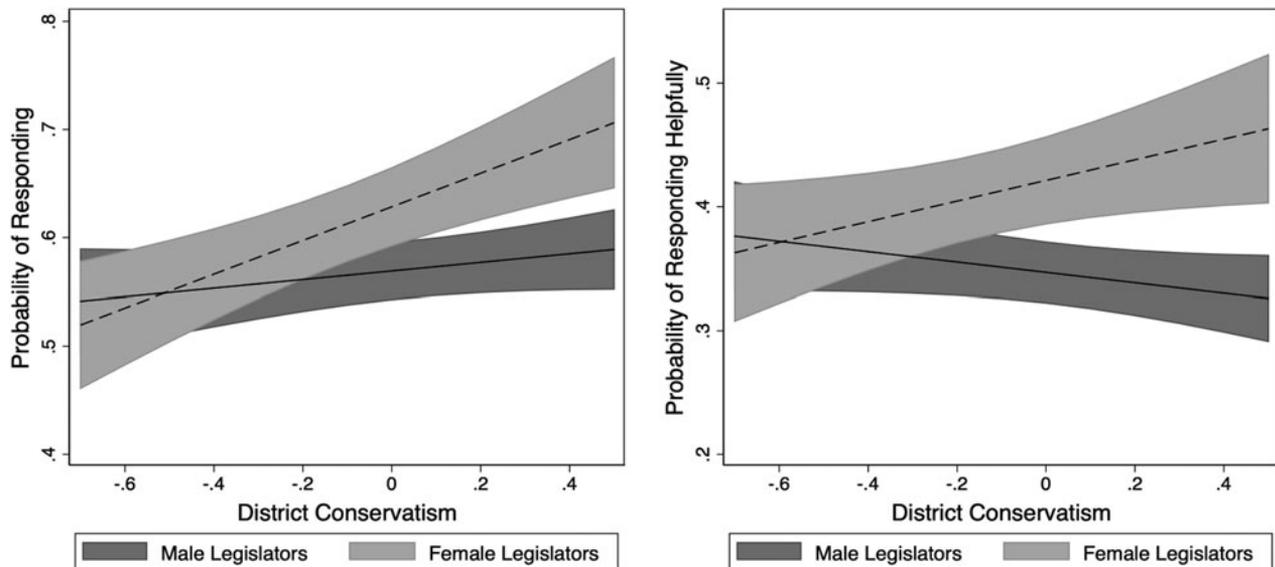
However, we find little evidence that the outperformance of female legislators decreases as the number of women in office or in positions of power increases (columns 5 through 8 in table 2).²⁰ The interactions are negative but not statistically significant, and the probability of responding overlaps for male and female legislators across levels of women's representation in the chamber (columns 5 and 6) and values of female committee chairs (columns 7 and 8).²¹ However, one crucial point to note is that women are underrepresented across state legislative institutions and perhaps there are too few legislatures at the very high end of this range for us to adequately test this argument. For example, there are only 103 male legislators and 80 female legislators in the sample who were in legislative chambers with more than 40% women, or a mere 3% of the sample of state legislators. The average percentage of women in the legislative chamber is 24%, and the lack of cases at the upper end of the distribution

limits how fully we can test this hypothesis. Nevertheless, in the sample of state legislators here, there is little evidence of a relationship between the presence or influence of women in office and responsiveness across female legislators.

Alternative Explanations

The findings provide additional support that female legislators outperform their male counterparts across a range of representational activities. This section examines several alternative explanations that would cast doubt on the idea that quality differences between male and female legislators are the reason that women are more responsive to constituent requests than men. First, we look at a couple of ways in which differences in legislative staff might matter for our results. We consider whether female legislators hire more competent staff than male legislators, and whether staff responses, not legislator responses, might account for this relationship. To address this possibility, we limited our analysis to states with no legislative staff because, in these states, responsiveness

Figure 2
Predicted probability of responding and responding helpfully by district conservatism and state legislator sex



Note: Predicted probabilities are calculated from the models in columns 1 and 2 of table 2.

cannot be attributed to having more competent staff (columns 1 and 2 of table 3).²² In addition, we coded whether each reply came from the legislator or a member of her staff. We excluded staff replies to see whether the same pattern occurred among the subset of replies that came from legislators (columns 3 and 4 of table 3).²³ We can see in columns 1 and 2 that, even in states where there are no legislative staff, female legislators are more responsive to constituent requests than men. The magnitude of the relationship remains the same as in the analyses in the previous section. Similarly, in columns 3 and 4, women are more likely to respond when staff replies are excluded from the analysis. Thus, there is little indication that this gender difference is due to staff responses.

Another possibility is that women legislators are more likely to hire female staff and that female staff are more competent than male staff. We cannot measure this directly, but one implication is that staff replies from the offices of female legislators should be more likely to come from women than staff replies from the offices of male legislators. We coded whether the staff reply came from a male or female name, and the responses from the offices of female legislators are as likely to come from women as those from the offices of male legislators.²⁴ These results are not presented here but are further discussed in online appendix J.

Second, female state legislators might be more responsive because they are more liberal, on average, than their male counterparts (Carroll and Sanbonmatsu 2013; Thomsen 2015, 2017). Several studies have shown that

liberal legislators spend more time and energy on constituency service than conservative legislators who believe the role of government should be limited (Cain, Ferejohn, and Fiorina 1987; Ellickson and Whistler 2001; Freeman and Richardson 1996). We include Bonica’s (2014) estimates of state legislator ideology, with higher values corresponding to ideological liberalism. The results are presented in columns 5 and 6 of table 3. Consistent with previous findings, liberal legislators are more likely to respond to constituent requests, but women are still more responsive than their male counterparts.

Finally, it may be that women are more likely to respond to female constituents than male legislators.²⁵ In addition, a host of studies have shown that women legislators devote more attention to women’s issues, so perhaps women are also more responsive to gender-related appeals (see also Butler 2014). As noted earlier, we included an experimental aspect in our study to delve into these possibilities further. In half of the e-mails, we added a gender appeal to examine whether legislators respond differently to requests that reference gendered concerns. We invoked gender by noting that the individual was a mother or father of two and concerned about the rising costs of childcare.²⁶ We interacted legislator sex with both the gender of the constituent and the gendered nature of the appeal. We also interacted constituent gender with the gender appeal to see if women legislators were still more likely to respond. These results are provided in table 4. None of the interactions reach conventional levels of

Table 3
Legislator responsiveness, considering staff and ideology

	(1) Reply (No Staff)	(2) Helpful Reply (No Staff)	(3) Reply (Leg Only)	(4) Helpful Reply (Leg Only)	(5) Reply (All)	(6) Helpful Reply (All)
Female	0.06* (0.03)	0.04† (0.02)	0.04* (0.02)	0.04* (0.01)	0.04* (0.02)	0.04** (0.02)
Ideology (liberal)	—	—	—	—	0.05** (0.02)	0.04** (0.02)
Bills sponsored	0.09** (0.02)	0.02† (0.01)	0.05** (0.01)	0.02** (0.01)	0.04** (0.01)	0.04** (0.01)
Constant	0.15 (0.09)	0.09 (0.07)	0.27** (0.06)	0.19** (0.05)	0.26** (0.07)	0.14* (0.06)
Observations	1,932	1,932	4,809	4,809	4,894	4,894
Controls included	X	X	X	X	X	X
R-squared	0.09	0.10	0.09	0.08	0.11	0.15

Note: OLS regression coefficients with robust standard errors in parentheses. All models include state fixed effects. **p<0.01, *p<0.05, †p<0.10.

significance. Women respond at higher rates to all requests, but they are not additionally more likely to respond to female constituents or gender-based appeals.²⁷ Our results differ from Butler's (2014) finding that women are more responsive on women's issues, but it may be that our gender-related treatment was less overt since it was in the context of voter registration. The sample in Butler's analysis is also smaller than ours, and our goal was to examine responsiveness across a more generalizable

set of legislators. Again, the results here are consistent across a host of specifications and analyses: women legislators are more likely to respond to constituent requests than their male counterparts, even after accounting for their increased policy activity.

Conclusion

There has been a steady accumulation of evidence indicating that female legislators have a positive impact

Table 4
Legislator responsiveness and gender-based representation

	(1) Reply	(2) Helpful Reply	(3) Reply	(4) Helpful Reply	(5) Reply	(6) Helpful Reply
Female legislator	0.04* (0.02)	0.05** (0.02)	0.03 (0.02)	0.04* (0.02)	0.04** (0.01)	0.05** (0.01)
Female constituent	-0.01 (0.01)	-0.01 (0.01)	—	—	-0.03† (0.02)	-0.02 (0.02)
Female legislator x female constituent	-0.00 (0.03)	0.00 (0.03)	—	—	—	—
Gender appeal	—	—	-0.01 (0.01)	0.01 (0.01)	-0.02 (0.02)	0.01 (0.02)
Female legislator x gender appeal	—	—	0.02 (0.03)	0.02 (0.03)	—	—
Female constituent x gender appeal	—	—	—	—	0.04 (0.02)	0.02 (0.02)
Bills sponsored	0.04** (0.01)	0.03** (0.01)	0.04** (0.01)	0.03** (0.01)	0.04** (0.01)	0.03** (0.01)
Constant	0.29** (0.06)	0.18** (0.05)	0.29** (0.06)	0.17** (0.05)	0.30** (0.06)	0.17** (0.05)
Observations	6,268	6,268	6,268	6,268	6,268	6,268
Controls included	X	X	X	X	X	X
R-squared	0.11	0.15	0.11	0.15	0.11	0.15

Note: OLS regression coefficients with robust standard errors in parentheses. All models include state fixed effects. **p<0.01, *p<0.05, †p<0.10.

on representation. The difference women make in office has largely been examined with respect to legislative behavior and policy outcomes, but constituent service is a critical component of what elected officials do as well. We conducted an audit study of 6,000 U.S. state legislators to test whether women legislators outperform or underperform their male counterparts on constituent service in light of their additional policy efforts. We also incorporate legislative activity and constituent service under the same umbrella and are able to account for bill sponsorship patterns as well. We find strong support for the **OUTPERFORMANCE HYPOTHESIS**: women are more responsive to constituent requests, and more likely to respond helpfully, than their male counterparts, even after accounting for their increased policy activity.

We also explore outperformance across contexts to further test electoral and institutional explanations for why women are more responsive to constituent requests than men. Leveraging state and district variation, we find that the positive effect of female representation on responsiveness is even larger in more conservative districts and in less women-friendly districts. Our results echo previous research showing that female outperformance soars in places where women candidates are likely to face higher electoral hurdles (Anzia and Berry 2011) and are in line with recent studies suggesting that women must work harder than their male counterparts to reap the same electoral benefits. It is also possible that ongoing gender bias among voters after women are elected—and female legislators’ perceptions of such bias—leads women legislators to work harder in response. These two explanations are not mutually exclusive, but further examination of such variation across women candidates and officeholders is crucial in order to tease out such nuances.

In addition, unlike previous studies that have uncovered racial biases in legislator responsiveness, we demonstrate that women are not more responsive to female constituents or gender-related issues. Thus, although women legislators often take additional initiative—in terms of bill drafting, sponsorship, and support—on women’s issues, they devote equal amount of time to constituents regardless of constituent gender or the gendered nature of the request. This finding underscores the need to examine inequalities in representation across marginalized groups, because similar designs and studies do not produce the same conclusions across underrepresented groups. There may be also systematic differences in whether various social and political groups find it equally worthwhile to contact their representatives, which would likely have implications for legislator responsiveness. Such variation across groups warrants continued exploration in future audit studies.

In sum, our findings are both good and bad news for the future of women’s representation in the Democratic and Republican parties. On the one hand, our results are

consistent with recent research suggesting that women legislators, particularly those from conservative leaning districts, do more in office but receive the same electoral benefits as their male counterparts. Future research should examine how Republican and Democratic voters perceive the quality of representation across male and female legislators to see whether the American public is attuned to disparities in legislative performance. Indeed, what has been missing from much of the research on women’s outperformance in elected office is the degree to which voters recognize the myriad representational advantages that are afforded by female legislators. Recent scholarship identifying the additional efforts of women legislators raises new questions about the support that women may receive from various groups and constituencies for going above and beyond their male colleagues.

However, the good news is that our results provide further motivation for increasing the number of women, especially conservative women, in politics. The election of women to office not only helps to rectify descriptive inequities in legislatures, but it also improves representative-constituent linkages more broadly. The benefits of women’s descriptive representation have traditionally been associated with female constituents and women-specific policy goods, but our findings contribute to a growing body of research suggesting that these benefits extend more broadly and to men and women alike. Whether representation is measured as legislative productivity, the allocation of district-level goods, or assistance with constituent concerns, the evidence is mounting that the quality of legislative representation is simply better for both female and male citizens who are represented by women.

Notes

- 1 Volden et al. 2013 attribute the greater legislative effectiveness of minority party women to their ability to work with the majority party. Barnes 2016 also finds that women collaborate more than men to influence policymaking. However, collaboration across legislators is less relevant here because consensus building is not necessary for constituent service as it is for policy activity.
- 2 Several studies have shown that gender differences in self-perceived qualifications and election aversion hinder women from entering politics in the first place (Kanthak and Woon 2015; Lawless and Fox 2010; Preece 2016; Preece and Stoddard 2015), but these factors have not been cited as reasons for gender differences in policy activity among elected officials.
- 3 Anzia and Berry 2011 focus on the potential impact of discrimination on women’s entry into politics. Their theory focuses on women’s awareness of discrimination *prior* to gaining office, and they argue that this awareness may lead only the most qualified women to

- run for office. However, it is also possible that women legislators' awareness of ongoing bias *while in office* leads them to work harder. It may be that female legislators face ongoing bias from voters while in office and, recognizing such bias and its potential ramifications at election time, respond by working harder. Regardless of which mechanism is at work—and indeed both may be—we would expect women to outperform their male counterparts.
- 4 To be sure, it is also possible that increasing the number of women in office and in positions of power will not decrease women's marginalization. Krook 2015 provides a rich discussion of how growing numbers may generate forms of backlash and may even undercut women's ability to participate as equals. Yoder 1991 notes that women may feel the negative effects of tokenism not because of their small numbers but rather their increasing numbers. In an analysis of the U.S. Congress, Kanthak and Krause 2012 find that women receive less support from their male colleagues as their ranks increase. Karpowitz, Mendelberg, and Mattioli 2015 focus on the conditional effects of women's increased presence and the mediating role of decision-making rules for women's influence. Many studies have conceptualized institutional barriers as being rooted in women's underrepresentation or in women's limited access to power, but we also leave open this possibility in light of this line of research.
 - 5 Yet Butler's sample is a subset of 200 state legislators who won close elections against a candidate of the opposite sex, and we seek to examine responsiveness with a more generalizable sample of legislators.
 - 6 We received IRB approval from both universities before conducting the study. Refer to online appendix A for a description of the study and implementation.
 - 7 The names of the aliases are provided in online appendix A. We took the most common surnames from the 2000 census and the five most popular female and male names of the 1960s recorded by the Social Security Administration.
 - 8 We discuss ethical concerns and the potential for harm in online appendix B.
 - 9 While voter registration has been interpreted as a partisan issue, it is not the case that Republicans are less likely to respond to requests for voter registration information than Democrats, and in fact, they are more likely to do so ($p < 0.01$). Voter registration also has a normative importance that is nonpartisan.
 - 10 About 5% of the e-mails came back as undeliverable, which is similar to the undeliverable rate in other studies (see Butler and Broockman 2011, 467). These e-mails are excluded from the analysis.
 - 11 Our coding and analysis of helpful responses is similar to Broockman's (2013, appendix). We include the full sample of legislators, not just those who responded; helpful responses are coded as one, and non-responses and non-helpful responses are coded as zero; see Coppock 2018. We also examined whether a reply was helpful among those who reply, and the results are the same; refer to online appendix C.
 - 12 Bill sponsorship is only one way to measure legislative activity, but it has long been used to examine gender differences in both Congress and state legislatures, i.e., Anzia and Berry 2011; Bratton 2005; Bratton and Haynie 1999; Bratton, Haynie, and Reingold 2006; Osborn 2012; Reingold 2000; Swers 2002; Thomas 1994; Wolbrecht 2000.
 - 13 We also confirmed that women outperform men on policy with our data. Like previous research, our data also show that women sponsor more bills, on average, than their male counterparts; refer to online appendix D.
 - 14 Gender differences by state are provided in online appendix E. We also ran multilevel models with legislators nested in districts and states, and the results are the same; refer to online appendix F.
 - 15 All other variables are set at their mean or mode. The relationships are similar without the control variables: 58% of women and 55% of men responded to our e-mail request, and 41% of women and 34% of men provided a helpful response (both are significant at $p < 0.05$). The bivariate models are provided in online appendix G. We follow Butler and Broockman 2011 and Broockman 2011 and report OLS regression coefficients here, but logistic regression models are provided in the online appendix and the results are the same.
 - 16 We also examined gender differences in responsiveness in multi-member districts. The same patterns emerge, but the sample is very small and the relationship is not significant at $p < 0.05$; refer to online appendix H.
 - 17 We interacted legislator gender and bill sponsorship activity, and the interaction term is not significant; refer to online appendix I.
 - 18 The percentage of female state legislators is correlated with the percentage of female committee chairs at 0.7, so these variables are tapping into a similar concept.
 - 19 Although these findings are consistent with Anzia and Berry's 2011 sex-based selection argument, there is another potential interpretation as well. It may be that women legislators face ongoing bias from voters while in office and respond by working harder. If either were the case, we would expect women to outperform their male counterparts, particularly in conservative districts (*if* conservative districts have higher levels of discrimination) or districts that are less women friendly. Of course, these interpretations are not mutually exclusive, and it is possible that both sex-based selection and ongoing gender bias might account for our findings.

- 20 We also created a dummy variable to see whether women were less responsive in states that reached a certain threshold of women legislators (both 15% and 30%, as critical mass theory has suggested). In addition, we examined the change in the percentage of women in the state legislature since 2006 to see if women were less likely to respond in legislatures that had larger increases in the percentage of female legislators. In none of these models was the interaction statistically significant.
- 21 State fixed effects are not included in these models, as the only variation within states with respect to the institutional measures is the difference in the percentage of female legislators and female committee chairs between the lower and upper chamber. However, we also ran the models with state fixed effects, and the interactions are insignificant across models.
- 22 We were able to compare different levels of staff resources across state legislatures by drawing on a survey conducted by the National Conference of State Legislatures about state legislative staff; NCSL 2010. In many states, personal staff work for an individual member of the legislature and, in general, are hired by the member. In others, staff may be assigned to a member and shared across multiple members of the legislature. According to the NCSL survey, 29 of the 99 state legislative chambers do not employ personal staff. Within our dataset, 1,932 state legislators served in legislative chambers in which members do not have personal staff; see columns 1 and 2 of table 3.
- 23 We cannot be certain that replies that came from legislators were not, in fact, written by staffers. We are unable to address this with our data, but nevertheless, we think that the constituent will perceive the e-mail to come from the legislator herself unless noted otherwise.
- 24 We additionally controlled for staff to legislator ratio and whether the legislator hires her own staff, and the findings are the same; online appendix J provides a full discussion of staff differences.
- 25 It is also possible that women receive more requests from constituents and are thus better at dealing with such requests. We examined this possibility in online appendix K, but we find little evidence of this.
- 26 Because the e-mails were sent from male and female aliases, we sought to invoke gender in a way that would sound plausible coming from men and women. We did not want the atypical nature of the request to influence responsiveness (such as requests from men on how to enforce child support payments). Also, some gender issues more explicitly intersect with race than others, and we chose a gender issue that was less overtly tied to race in contemporary U.S. politics.
- 27 We also examined a three-way interaction of female legislator, female constituent, and gender appeal, and the interaction was not significant.

Supplementary Materials

- Appendix A. Implementation of Audit Study
- Appendix B. Ethical Concerns and Potential for Harm
- Appendix C. Legislator Gender and Helpful Response, Among Those Who Respond
- Appendix D. Legislator Gender and Bill Sponsorship
- Appendix E. Mean Rates of Reply by State
- Appendix F. Multilevel Models with Legislators Nested in Districts and States
- Appendix G. Gender and Legislator Responsiveness, Bivariate Models
- Appendix H. Legislator Gender and Multi-Member Districts
- Appendix I. Interaction Between Legislator Gender and Bill Sponsorship
- Appendix J. Legislator Gender and Staff Differences
- Appendix K. Legislator Gender and Volume of Constituent Requests
- Appendix L. Tables 1–4 in Paper, Logistic Regression Models

To view supplementary material for this article, please visit <https://doi.org/10.1017/S1537592719003414>

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