

Where Do Women Win Primaries?

Candidate Gender, District Partisanship, and Congressional Nomination

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Women remain descriptively underrepresented in Congress, with primary elections shown to contribute to this underrepresentation. Because the value of winning a primary depends on the district partisanship and incumbent status, we analyze where women won congressional primaries between 2006 and 2020. Republican women were less likely than their Democratic counterparts to win primaries across all types of districts. Democratic women were less successful in competitive general election districts, whereas Republican women rarely won conservative districts. In both parties, women were strategic in selecting where to run, rarely winning incumbent primaries and disproportionately targeting open seats. The percentage of women in state legislatures was predictive of Democratic women winning primaries, for Republicans this was only true in challenger primaries. Though an increased supply of female candidates helps women's representation in Congress, gendered perceptions about suitability for office and 'electability' likely still hold women back by shaping where they are nominated.

Keywords: women's representation, primary elections, partisan asymmetry, Congress, descriptive representation

In recent elections in the United States, more women have been elected to Congress than ever before. Yet, women still make up less than one-third of all elected members. As existing scholarship indicates, the dearth of female representation in Congress is an issue of both supply and demand, as well as a consequence of structural elements of the electoral system—such as the incumbency advantage and absence of congressional term limits¹—which impacts the political opportunity structure for (potential) candidates (Conroy and Green 2020; Fox and Lawless 2005; Hayes and Lawless 2015; Oliver and Conroy 2020; Thomsen and King 2020; Norris and Lovenduski 1993). Trends of women’s representation in Congress since the mid-1990s have a clear partisan asymmetry, with the increasing numbers of women almost exclusively contained in the Democratic Party. In the 101st Congress (1989–1991), forty-five percent of the women in the House and fifty percent of women in the Senate were Republicans; by the 118th Congress (2023–2025), just twenty-seven percent of women in the House and thirty-six percent of women in the Senate were Republicans (“History of Women in the U.S. Congress” 2023). This partisan asymmetry is a crucial reason why the overall numbers of women in the U.S. national legislature still lag behind many other comparative democracies (“Monthly Ranking of Women in National Parliaments” 2023). For a complete picture of women’s underrepresentation in Congress, it is therefore essential to understand the intersection of partisanship with issues of supply, demand, and structural barriers that impact female candidates during the nomination process.

We therefore aim to better understand the conditions under which women in both parties enter and are able to win primary elections at the district level. We contend that congressional primaries are particularly important in the modern era. As states and districts have become more consistently partisan (Wasserman and Flinn 2021), intra-party elections have become the main arena of democratic accountability in an increasing number of districts, and the number of contested primaries has soared (Cowburn 2022). Given that most congressional districts now host a primary for each party with at least two candidates, the nomination contest appears increasingly decisive in shaping the makeup of Congress. In any given primary, the two most important characteristics are the district’s partisanship—which determines whether the reward for victory is a guaranteed seat in Congress, a competitive November election, or a near-certain general election shellacking—and the status of the incumbent, which conditions the likelihood of primary victory. We therefore focus on these two aspects of spatial difference.

To better understand the role of the nomination process in shaping the gendered makeup of Congress in the modern era, we construct an original dataset of all primary elections between 2006 and 2020 to understand temporal trends. Having done so, we conduct two-stage Heckman selection models to identify the spatial conditions under which women are more likely to run and

¹ See Carroll, Dittmar, and Fox (2021) and Carroll and Sanbonmatsu (2013) for an alternative perspective on term limits.

win congressional primaries. Given the noted partisan asymmetries in the descriptive representation of women in Congress, we are particularly interested in identifying the conditions under which Democratic women are able to win primaries but Republican women are not.

Perhaps unsurprisingly, we show that Democratic women are more likely to run and win their party's nomination than their Republican counterparts across all types of districts. However, Democratic women are comparatively less likely to become the nominee in highly competitive districts, potentially due to Democratic primary voters' perceptions about the 'electability' of female candidates (Bateson 2020; Masket 2020; Green, Schaffner, and Luks 2022), or the competitiveness of these seats (Barnes, Branton, and Cassese 2017). This finding is important for understanding the Democratic Party's commitment to electing more women. These seats are important for winning majorities in the chambers, and our analysis suggests that it is these districts that Democratic women are less successful at winning. In safe and unwinnable districts, Democratic women are comparatively adept at securing their party's nomination. Among Republicans, we show that women are less likely to win their party's nomination in more conservative districts, largely due to self-selection out of running. Given that these are the districts most likely to send Republicans to Congress, this appears a further driver of the partisan asymmetry in the descriptive representation of women.

In addition to these findings, we find that women in either party were particularly unlikely to win incumbent primaries, suggesting that women in both parties appear to be selective about where they are willing to run, and more often run in open-seat primaries where no incumbent is present. Yet, women in both parties are no more likely to succeed in these highly visible and often competitive races. Finally, beyond these partisan patterns, we find that states with higher proportions of women in the state legislature also see more Democratic women winning their party's nomination for Congress (see also Shames et al. 2017) in open-seat, challenger and incumbent primaries. Among Republicans, this relationship is only present in challenger primaries.

Taken together, these findings indicate that the nomination process continues to exacerbate the gender gap in descriptive representation in Congress. The importance of institutional support from party elites and other gatekeepers in primary elections is well documented (Hassell 2018; Cohen et al. 2008), and our findings suggest that this support for female candidates may be lacking during the nomination, especially in districts that the party is favored to win in November. This failure appears particularly stark when viewed in a comparative perspective, given that parties with greater control of their nomination process can mandate all-female shortlists, alternating positions on party lists, or quotas to ensure gender parity in representation.

We proceed as follows. First, we review the literature on gender and candidate selection to frame our central research question. Second, we introduce our data and show the descriptive

trends in our data. Third, we present the results of our empirical models. We conclude with a discussion of the implications of our findings.

Descriptive Representation & Candidate Nomination

Scholarship on gender and politics has long identified overt discrimination by voters and party gatekeepers as barriers to equal gender representation (Welch 1978; Sanbonmatsu 2006; Sanbonmatsu and Dolan 2009). Female candidates face overt discrimination on account of negative attitudes about women’s capacity for leadership roles, and negative attitudes toward women who compete for political power and influence. Stereotypes about women are less likely to overlap with attitudes about leadership than stereotypes about men (Koenig et al. 2011; Bauer 2020), putting women at an inherent disadvantage when competing against men for leadership roles. Perceptions of women who vie for political power and influence are also negative, due to the “double bind” where women must overcome gender stereotypes to demonstrate that they are strong leaders while simultaneously avoiding violating prevalent expectations about what it means to be a woman (Schneider and Bos 2014; Schneider, Bos, and DiFilippo 2022; Teele, Kalla, and Rosenbluth 2018). As Eagly and Karau explain, “when a stereotyped group member and an incongruent social role become joined in the mind of a perceiver, this inconsistency lowers the evaluation of the person as an actual or potential occupant of that role” (2002, 574). For women in politics, stereotypes about women and stereotypes about leadership do not overlap, contributing to what Han (2015) calls “unexplainable unlikability” of women who run for office that is partially driven by the media (Aaldering and Van Der Pas 2020). By running for political office, female candidates are violating their traditional gender role by displaying behaviors incongruent with what is perceived as feminine, and they face a penalty as a result (Schneider, Bos, and DiFilippo 2022; Bauer 2017; 2020). This terrain influences the type of women who run (Conroy and Green 2020; Oliver and Conroy 2020) and structures the pool of individuals who form the pipeline of *potential* candidates (Thomsen and King 2020).

At the same time, Republicans and Democratic voters are increasingly polarizing in their attitudes about women’s roles generally and in politics specifically (Conroy 2019). Among Democratic voters, there is greater support for women in political leadership compared to Republican voters. According to a 2019 Pew survey, seventy-nine percent of Democratic and Democratic-leaning independents believe there are too few women in politics, compared to just thirty-three percent of Republican and Republican-leaning independents (Horowitz, Igielnik, and Parker 2018). This attitude is likely connected to gendered perceptions about suitability for politics, where, in a 2022 PerryUndem poll, twenty-two percent of Republicans said that men generally make better political leaders than women, compared to just four percent of Democrats

(“The State of Opinion Toward Gender, Power, and Policy” 2023). Among party elites, studies indicate that party chairs, for instance, prefer candidates who resemble themselves (Niven 1998) and the Democratic Party is more gender diverse than the GOP (Thomsen 2015). That said, a recent conjoint experiment found neither party’s chairs viewed female candidates as less viable than men (Doherty, Dowling, and Miller 2019). Yet, Republican women are more likely than their Democratic counterparts to be recruited to run as “sacrificial lambs” who then compete in unwinnable November elections (Stambough and O’Regan 2007).

Though there is less overt sexism regarding the suitability of women in politics among Democratic voters, “strategic discrimination” is prevalent, with evidence that in 2020 Democratic activists and primary voters withheld support for their preferred female candidate out of concern that other voters would be less inclined to elect a woman (Bateson 2020; Masket 2020). Green et al. (2022) show that concerns about ‘electability’ among Democrats decreased support for female candidates, and that these effects were independent of sexist attitudes. Similarly, in a 2019 Ipsos poll, seventy-four percent of Democrats and Independents said they were comfortable with a female president, but just thirty-three percent said that their “neighbors” would be (“Nominating Woman or Minority Come Second to Nominating Candidate Who Can Beat Trump” 2019). These findings suggest that *perceptions* about the sexist views of other voters further hinder female candidates, even as they compete for votes from those with more progressive gender views.

Although recent scholarship contends that partisanship and incumbency now override gender bias in vote choice (Dolan 2014; Hayes and Lawless 2015; Ono and Burden 2019), female candidates remain disadvantaged, especially when qualifications are taken into account (Fulton 2012; 2014; Fulton and Dhima 2021). Women who run are, on average, more qualified than men, likely due to a combination of differential competitive pressures and self-selection effects. Women are less likely to be encouraged to run (Fox and Lawless 2005; Lawless and Fox 2010) and are more likely to attract competition from challengers (Lawless and Pearson 2008; Palmer and Simon 2005; Barnes, Branton, and Cassese 2017). These differential competitive pressures from gatekeepers and challengers mean that women who emerge are more selective about *where* they run (Palmer and Simon 2001; Ondercin and Welch 2009; Carroll and Sanbonmatsu 2013) and have to work harder and endure more, and as such are more qualified (Anzia and Berry 2011; Pearson and McGhee 2013). Women also self-select out of running for Congress, believing that they are held to a higher standard and resist running for office for longer (Fox and Lawless 2005; Lawless and Fox 2010). This process of self-selection means that more ambitious, qualified, and capable women emerge as candidates, creating a gender qualifications gap on the supply side. Despite these differences in candidate ‘quality’, women win elections at similar rates to men, which “suggests an electoral penalty in and of itself” (Fulton and Dhima 2021, 1616).

There are also important partisan differences in when and where women choose to run. Democratic women are more strategic about where they run (Ondercin 2020), likely because they perceive a greater number of ‘winnable’ districts. Democratic ‘women-friendly’ districts tend to be more liberal, urban, wealthy, educated, and racially diverse than districts where male Democrats win; Republicans’ ‘women-friendly’ districts are more urban, racially diverse, and conservative than districts where Republican men win (Palmer and Simon 2008). Put simply, there are just fewer districts that meet these ‘friendliness’ criteria for Republican women (Ondercin 2020). Additionally, because women in both parties are perceived to be more liberal (Huddy and Terkildsen 1993), a trait that might help in a Democratic primary is detrimental for Republican women, especially in the conservative districts most likely to send a Republican to Congress (King and Matland 2003; Anzia and Bernhard 2022).

Previous studies have established that the probability of electing more women to political offices is conditioned by a jurisdiction’s history of electing women to political offices. These studies implicate the importance of role models, and also find that jurisdictions with a history of electing women are perceived as more hospitable to female candidacies (Ladam, Harden, and Windett 2018; Pyeatt and Yanus 2021; Campbell and Wolbrecht 2006). Additionally, states with more women in the workforce, especially in legal fields and law school, have more female representatives in their state legislatures (Norrandner and Wilcox 2008; Rule 1990), as do states with more progressive gender role attitudes (Arceneaux 2001). But here too, important partisan differences are present, where Democratic-leaning states have more progressive views on gender, a history of electing more women to office, and also more women in the workforce (Sanbonmatsu 2002a; 2002b).

Fundraising at the primary stage is a key indicator of electoral viability and also influences the gender gap in candidate emergence. Here again, important partisan differences emerge. If candidates do not see a path for raising money to run their campaigns, they are less likely to enter the race. This concern is particularly acute among (potential) female candidates who have greater reservations about running and receiving support than men (Butler and Preece 2016; Fulton et al. 2006). This concern is compounded by female candidates’ knowledge that both parties’ networks of campaign donors remain male-dominated. But funding opportunities during a primary are also asymmetric along partisan and gender lines, where Democratic women are less likely to face a fundraising deficit relative to their male counterparts, whereas Republican women do. As Kitchens and Swers (2016) find, quality Republican women raise less money than equally-qualified men, but Democratic women raise more money than their male counterparts, and this fundraising difference has likely widened the partisan gender gap. Crowder-Meyer and Cooperman (2018) similarly show that women’s representation and policy demanders are far more central to the

Democratic Party’s donor networks than their Republican counterparts, which puts them at a fundraising advantage (Crespin and Deitz 2010).

Indeed, voters are not the only important actors in primary elections, where influential “coalitions of policy demanders” (Bawn et al. 2012)—including donors, activists, interest groups, and partisan media outlets—play a crucial gatekeeping role during the nomination process (Hassell 2018; Masket 2009). Though these groups want a candidate who can win the general election, they also have distinct policy preferences and values that they wish to see reflected in the choice of candidate. To be successful during the nomination, candidates need a sufficient supply of financial resources, necessitating a cordial relationship with donors. Candidates must also engage enthusiastic activists who constitute their primary campaign on the ground and serve as a vital resource. Interest groups can play a similar role, where endorsements by high-profile organizations can increase attention, funnel resources, and serve as a cue to informed voters. Enthusiastic coverage from ideologically-aligned media can further elevate campaigns both in terms of attention and voter favorability.

In the Republican Party, these groups hold more conservative views about the place of women in society, and are, more broadly, associated with a desire to uphold traditional hierarchies of power. Indeed, some analysts identify maintenance of the white Christian patriarchal order as the central unifying project of the modern Republican Party (Zimmer 2022). Conversely, the Democratic Party is often framed as a coalition of groups who fall outside of this definition and understanding of the American project (Grossmann and Hopkins 2016). That policy demanders have sorted into the Democratic and Republican parties along these lines has likely produced an asymmetric partisan demand for female candidates among these influential groups during the nomination.

Taken together, current literature indicates that the primary process presents an important additional hurdle for women’s descriptive representation in Congress, and that these barriers are distinct for candidates seeking to become Democratic and Republican nominees. Yet, not all primaries are equal, with some nomination contests attracting large fields of experienced candidates and national media attention, and others barely noticed. To better understand how primaries contribute to fewer women in the legislative branch, we examine where women are more likely to run in and win congressional primary elections.

Congressional Primaries in the Twenty-First Century

To analyze where women run and win primaries we construct an original dataset using the district as the level of observation. Our data include all U.S. House of Representatives and Senate primaries between 2006 and 2020 across forty-nine states, as Louisiana does not have congressional

primaries.² For a nomination to be considered contested, at least two names were required on the ballot, following the established literature (Ansolabehere et al. 2006).³ A total of 7,402 potential nominations were included in the dataset, with candidates from 3,330 contested primaries analyzed. We include all candidates in our dataset, without restricting inclusion based on performance or financial thresholds. We consider candidates as having ‘run’ in a primary if they make it onto the primary ballot. We consider candidates as having ‘won’ a primary if they are selected as the party’s general election nominee, regardless of whether they finish first in the initial primary or if they win a run-off. We code candidates as women when they identify as such in their campaign material, reference themselves as a woman in press interviews, or use she/her pronouns.⁴ Our outcomes in both stages of analysis are therefore dichotomous: 1) does a woman run in the primary; and 2) does a woman win the primary?

We limit our interest to recent election cycles given the concerted effort—particularly in the Democratic Party—to increase the descriptive representation of women during this period. Moreover, the period since 2006 allows us to collect a rich amount of data about individual candidates even in low-salience elections with the creation of Ballotpedia and the online presence of almost all candidates enabling us to accurately capture key dynamics of all races in the digital era. The 2006 election cycle is also historically representative of the levels of incumbent competition since the late 1970s (Boatright 2013).

As discussed above, we are initially interested in patterns of variation in where women run and win primaries in terms of partisanship, incumbency status, and state representation. We use the most well-known measure of district partisanship, the Partisan Voting Index (PVI) from the respective *Cook Political Report* (2017) following each election cycle. PVI gives districts a score of $R+n$ or $D+n$, to indicate how a district or state leans compared to the nation based on the two-party presidential vote share in the last two elections. Presidential vote share has long been used as a measure of district partisanship (Canes-Wrone, Brady, and Cogan 2002; Downs 1957). We are interested in how primaries relate to the ability of female candidates to win and run in places where they might realistically expect to be able to win general elections, in other words, the *relative* district partisanship. We therefore rescale PVI into a relative $+$ or $-$ figure; for example, an $R+5$ district would be a $+5$ district for the Republican primary and -5 for the Democratic primary. Given that this relationship may not be linear, where women may be more

² In the ‘Louisiana Primary’ all candidates run on a single ballot on the general election date. If no candidate receives fifty percent of the vote, a run-off election is held. Given that participation in these ‘primary’ elections is more reflective of general elections, these contests were deemed sufficiently different as to warrant exclusion. For the same reason, special elections for the Senate with this structure (e.g., Georgia 2020) were excluded.

³ Under California and Washington’s top-two system, a contest was considered as a ‘party-primary’ when two candidates from the same party stood in a primary election. Other scholarship on congressional primaries (e.g., Thomsen 2021b) divides top-two and blanket primaries along partisan lines in the same way.

⁴ In our dataset, only one candidate—New York rapper Paperboy Prince—identified as nonbinary, for the purpose of this study they were grouped with the non-female candidates. Nonbinary candidates likely face even greater hurdles in election campaigns.

or less likely to run or win as the district becomes increasingly competitive and this figure approaches zero, we include both PVI and the quadratic term (PVI^2) in our models.

We are also interested in the type of primaries that women are entering and winning in relation to the position of an incumbent. The presence of an incumbent has been shown to be *the* key factor shaping candidate emergence and likely winner in congressional primaries (Boatright 2014). We include ‘primary type’ as a factor variable. Our models use the base category of challenger primary (where the incumbent is running in the alternative party’s primary), and report coefficients for incumbent primary (incumbent running in that party’s primary) and open-seat primary (incumbent not running) in our models. Given the gendered makeup of Congress and the incumbency advantage in primaries, we expect that incumbent primaries will be particularly challenging terrain for women in both parties. Open-seat primaries are “the critical gateway to Congress” (Bawn et al. 2015), with most members of Congress having won an open seat. Here, party organizations and affiliated groups have the most ability and motivation to shape the field and determine nomination outcomes.

We are also interested in the relationship between the descriptive representation of women at the state and federal levels. To account for this, we analyze the likelihood that a woman runs and wins a primary based on the percentage of women in a state legislature, using data from the Center for Women in Politics (CAWP) (“Women in State Legislative Elections: Historical State-by-State Summary” 2022). More women in a state legislature might align with women running and winning congressional primaries in two distinct ways: through a ‘culture of representation’, or through a larger pipeline of ‘quality’ candidates. Under the first mechanism, voters may perceive women in legislative positions as ‘normal’ and be more positively disposed to vote for female candidates for Congress, both encouraging more women to run and increasing their chances of becoming the nominee when they do. In the second mechanism, women serving in the state legislature may decide they are suitably skilled and experienced to run for higher office, creating a pipeline of viable candidates willing to run and who have the required abilities to secure the nomination. To clarify the driving mechanism here, we include a further control for female candidate ‘quality’—defined as having previously held any prior elected office (Jacobson and Kernell 1981)—as a dichotomous variable constructed by the authors using data from Ballotpedia, Vote Smart, and biographies on candidate websites. If we are observing a pipeline effect, then we would expect that this variable is associated with women winning and running. If we are also seeing a ‘culture of representation’ effect, we should expect that the percentage of women in state legislatures will be associated with women winning primaries when controlling for candidate quality.

We include several additional controls in our models. Shames et al. (2017) find that women are more likely to run in districts with higher median incomes, with a higher percentage of people

living in urban areas, in more ‘compact’ districts, and in districts with a higher percentage of racial minorities (see also Palmer and Simon 2008). We therefore control for district median income using estimates from the U.S. Census Bureau’s American Community Survey (ACS). Our control for district urbanness comes from the CityLab project (Montgomery 2022) using fuzzy-c means clustered groups, ranging from pure rural (1) to pure urban (6). To control for district compactness, we include the total land area of the district and control for variation in the minority population by including the percentage of the voting-age population who are White, again taken from the ACS.

We recognize that women may face greater difficulty in raising money and be less likely to run in expensive races as a result (Crowder-Meyer and Cooperman 2018). We therefore control for the total campaign disbursement by all candidates in the primary, based on the sum of 12P primary reports filed with the Federal Election Commission (FEC).⁵ We also include a dummy variable for the chamber of Congress. Senate primaries are more expensive than House races and require broader support from across the party network, where parties may strategically support women candidates (Hassell and Visalvanich 2019) through focused recruitment and training (Sanbonmatsu 2015).⁶ Given that each candidate’s likelihood of becoming the nominee is conditioned by the size of the primary field, we control for the total number of candidates in the primary, and the number of candidates squared given that this relationship is unlikely to be linear.

Temporal Trends

In total, our dataset includes 3,330 contested primaries, of which 804 were won by women, 709 were won by men and featured a woman who lost, and 1,817 were all male. In Figure 1, we present the trends of numbers and percentages of women *running* in contested primaries by party and year. In Figure 2, we present the same trends of women *winning* contested primaries. Unsurprisingly, more Democratic primaries feature and are won by women. In terms of running for Congress, a clear uptick in the number of women running can be seen in the increasing numbers of contests that feature at least one female candidate during this period. This coincided with a comparative decline in all-male contests such that by the end of this period roughly two-thirds of Democratic and half of Republican primary fields featured at least one woman. Given that the number of contested primaries fluctuates each election cycle (Boatright 2014; Cowburn 2022), we also show the percentage of districts and contested primaries that featured at least one woman in the second panels of both figures. Both trends demonstrate a similar recent uptick that is more

⁵ Given that women are now outracing men in congressional general elections (Glavin 2018), we run our models with the exclusion of this control in the supplementary material.

⁶ Given the differences between the House and Senate we repeat our analyses on House races only in the supplementary material, all findings are unchanged.

prominent among Democrats. By 2020, more than twice as many districts featured at least one female primary candidate than they had done in 2006.

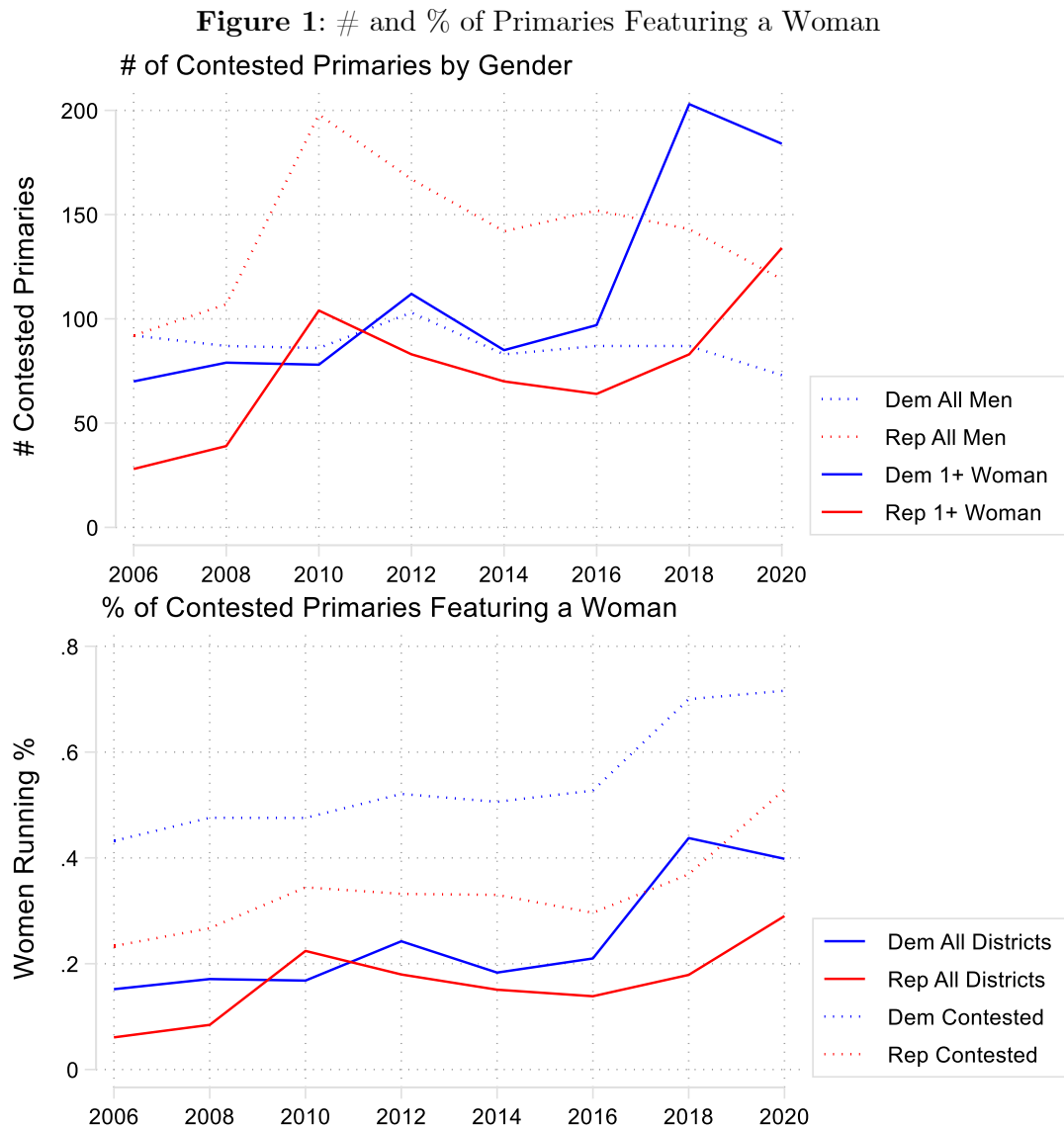
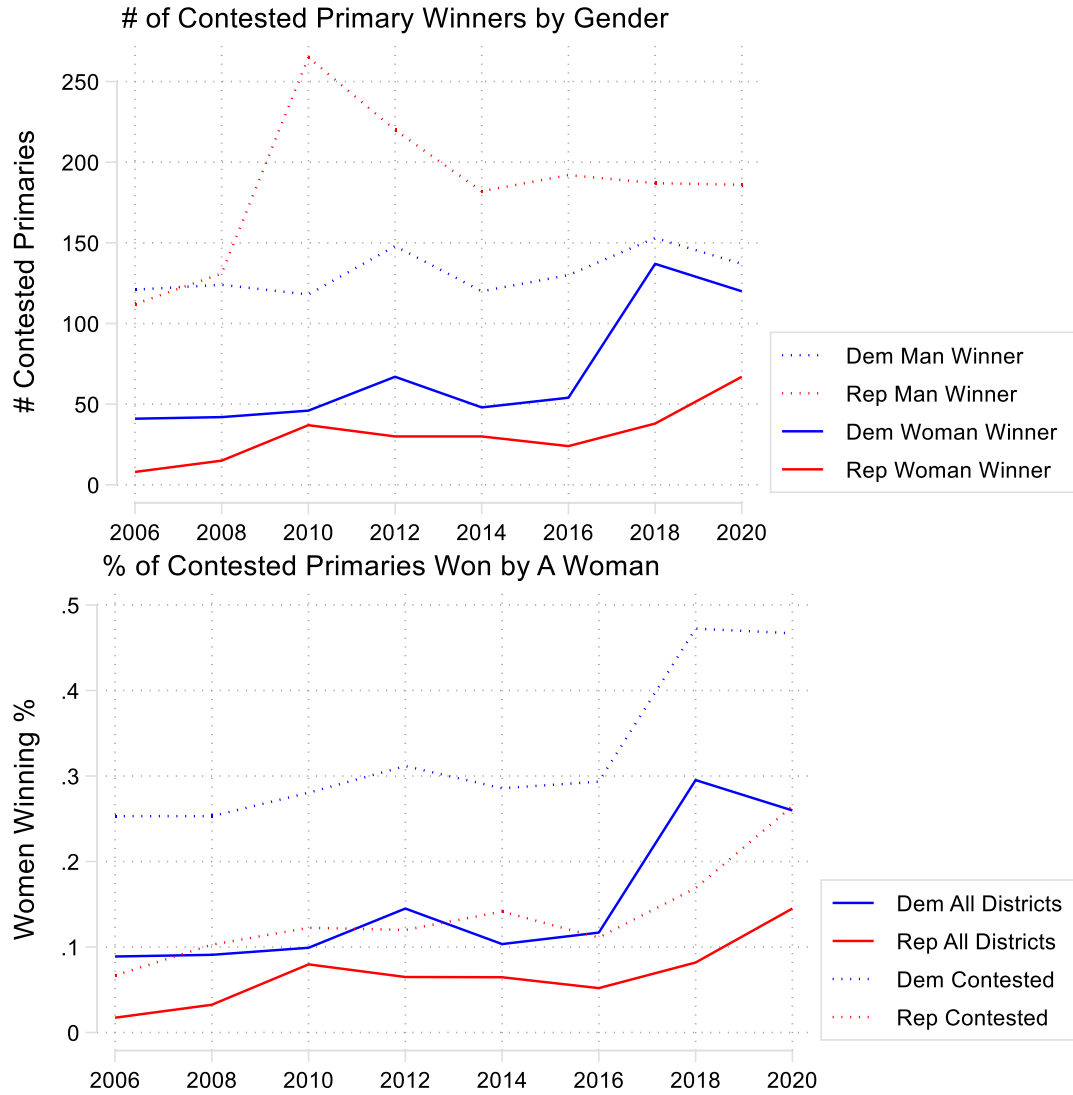


Figure 2 shows that greater numbers of women also won primaries toward the end of this period, though most congressional primary winners in both parties were still men. The gap between male and female primary winners noticeably declined in the Democratic Party from 2018, onwards with almost half of contested primaries being won by women in 2018 and 2020 (see also Thomsen 2021a). A smaller uptick in the number and rate of women winning Republican primaries was observed in these election cycles. The substantial increase in the number of contests featuring and being won by women in the past few elections—especially, but not exclusively, in the Democratic Party—further underscores the need for additional research about *recent* primary competition.

Figure 2: # and % of Contested Primary Winners by Gender



Analysis

Given that winning a primary is conditional on running, we use a two-stage Heckman selection model to eliminate bias from unobserved factors that influence both selection and outcome (Heckman 1979). Empirically, we perform a probit analysis on a selection equation to determine the likelihood of a woman *running* as the first stage. In the second stage, we use an outcome equation based on the first-stage binary probit model to determine the likelihood of a woman *winning*. In addition to the controls discussed above, we include year fixed effects given the temporal trends in our data and state fixed effects given the variation in the rules and organization of party primaries.⁷ We first show the partisan difference in Table 1, with Republican women less likely to run for office or earn the nomination in line with the descriptive data above. Given our interest in intra-party variation, we next run separate models for Democratic and Republican primaries.⁸

⁷ We include a series of robustness checks relating to these fixed effects in the supplementary information.

⁸ In the supplementary material we also run a combined model. The coefficient for party is—unsurprisingly—significant.

Table 1: Party Difference in Combined Model

	Running (1)	Winning (2)
Republican	-0.258*** (0.090)	-0.672*** (0.049)
Observations	3,330	3,330

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Model run with all variables in Table 2, full table in the supplementary material.

We present our full results in Table 2. In terms of district partisanship, our model indicates that Republican women were less likely to run in primaries in more conservative districts. This finding is likely the result of a combination of Republican women’s internalized beliefs about their primary voters’ views about their suitability for office, and a lack of effort by the party organization to encourage women to run in districts that are more favored for the party in November general elections. We observe no relationship between district partisanship and Democratic women’s likelihood to run in the first stage of our model. In the second stage, the relationship between Democratic women winning the primary and district partisanship is curvilinear. In other words, Democratic women are less favored in more competitive districts, potentially due to “strategic discrimination” by Democratic primary voters in these districts (Bateson 2020), or increased competitiveness (Barnes, Branton, and Cassese 2017). We expand on these results below.

Table 2: Heckman Two-Stage Selection Results

	Running (1)		Winning (2)	
	Democratic	Republican	Democratic	Republican
District PVI +/-	0.003 (0.006)	-0.015*** (0.005)	-0.004 (0.003)	-0.004 (0.005)
District PVI +/- ²	-0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)
Primary Type: Incumbent Primary	-0.207* (0.121)	0.031 (0.110)	-0.267*** (0.062)	-0.172** (0.068)
Primary Type: Open-Seat Primary	0.189* (0.110)	0.327*** (0.108)	-0.096* (0.049)	-0.022 (0.091)
% Women State Leg	0.000 (0.012)	0.000 (0.012)	-0.004 (0.005)	0.007 (0.007)
Quality Woman	-	-	0.153*** (0.034)	0.211*** (0.039)
District White %	-0.517 (0.391)	0.663* (0.396)	-0.113 (0.191)	0.023 (0.274)
Median Income (\$10,000s)	0.048 (0.030)	-0.015 (0.031)	0.021 (0.014)	-0.004 (0.018)
Total Spending (\$10,000s)	0.001 (0.001)	-0.001 (0.001)	-	-
Median Age	-0.007 (0.017)	-0.041** (0.017)	-0.000 (0.008)	-0.010 (0.014)
Urban Density	0.018 (0.023)	-0.029 (0.023)	0.003 (0.010)	-0.010 (0.014)
District Area	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Senate	-0.529*** (0.172)	-0.474*** (0.157)	0.118 (0.092)	0.105 (0.161)
Number of Candidates	0.398*** (0.060)	0.247*** (0.053)	-0.020 (0.047)	-0.061 (0.064)
Number of Candidates ²	-0.017*** (0.005)	-0.009** (0.004)	-0.000 (0.003)	0.003 (0.003)
Constant	-0.974 (0.656)	-0.321 (0.659)	0.520 (0.412)	0.440 (0.547)
Observations	1,606	1,724	1,606	1,724
State FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Primary Type Reference Category: Challenger Primary)

In terms of the type of primary, we see that Democratic women were somewhat less likely to run against incumbents and somewhat more likely to run in open-seat primaries (both $p<0.1$). Republican women were considerably more likely to run in open-seat primaries than in other types of primary. This finding suggests that women are strategic about their decision of where to run, aware that they will have a difficult task deposing a (usually male) incumbent in a primary, and perceive they have more chance of being elected to Congress when no incumbent from either party is present. It appears that Democratic women's calculation in incumbent races is well founded, with women especially unlikely to win incumbent primary contests in either party. Male

incumbents remain a key obstacle to women becoming the candidate in many districts. Discouragingly, female candidates, who are more likely to throw their hat in the ring in open-seat primaries, face a somewhat similar struggle to win these contests. Challenger primaries, which present the most difficult general election terrain, are the nomination contests women are most able to win. These results may indicate that female candidates receive a lack of formal institutional support from their party during the nomination. Open-seat primaries are also more competitive, and female candidates' comparative difficulties in these contests could also be the result of primary voters' perceptions either of women as not belonging in politics or that they are less able to win general elections.

Table 2 indicates no relationship at the aggregate level between women winning the nomination and the percentage of women in the state legislature in either party. We examine this finding at a more granular level below. Our models suggest clear evidence of a pipeline effect, with a substantively significant relationship between the presence of a quality female candidate and a woman winning the primary. Women who have held previous elected office are best placed to earn the congressional nomination in both parties, underscoring the importance of candidate pipelines (Thomsen and King 2020). Republican women were also less likely to run in a primary in districts whose population was older, a finding that aligns with the lower levels of candidate emergence in more conservative districts and is likely similarly motivated. In both parties, women were less likely to run for Senate than the House, though when they did run for Senate they were no more or less likely to be selected as the nominee.

Given the difficulties in interpreting outputs of Heckman models substantively—especially when quadratic terms are included—we also present the predicted probabilities of women winning primaries across values of our key variables. In these figures, all other variables are held at their mean or reference value used in Table 2.

Figure 3: Women Winning by District Partisanship

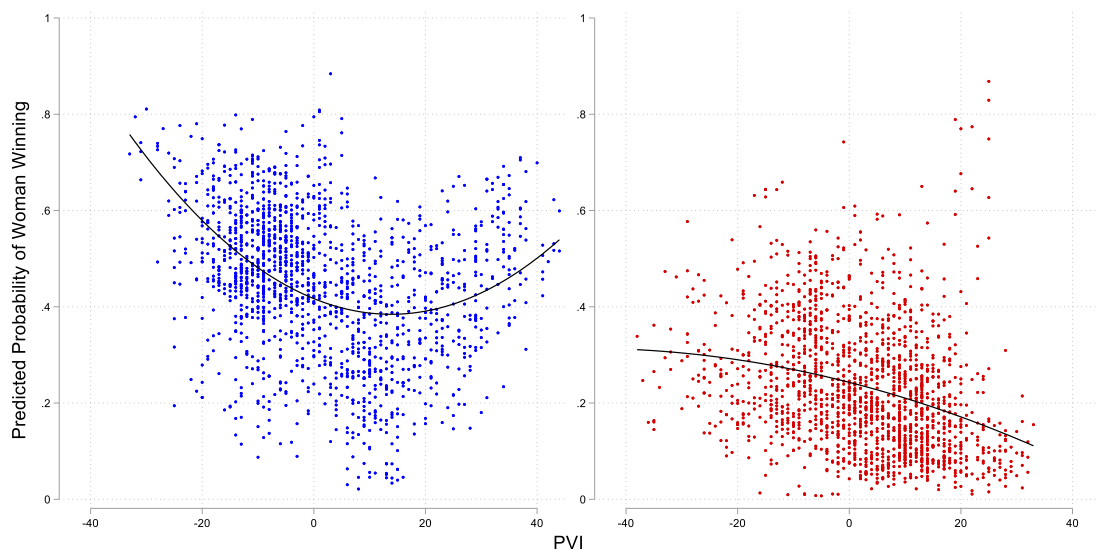
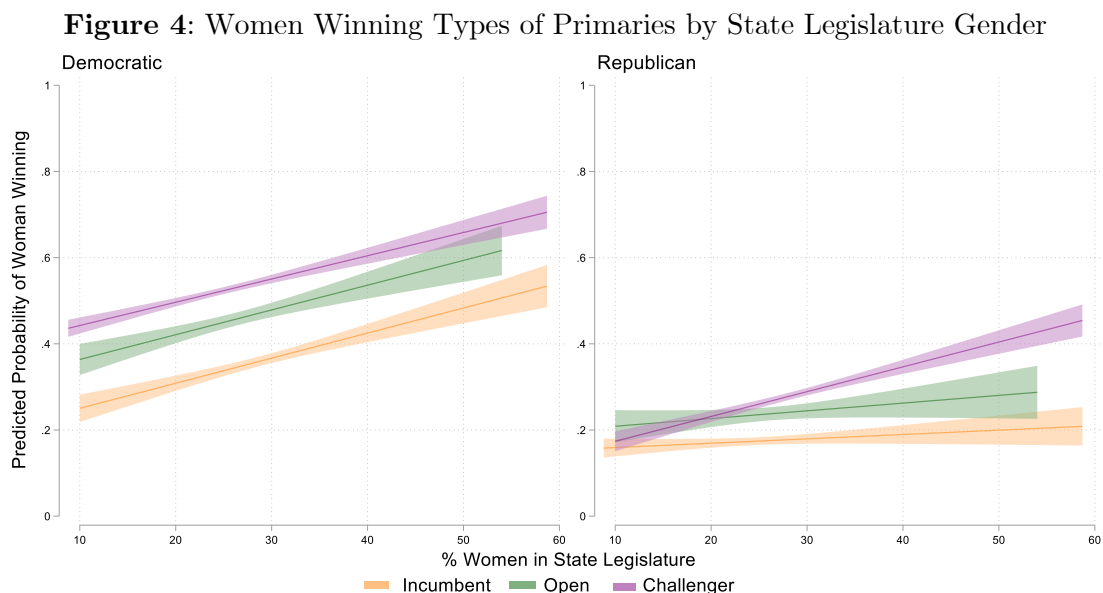


Figure 3 shows the predicted probability of women winning primary elections in each party across different values of district partisanship.⁹ These predicted values are derived from the model shown in Table 2 and therefore include variation both in rates of running and winning. At the inter-party level, we observe that women are more likely to win Democratic (left panel) than Republican (right panel) primaries across all levels of district partisanship. Women have a relatively high success rate in contested Democratic primaries across all districts, with an average predicted probability of winning that rarely drops below forty percent. This comparison indicates that the main partisan difference shown in Table 1 is not due to a subset of districts but holds regardless of district partisanship. Put simply, Republican women are comparatively unlikely to become their party’s nominee regardless of district partisanship.

At the intra-party level, we observe clear evidence of the quadratic relationship in Democratic primaries shown in the winning column of Table 2. Democratic women are most likely to earn the nomination in unwinnable districts that are safe for Republicans in general elections. In contrast, these candidates are comparatively less likely to win districts that are competitive or somewhat favored for the party in the November election (EVEN to D+20). In highly Democratic districts (D+20 or more), the predicted rates of success increase. For Republicans, the right-hand panel of Figure 3 demonstrates a negative relationship between district partisanship and the likelihood of a woman winning the primary. In other words, Republican women are least likely to win primaries in those districts that they stand the most chance of winning election to Congress in November. As shown in Table 2, this relationship is connected to candidate emergence, with a substantively significant negative relationship in the first stage of the model and no significance in the second stage. In the most conservative districts, Republican women have only a one-in-ten likelihood of winning their party’s primary.



⁹ Given the inclusion of the squared term in the Heckman model, we use quadratic lines of best fit.

Though on aggregate we report null findings for the percentage of women in the state legislature at both stages of our main model in Table 2, we also recognize the potential for heterogeneity based on the type of primary. Rather than presenting an interacted model,¹⁰ we instead demonstrate the predicted probabilities conditional on primary type in Figure 4 to reveal relationships between the descriptive representation of women at the state and federal level in some primaries. Most obviously, we observe that Democratic women are more likely to win each type of primary in states with a higher percentage of women in the legislature. Each additional ten percentage point increase in representation at the state level is associated with an almost five percent increased probability that a Democratic woman will win a primary. Among Republicans, a similar relationship is present in challenger primaries *only*, with no association in open-seat or incumbent primaries. We run a further model with the addition of interaction terms between primary type and the percentage of women in the state legislature in the supplementary material; these results suggest that the relationships observed here are primarily connected to variation in the rates of women running. That this relationship is present even with the inclusion of a ‘quality’ control suggests a culture of representation rather than a purely pipeline effect in these cases. The clear partisan asymmetry is once again visible here, with higher predicted probabilities of Democratic women winning across all levels of state representation.

Discussion

The primary purpose of this analysis was to leverage data from the last sixteen years of congressional primaries to examine the spatial conditions under which women become candidates for Congress. Our results suggest that there are hurdles for women in both parties and help explain why Democrats are electing more women to Congress than Republicans.

These analyses suggest that the stereotype that women are more liberal may have implications for primary outcomes for Democrats and Republicans. In Democratic primaries, women may be less likely to emerge as the winner in competitive districts because they are less likely to be perceived as ‘electable’ or moderate enough to win the general election. In Republican primaries, women may be less likely to run in highly conservative districts out of concern that they will be perceived as out-of-step with the views of the district. On the Republican side, although there are high-profile women who are more moderate (such as Senators Susan Collins of Maine and Lisa Murkowski of Alaska), one potential way for women in the GOP to neutralize perceptions that they are not conservative enough is to be especially outspoken on bread and butter conservative issues like gun rights, such as Representatives Marjorie Taylor Greene of Georgia and Lauren Boebert of Colorado (see also Wineinger 2022).

¹⁰ See supplementary material for interacted model coefficients. Predicted probabilities in Figure 4 are based on the non-interacted model shown in Table 2.

Our results also indicate that though both Democratic and Republican women are more likely to run in open-seat primaries, they are no more likely to *win* open-seat primaries. This finding points to the importance of demand side factors when understanding women’s underrepresentation. Although getting women to run is half the battle, voters must also support them (Fulton and Dhima 2021). That said, Democratic women do perform better in open-seat primaries in states with more women to their state legislatures, as shown in Figure 4.

We interpret these findings as evidence that a ‘culture of representation’ among groups active during the nomination and primary voters is important for electing Democratic and Republican women. When states have higher numbers of women in the state legislature it is likely that women feel emboldened to run for higher office and voters are less likely to question their suitability based solely on their gender. This effect is not limited to those women who have previously served in public office (i.e., “quality” candidates), but also extends to women who have not previously been elected.

Our data do not allow for a direct observation of the role of party gatekeepers or the party elite on where women win. But the difference in the sheer volume of Democratic and Republican women running and winning suggests that Democratic women are being given more encouragement to run and are receiving more support when they do so than their Republican counterparts (see also Crowder-Meyer and Cooperman 2018).

Conclusion

This paper explored the spatial conditions under which women run for, and are successful in becoming, their party’s nominee for congressional office. That women remain substantively and comparatively underrepresented in the national legislative branch has been attributed to a variety of systemic barriers to women, of which the nomination process forms but one. Our findings shed light on the conditions under which female candidates are more likely to emerge and win contested primaries. Across all types of districts, a clear and persistent partisan asymmetry exists, with Republican women less likely to run for office and less successful in advancing to the general election when they do. Republican primary voters’ (perceived) beliefs about the viability of female candidates are likely one contributing factor to the trend. We also present clear evidence that Republican women are less inclined to run in conservative districts, the places that are most likely to elect a Republican in November. Among Democrats, women are, broadly speaking, better able to become the party nominee. Yet, we also demonstrate the difficulty Democratic women have in winning primaries in competitive and somewhat favored general election districts. We suggest that this pattern is connected to gendered notions of ‘electability’ among Democratic primary voters, with women viewed as a greater general election risk.

Our results also illuminate one of the major barriers to the increased descriptive representation of women in Congress: the (male) incumbency advantage. Women are both less likely to run and ill-able to win in incumbent primary contests, instead strategically targeting open seats to improve their chances of success. Despite this concerted effort, women are no better able to win primaries in open-seat districts. One potential remedy to this problem is to focus on increased rates of representation at the state level. Democratic women are better able to win incumbent, challenger, and open-seat primaries regardless of their prior experience in states with higher levels of female representation suggesting that curating a culture of representation, where women’s place in politics is more accepted, is likely crucial in eliminating the gendered effect of the congressional nomination process. Among Republicans, this relationship was present in challenger races only, likely concentrated in Democratic-leaning states.

The effect of the nomination process has likely become more important, with primaries more commonly contested in recent years (Cowburn 2022), potentially serving as an increasingly formidable barrier to women’s descriptive representation in Congress. At the same time, congressional districts have become increasingly safe for one party (Cook Political Report 2017), making primary elections more important in determining who reaches Capitol Hill. That congressional elections have been consistently close in recent years likely means primary voters put increased weight on concerns about ‘electability’ during the selection process. As indicated by other research (Bateson 2020), this emphasis is unlikely to help women.

Gender issues arising from primaries are not easily resolved. It is comparatively difficult for U.S. parties to formally implement pro-women policies during the candidate selection phase of the election cycle in ways that are possible in other democracies. Though parties hold powers that help them control nominations behind the scenes (Cohen et al. 2008; Hassell 2018), implementing formal reforms such as the British Labour Party’s all-women shortlists, or a ‘zipper system’ mandating alternating positions for men and women in list systems in countries such as France, are simply not available options for U.S. parties who wish to increase the number of women in Congress. Indeed, the relative openness and inclusivity of the candidate nomination system (Cowburn and Kerr 2023) appears one reason the U.S. lags behind comparable advanced democracies in the descriptive representation of women in the legislature.

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Supplementary Information

Below we present the descriptive statistics of our key variables as well as a series of robustness checks to demonstrate that our findings are not an artifact of our research design.

Descriptive Statistics

Table A.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Skew.	Kurt.
Woman Running	3330	.454	.498	0	1	.183	1.034
Woman Winning	3330	.241	.428	0	1	1.208	2.46
Republican	3330	.518	.5	0	1	-.071	1.005
Relative PVI	3330	2	14.107	-38	44	.207	2.734
Incumbent Primary	3330	.384	.487	0	1	.475	1.226
Open-Seat Primary	3330	.171	.377	0	1	1.743	4.039
Quality Woman	3330	.21	.408	0	1	1.422	3.023
% Women State Leg	3330	26.439	7.368	8.8	58.7	.423	3.808
District White %	3330	.676	.211	.024	.97	-.872	2.973
Median Income (\$10,000s)	3330	5.869	1.603	2.846	13.997	1.233	4.985
Total Spending (\$10,000s)	3330	27.798	69.484	0	1180.388	7.992	94.034
Median Age	3330	37.922	3.295	26	55.6	.221	4.04
Urban Density	3330	3.393	1.627	1	6	-.089	1.793
District Area	3330	17633	54587	10.25	572000	7.768	75.073
Senate	3330	.111	.314	0	1	2.48	7.149
Number of Candidates	3330	3.245	1.956	2	19	2.694	13.187

Robustness Checks

Table A.2: Combined Model

	Running (1)	Winning (2)
Republican	-0.672*** (0.049)	-0.258*** (0.090)
District PVI +/-	0.001 (0.003)	0.000 (0.001)
District PVI +/- ²	-0.000 (0.000)	0.000** (0.000)
Primary Type: Incumbent Primary	-0.134* (0.076)	-0.260*** (0.047)
Primary Type: Open-Seat Primary	0.193*** (0.074)	-0.083** (0.041)
% Women State Leg	0.002 (0.009)	0.002 (0.004)
Quality Woman	-	0.184*** (0.026)
District White %	-0.287 (0.218)	-0.002 (0.121)
Median Income (\$10,000s)	0.025 (0.021)	0.013 (0.011)
Total Spending (\$10,000s)	0.000 (0.000)	-
Median Age	-0.023* (0.012)	-0.004 (0.007)
Urban Density	-0.002 (0.016)	-0.001 (0.008)
District Area	0.000 (0.000)	0.000 (0.000)
Senate	-0.463*** (0.110)	0.056 (0.083)
Number of Candidates	0.300*** (0.038)	-0.044 (0.040)
Number of Candidates ²	-0.012*** (0.003)	0.002 (0.002)
Constant	-0.202 (0.456)	0.584* (0.313)
Observations	3,330	3,330
State FE	✓	✓
Year FE	✓	✓

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Primary Type Reference Category: Challenger Primary)

Table A.3: No State or Year Fixed Effects

	Running (1)		Winning (2)	
	Democratic	Republican	Democratic	Republican
District PVI +/-	-0.001 (0.004)	-0.004 (0.004)	-0.003 (0.002)	-0.000 (0.003)
District PVI +/- ²	0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)
Primary Type: Incumbent Primary	-0.239** (0.108)	-0.103 (0.100)	-0.242*** (0.068)	-0.067 (0.096)
Primary Type: Open Primary	0.209** (0.103)	0.253** (0.101)	-0.145*** (0.054)	-0.144 (0.136)
% Women State Leg	0.021*** (0.005)	0.017*** (0.005)	0.004 (0.004)	-0.000 (0.009)
Quality Woman	-	-	0.161*** (0.034)	0.212*** (0.040)
District White %	-0.533** (0.235)	0.097 (0.227)	0.074 (0.141)	0.026 (0.162)
Median Income (\$10,000s)	0.051** (0.023)	-0.015 (0.023)	-0.008 (0.014)	-0.011 (0.017)
Total Spending (\$10,000s)	0.001 (0.001)	-0.001 (0.001)	-	-
Median Age	0.000 (0.013)	-0.015 (0.012)	0.002 (0.006)	0.010 (0.012)
Urban Density	0.022 (0.021)	-0.023 (0.020)	0.007 (0.010)	-0.008 (0.018)
District Area	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Senate	-0.346*** (0.128)	-0.389*** (0.124)	0.152* (0.078)	0.304 (0.251)
Number of Candidates	0.385*** (0.055)	0.208*** (0.049)	-0.080 (0.067)	-0.149 (0.117)
Number of Candidates ²	-0.019*** (0.005)	-0.006* (0.004)	0.002 (0.004)	0.007 (0.004)
Constant	-1.292*** (0.455)	-0.702* (0.427)	0.738 (0.502)	0.940 (1.044)
Observations	1,606	1,724	1,606	1,724

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Primary Type Reference Category: Challenger Primary)

Table A.4: Addition of First-Stage District Fixed Effects¹¹

	Running (1)		Winning (2)	
	Democratic	Republican	Democratic	Republican
District PVI +/-	0.003 (0.006)	-0.015*** (0.005)	-0.004 (0.003)	-0.004 (0.005)
District PVI +/- ²	-0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)
Primary Type: Incumbent Primary	-0.207* (0.121)	0.031 (0.110)	-0.267*** (0.062)	-0.172** (0.068)
Primary Type: Open-Seat Primary	0.189* (0.110)	0.327*** (0.108)	-0.096* (0.049)	-0.022 (0.091)
% Women State Leg	0.000 (0.012)	0.000 (0.012)	-0.004 (0.005)	0.007 (0.007)
Quality Woman	-	-	0.153*** (0.034)	0.211*** (0.039)
District White %	-0.517 (0.391)	0.663* (0.396)	-0.113 (0.191)	0.023 (0.274)
Median Income (\$10,000s)	0.048 (0.030)	-0.015 (0.031)	0.021 (0.014)	-0.004 (0.018)
Total Spending (\$10,000s)	0.001 (0.001)	-0.001 (0.001)	-	-
Median Age	-0.007 (0.017)	-0.041** (0.017)	-0.000 (0.008)	-0.010 (0.014)
Urban Density	0.018 (0.023)	-0.029 (0.023)	0.003 (0.010)	-0.010 (0.014)
District Area	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Senate	-0.529*** (0.172)	-0.474*** (0.157)	0.118 (0.092)	0.105 (0.161)
Number of Candidates	0.398*** (0.060)	0.247*** (0.053)	-0.020 (0.047)	-0.061 (0.064)
Number of Candidates ²	-0.017*** (0.005)	-0.009** (0.004)	-0.000 (0.003)	0.003 (0.003)
Constant	-0.974 (0.656)	-0.321 (0.659)	0.520 (0.412)	0.440 (0.547)
Observations	1,606	1,724	1,606	1,724
District FE	✓	✓		
State FE			✓	✓
Year FE	✓	✓	✓	✓

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Primary Type Reference Category: Challenger Primary)

¹¹ Model fails to converge if district fixed effects are included at the second stage.

Table A.5: Year Fixed Effects Only

	Running (1)		Winning (2)	
	Democratic	Republican	Democratic	Republican
District PVI +/-	0.006 (0.004)	-0.008* (0.004)	-0.001 (0.002)	-0.002 (0.004)
District PVI +/- ²	-0.000 (0.000)	-0.000* (0.000)	0.000*** (0.000)	-0.000 (0.000)
Primary Type: Incumbent Primary	-0.320*** (0.110)	-0.040 (0.103)	-0.324*** (0.073)	-0.081 (0.070)
Primary Type: Open Primary	0.215** (0.104)	0.312*** (0.103)	-0.117** (0.052)	-0.091 (0.117)
% Women State Leg	0.008 (0.006)	0.006 (0.005)	0.004 (0.003)	0.001 (0.004)
Quality Woman	-	-	0.175*** (0.034)	0.219*** (0.040)
District White %	-0.465* (0.239)	0.192 (0.233)	-0.003 (0.129)	0.073 (0.159)
Median Income (\$10,000s)	0.031 (0.023)	-0.035 (0.023)	-0.000 (0.011)	-0.021 (0.020)
Total Spending (\$10,000s)	0.001 (0.001)	-0.001 (0.001)	-	-
Median Age	-0.010 (0.013)	-0.024* (0.012)	-0.001 (0.006)	0.005 (0.012)
Urban Density	0.030 (0.021)	-0.023 (0.020)	0.012 (0.010)	-0.012 (0.014)
District Area	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Senate	-0.320** (0.129)	-0.399*** (0.125)	0.107 (0.072)	0.209 (0.183)
Number of Candidates	0.364*** (0.057)	0.213*** (0.049)	-0.020 (0.057)	-0.106 (0.083)
Number of Candidates ²	-0.018*** (0.005)	-0.007* (0.004)	-0.001 (0.003)	0.005 (0.003)
Constant	-0.716 (0.478)	-0.384 (0.456)	0.427 (0.398)	0.602 (0.668)
Observations	1,606	1,724	1,606	1,724
Year FE	✓	✓	✓	✓

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Primary Type Reference Category: Challenger Primary)

Table A.6: House Primaries Only

	Running (1)		Winning (2)	
	Democratic	Republican	Democratic	Republican
District PVI +/-	0.005 (0.006)	-0.016*** (0.006)	-0.001 (0.003)	-0.002 (0.004)
District PVI +/- ²	0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)
Primary Type: Incumbent Primary	-0.307** (0.134)	0.036 (0.120)	-0.362*** (0.069)	-0.191*** (0.069)
Primary Type: Open-Seat Primary	0.118 (0.120)	0.203* (0.121)	-0.110** (0.051)	-0.063 (0.068)
% Women State Leg	-0.005 (0.014)	-0.001 (0.014)	-0.005 (0.006)	0.006 (0.007)
Quality Woman	-	-	0.132*** (0.036)	0.195*** (0.040)
District White %	-0.322 (0.408)	0.707* (0.421)	-0.053 (0.192)	0.011 (0.272)
Median Income (\$10,000s)	0.039 (0.032)	-0.031 (0.033)	0.023 (0.014)	-0.003 (0.019)
Total Spending (\$10,000s)	0.002* (0.001)	-0.000 (0.001)	-	-
Median Age	-0.008 (0.018)	-0.039** (0.017)	-0.002 (0.008)	-0.006 (0.012)
Urban Density	0.012 (0.023)	-0.027 (0.023)	0.002 (0.011)	-0.009 (0.013)
District Area	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Number of Candidates	0.364*** (0.139)	0.303*** (0.063)	-0.033 (0.044)	-0.077 (0.067)
Number of Candidates ²	-0.009 (0.018)	-0.009* (0.005)	0.000 (0.003)	0.004 (0.003)
Constant	-0.968 (0.707)	-0.354 (0.683)	0.561 (0.401)	0.556 (0.501)
Observations	1,436	1,525	1,436	1,525
State FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Primary Type Reference Category: Challenger Primary)

Table A.7: Interaction Terms from Extended Heckman Model

	Running (1)		Winning (2)	
	Democratic	Republican	Democratic	Republican
% Women State Leg	0.014* (0.007)	0.017** (0.008)	0.001 (0.004)	0.000 (0.007)
% Women State Leg # Incumbent	-0.022** (0.010)	-0.028*** (0.011)	0.004 (0.006)	-0.001 (0.012)
% Women State Leg # Open	0.017 (0.015)	0.004 (0.013)	0.010* (0.006)	-0.000 (0.006)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Baseline Category = Challenger Primary

Model includes Year fixed effects only

Table A.8: Exclusion of Campaign Finance Control

	Running (1)		Winning (2)	
	Democratic	Republican	Democratic	Republican
District PVI +/-	0.004 (0.006)	-0.015*** (0.005)	-0.004 (0.003)	0.000 (0.005)
District PVI +/- ²	-0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)
Primary Type: Incumbent Primary	-0.204* (0.121)	0.029 (0.110)	-0.272*** (0.063)	-0.171*** (0.066)
Primary Type: Open Primary	0.199* (0.110)	0.306*** (0.107)	-0.092* (0.050)	-0.099 (0.095)
% Women State Leg	0.000 (0.012)	0.000 (0.012)	-0.004 (0.005)	0.007 (0.006)
Quality Woman	-	-	0.152*** (0.035)	0.211*** (0.039)
District White %	-0.518 (0.390)	0.633 (0.395)	-0.126 (0.195)	-0.149 (0.282)
Median Income (\$10,000s)	0.049 (0.030)	-0.017 (0.031)	0.022 (0.014)	0.002 (0.018)
Median Age	-0.007 (0.017)	-0.040** (0.017)	-0.001 (0.008)	0.001 (0.014)
Urban Density	0.018 (0.023)	-0.028 (0.023)	0.003 (0.011)	-0.003 (0.014)
District Area	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)
Senate	-0.470*** (0.165)	-0.524*** (0.152)	0.110 (0.094)	0.250 (0.176)
Number of Candidates	0.403*** (0.060)	0.243*** (0.053)	-0.011 (0.049)	-0.124* (0.070)
Number of Candidates ²	-0.017*** (0.005)	-0.008** (0.004)	-0.001 (0.003)	0.006** (0.003)
Constant	-0.976 (0.656)	-0.336 (0.658)	0.464 (0.423)	0.871 (0.583)
Observations	1,606	1,724	1,606	1,724
State FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Primary Type Reference Category: Challenger Primary)

Table A.9: Removal of Top-Two Primaries

	Running (1)		Winning (2)	
	Democratic	Republican	Democratic	Republican
District PVI +/-	0.007 (0.006)	-0.016*** (0.006)	-0.003 (0.003)	-0.004 (0.005)
District PVI +/- ²	-0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)
Primary Type: Incumbent Primary	-0.201 (0.131)	-0.003 (0.117)	-0.308*** (0.067)	-0.194** (0.076)
Primary Type: Open-Seat Primary	0.182 (0.115)	0.390*** (0.114)	-0.092* (0.051)	0.062 (0.110)
% Women State Leg	-0.012 (0.013)	-0.003 (0.013)	-0.007 (0.006)	0.006 (0.007)
Quality Woman	-	-	0.121*** (0.037)	0.207*** (0.041)
District White %	-0.329 (0.443)	0.743* (0.431)	-0.109 (0.215)	0.051 (0.312)
Median Income (\$10,000s)	0.073** (0.037)	-0.002 (0.036)	0.011 (0.017)	-0.004 (0.021)
Total Spending (\$10,000s)	0.001 (0.001)	-0.001 (0.001)	-	-
Median Age	-0.010 (0.019)	-0.052*** (0.018)	-0.003 (0.009)	-0.026 (0.017)
Urban Density	-0.004 (0.026)	-0.038 (0.025)	-0.009 (0.012)	-0.031* (0.018)
District Area	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Senate	-0.553*** (0.175)	-0.485*** (0.159)	0.085 (0.097)	0.071 (0.170)
Number of Candidates	0.375*** (0.063)	0.248*** (0.056)	-0.012 (0.046)	-0.037 (0.066)
Number of Candidates ²	-0.016*** (0.005)	-0.009** (0.004)	-0.001 (0.003)	0.002 (0.003)
Constant	-0.805 (0.755)	0.043 (0.723)	0.702 (0.431)	0.773 (0.539)
Observations	1,412	1,560	1,412	1,560
State FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Primary Type Reference Category: Challenger Primary)